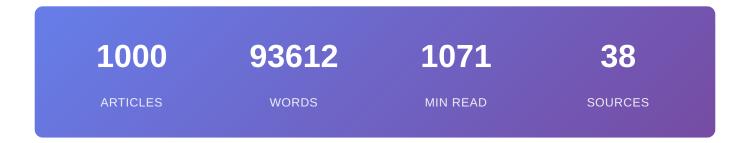


## Daily Briefing - October 12, 2025

Your Daily Tech & Programming Digest

Sunday, October 12, 2025



**Today's Top Stories** 

## **Retrieving Planned Sample Sizes from AsPredicted Preregistrations**









TWENTY PERCENT STATISTICIAN

Summary: &<u>

http://daniellakens.blogspot.com/2025/06/retrieving-planned-sample-sizes-from.html

## Are meta-scientists ignoring philosophy of science?

noreply@blogger.com (Daniel Lakens)

TWENTY PERCENT STATISTICIAN

**Summary:** Are meta-scientists ignoring philosophy of science (PoS)? Are they reinventing the wheel? <a href="https://nomadit.co.uk/conference/metascience2025/p/17038">A recent panel at the Metascience conference</a> engaged with this question, and the first sentence of the abstract states "Critics argue t...

http://daniellakens.blogspot.com/2025/07/are-meta-scientists-ignoring-philosophy.html

# Easily download files from the Open Science Framework with Papercheck

noreply@blogger.com (Daniel Lakens)

3 765 min words

TWENTY PERCENT STATISTICIAN

**Summary:** Researchers increasingly use the <a href="https://osf.io/">Open Science Framework</a> (OSF) to share files, such as data and code underlying scientific publications, or presentations and materials for scientific workshops. The OSF is an amazing service that has contributed immensely to a changed ...

http://daniellakens.blogspot.com/2025/07/easily-download-files-from-open-science.html

## Applications now being accepted for UC-Davis/SDSU ERP Boot Camp, July 31 – August 9, 2023



Steve 1 108
Luck 1 words



**Summary:** The next 10-day ERP Boot Camp will be held July 31 – August 9, 2023 in San Diego, California. We are now taking applications, which will be due by April 1, 2023. <a href="https://erpinfo.org/summer-boot-camp">Click here</a> for more information.We are currently planning t...

#### 

https://erpinfo.org/blog/2021/12/22/applications-2023

## **ERP Decoding for Everyone: Software and Webinar**



2 420 min words





ERP BOOT CAMP

Summary: <strong>You can access the recording </strong><a href="https://" video.ucdavis.edu/media/

Virtual+ERP+Boot+CampA+Decoding+for+Everyone%2C+July+25+2023/1\_lmwj6bu0"><strong>l strong></a><strong>.<br/>br />You can access the final PDF of the slides </strong><a href="https://ucdavis.box.com/s/f...



https://erpinfo.org/blog/2023/6/23/decoding-webinar

## **New Papers: Optimal Filter Settings for ERP Research**

Steve 2 568
Luck min words



ERP BOOT CAMP

Summary: Zhang, G., Garrett, D. R., & D. R., & Luck, S. J. (in press). Optimal filters for ERP research I: A general approach for selecting filter settings. <em>Psychophysiology. <a href="https://doi.org/10.1111/psyp.14531"><span>https:// doi.org/10.1111/psyp.14531</span></a> [<a href="https://www...

https://erpinfo.org/blog/2024/2/4/optimal-filters

## Optical coherence tomography angiography findings in patients with sudden sensorineural hearing loss

1 0 NATURE NEUROSCIENCE SUBJECTS words



https://www.nature.com/articles/s41598-025-19255-5

## This Week in The Journal







McKeon,
P. 2025-10-08 min o Journal Neuroscience This week

http://www.jneurosci.org/cgi/content/short/45/41/etwij45412025?rss=1

## **BoNT Injection into Temporomandibular Joint Alleviates TMJ Pain in Forced Mouth Opening Mouse Model**

Kim, E., Son, H., Zhang, Y., Shannonhouse, J., Gomez, R., Lee, J., Han, D., Park, J. T., Kim, S. T., Amarista, F., Perez, D., Ellis, E., Kim, Y. S.

1 223 min words

JOURNAL NEUROSCIENCE CURRENT

Summary: Temporomandibular disorder (TMD) significantly impairs the quality of life of patients due to chronic pain and limited jaw function. Many treatment options have been used such as pharmacologic management, physical therapy, oral appliance therapy, and surgery. However, effective treatment options ...

**Read full article:** 

http://www.jneurosci.org/cgi/content/short/45/41/e2035242025?rss=1

## **Maturation of Neuronal Activity in the Human Cortex Exhibits Robust Spatial Gradients across the Birth Transition**



1 2025-10-08 min

JOURNAL NEUROSCIENCE CURRENT

Summary: Early structural and molecular development of the human cortex is extensively studied, but little is known about the development of neuronal activity across cortical regions. We used dense array electroencephalography recordings and a machine learning-based measure, functional brain age (FBA), to...

**⊗** Read full article:

http://www.jneurosci.org/cgi/content/short/45/41/e0610252025?rss=1

## The Time Course of Phonological Encoding: Insights from Time-Resolved MVPA

Li Calzi, G., Meyer, A. S., van der Burght, C.

L.

1
2025-10-08 min

195
words

JOURNAL NEUROSCIENCE CURRENT

**Summary:** To produce a word, speakers need to decide which concept to express, select an appropriate item from the mental lexicon, and spell out its phonological form. The temporal dynamics of these processes remain a subject of debate. We investigated the time course of lexical access in picture naming wi...

http://www.jneurosci.org/cgi/content/short/45/41/e0546252025?rss=1

# **Epigenetic Repression of miR-216a-3p via H3K27me3 Drives STIM1-Mediated Neuronal Excitability in Neuropathic Pain**



http://www.jneurosci.org/cgi/content/short/45/41/e0378252025?rss=1

## Dissociable Neural Connectome Mapping of Reward and **Punishment Responsiveness in Young Adults: Associations** with Genetic Variability and Neurotransmitter Profiles

Xu, T., Zhu, C., Zhou, X., Chen, Z., Gan, X., Cui, X., Zhou, F., Zhang, R., Zhao, W., Zhang, X., Chen, H., He, O., Lei, X., Oiu, J., Feng, T.

1 2025-10-08 min 228

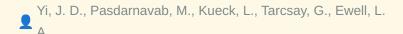
JOURNAL NEUROSCIENCE CURRENT

**Summary:** While the hyper- and hypo-reward or punishment sensitivities (RS, PS) have received considerable attention as prominent transdiagnostic features of psychopathology, the lack of an overarching neurobiological characterization currently limits their early identification and neuromodulation. Here we...

#### **Read full article:**

http://www.jneurosci.org/cgi/content/short/45/41/e0195252025?rss=1

## Behavioral Timing of Interictal Spikes, But Not Rate, **Correlates with Impaired Working Memory Performance**



1 163 min words

JOURNAL NEUROSCIENCE CURRENT

**Summary:** In temporal lobe epilepsy, interictal spikes (IS)—hyper-synchronous bursts of network activity—occur at high rates in between seizures. We sought to understand the influence of IS on working memory by recording hippocampal local field potentials from male epileptic mice while they per...

#### 

http://www.jneurosci.org/cgi/content/short/45/41/e0193252025?rss=1

## Cholinergic Dynamics in the Septo-hippocampal System Provide Phasic Multiplexed Signals for Spatial Novelty and Correlate with Behavioral States

Moghadam, F. F., Gutierrez-Guzman, B. E., Zheng, X., Parsa, M., Hozyen, L. M., Dannenberg, H.



**Summary:** In the hippocampal formation, cholinergic modulation from the medial septum/diagonal band of Broca is known to correlate with the speed of an animal's movements at subsecond timescales and also supports spatial memory formation. Yet, the extent to which subsecond cholinergic dynamics, if at all, ...

**⊗** Read full article:

http://www.jneurosci.org/cgi/content/short/45/41/e0133252025?rss=1

## **Beyond Divisive Normalization: Scalable Feedforward Networks for Multisensory Integration Across Reference Frames**

1 2025-10-08 min 228 words Farahmandi, A., Abedi Khoozani, P., Blohm,

JOURNAL NEUROSCIENCE CURRENT

**Summary:** The integration of multiple sensory inputs is essential for human perception and action in uncertain environments. This process includes reference frame transformations as different sensory signals are encoded in different coordinate systems. Studies have shown multisensory integration (MSI) in h...

http://www.jneurosci.org/cgi/content/short/45/41/e0104252025?rss=1





1 0 min words



JOURNAL NEUROSCIENCE CURRENT

http://www.jneurosci.org/cgi/content/short/45/41/etwij45412025?rss=1

## The Development of Neural Inhibition across Species: **Insights from the Hurst Exponent**

Nishio, M., Ellwood-Lowe, M. E., Woodburn, M., McDermott, C. L., Park, A. T., Tooley, U. A., Boroshok, A. L., Grandjean, J., Mackey, A. P.

1 131 min words

JOURNAL NEUROSCIENCE CURRENT

**Summary:** The maturation of inhibitory neurons is crucial for regulating plasticity in developing brains. Previous work has suggested that the Hurst exponent, the measure of autocorrelation in time series, reflects inhibition, but empirical data supporting this link are sparse. Here, we demonstrate signifi...

**Read full article:** 

http://www.jneurosci.org/cgi/content/short/45/41/e0025252025?rss=1

## The impact of CSF-filled cavities on scalp EEG and its **implications**







OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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## Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research

Julius .

1 72 2024-07-02 min words OOSTENVELD ROBERT

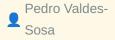
Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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## One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

## 

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## Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity

Richard J A van

1 65 min words

OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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## The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J Gorgolewski 1 82 min words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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## Human cortical high-gamma power scales with movement rate in healthy participants and stroke survivors

Fanny Quandt

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

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## NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**



1 70 min words

OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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## Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>



Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert



Summary: For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

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## Cycling on the Freeway: The perilous state of open-source neuroscience software



1 74 min words





OOSTENVELD ROBERT

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

#### Read full article:

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## Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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## Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics









LOW VISION

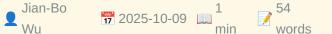
Summary: Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

#### Read full article:

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## Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation









LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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# Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

#### **⊗** Read full article:

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## Multi-interactive feature embedding learning for medical image segmentation



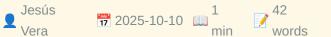
**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

#### Read full article:

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## Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







LOW VISION

Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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## Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study





Summary: CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

#### **⊗** Read full article:

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## Ocular Hypertension and Glaucoma After Pars Plana **Vitrectomy: A Systematic Review and Meta-analysis**



1 43 words





LOW VISION

Summary: CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

#### Read full article:

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# Computer vision-based laser communication system for robust optical beam tracking and alignment



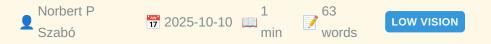
**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

#### Read full article:

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## **Quantifying Effects Of Lifestyle Changes On Progression To Advanced Age-Related Macular Degeneration In High Genetic Risk Individuals**







LOW VISION

Summary: CONCLUSION: Unhealthy behaviors increased incidence of AAMD by 3 to 5fold among a highly genetically susceptible population, and 56-60% of AAMD incidence was attributed to modifiable factors: smoking, high BMI, high caloric intake and low intake of foods rich in lutein-zeaxanthin and omega-3 fatty ...

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## The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

#### **⊗** Read full article:

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## **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40526544/?

## Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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## Directional vibro-tactile hazard warnings for drivers with vision impairments



Alex R

Bowers

1

80

min

words

TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

## Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

#### **⊗** Read full article:

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## Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

#### 

https://pubmed.ncbi.nlm.nih.gov/40850311/?

## **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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## Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

## The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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## **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41007234/?

## **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition







Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

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https://pubmed.ncbi.nlm.nih.gov/40854103/?

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## Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis









Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40855574/?

## **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

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## A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing



1 57 min words





BRAILLE

Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40874468/?

## **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition







BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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## A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

#### Read full article:

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## Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**



1 2025-09-02 min 56 words



BRAILLE

**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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## Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye



1 55 min words





BRAILLE

Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

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https://pubmed.ncbi.nlm.nih.gov/40937808/?

# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

#### 

https://pubmed.ncbi.nlm.nih.gov/41013315/?

## **Development and Assessment of a Novel Audiosensory** Performance Method for Improving the Oral Health of Visually **Impaired Children**







**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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## Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**









## Read full article:

https://pubmed.ncbi.nlm.nih.gov/41067686/?

## Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)

Xiaoxuan
Tian

Tia

Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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## Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?









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https://pubmed.ncbi.nlm.nih.gov/41069944/?

## Transcranial Direct Current Stimulation as a Therapeutic **Approach for Anxiety and Related Markers: Comprehensive Systematic Review**

Rosa Maria Martins de

1 50 TDCS TACS TRNS words

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

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## The role of the medial prefrontal cortex in risk and time preferences: A tDCS study



Fan 1 70 Li 2025-10-10 min words

TDCS TACS TRNS

**Summary:** Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41072297/?

## Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### 

https://pubmed.ncbi.nlm.nih.gov/41074127/?

Effects of transcranial direct current stimulation on foot sensorimotor function and postural control in healthy young adults: A systematic review and meta-analysis based on randomized controlled trials



**Summary:** CONCLUSION: In conclusion, the current evidence suggested that tDCS may enhance ankle joint proprioception in healthy young adults, while no significant improvements were observed in foot muscle strength or static and dynamic postural control. Further research is warranted to determine the optimal s...

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https://pubmed.ncbi.nlm.nih.gov/41075626/?

## "Shadow government": how transcription factors regulate plant cell wall formation

Natalya
Syrchina

1 2025-10-11 min 66 TDCS TACS TRNS

Summary: The plant cell wall is a dynamic, structurally complex supramolecular compartment essential for the development, defense, and adaptation of plants to their environment. While the biosynthesis and transcriptional regulation of secondary cell walls (SCWs) have been extensively studied and are relative...

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# Lcn2 from neutrophil extracellular traps induces astrogliosis and post-stroke emotional disorders

Zhengrun

1 63 min words

**TDCS TACS TRNS** 

**Summary:** Patients with an ischemic stroke are often predisposed to emotional disorders. However, the mechanisms underlying post-stroke emotional disorders (PSEDs) remain unclear. Recent research highlights the role of neuroinflammation, driven primarily by infiltration of circulating immune cells within the ...

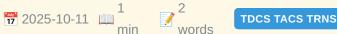
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## Response to Vogelmann et al: Contextualizing Home-Based tDCS Safety: The Remotely Supervised Model







#### Read full article:

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# Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study









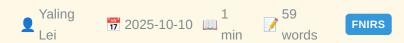


Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41066487/?

# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41069950/?

# Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study









Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding











Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070190/?

Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

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https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol







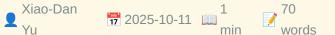


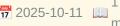
Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41073118/?

# **Effect of Intelligence Quotient Discrepancy on Attention and Executive Function in Children with Attention Deficit Hyperactivity Disorder: An fNIRS Study**









Summary: Intelligence quotient discrepancy (IQD) is associated with neurodevelopmental disorders, but its impact on attention and executive function (EF) deficits in children with attention deficit hyperactivity disorder (ADHD) is unknown. This study aimed to examine the effect of IQD by functional near-infra...

#### 

https://pubmed.ncbi.nlm.nih.gov/41076036/?

# Developmental changes in phonological awareness in Chinese-English bilingual children: an fNIRS longitudinal study



Tai-Li
Chou
Tai-Li
To
words

Summary: Learning to read triggers a cascade of changes in children's minds and brains, changes that lead to the formation of the "reading brain". Importantly, the developmental trajectory of these changes differs across languages. The development of phonological literacy skills comes first for learners of a...

#### **⊗** Read full article:

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# Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**



1 43 min words



FNIRS

Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

#### Read full article:

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# Machine learning assessment of cognitive reserve using functional near-infrared spectroscopy in older adults with cognitive frailty



**Summary:** Cognitive reserve mitigates aging-related cognitive decline and frailty, yet current assessments lack neurobiological specificity. We aimed to develop a noninvasive, functional near infrared spectroscopy (fNIRS)-based machine learning model to classify cognitive reserve levels in older adults with c...

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# Does increasing canopy liana density decrease the tropical forest carbon sink?



**Summary:** The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

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# Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces







Summary: [This corrects the article DOI: 10.1371/journal.pone.0311075.].

#### Read full article:

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding









Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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# Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

Jinsong 1 29
Wu min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

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# A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



1 2025-10-10 min 66 words

BRAIN COMPUTER INTERFACE

Summary: Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

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## **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

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Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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### Novel analysis method to determine the neural activation function of the inner hair cell



1 79 min words





BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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# Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]





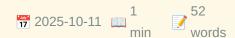


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# **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







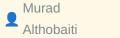
BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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### Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**







Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

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# Cognitive performance fatigability, perceived fatigability, and trait fatigue in post-COVID-19 condition: A cross-sectional study.







NEUROPSYCHOLOGY

Summary: Objective: Earlier research on fatigue in post-COVID-19 condition (PCC) has mainly studied subjective fatigue, either over a prolonged period (trait fatigue) or in relation to a certain situation (state fatigue) in the form of perceived fatigability. Another aspect of state fatigue, cognitive perfor...



http://doi.org/10.1037/neu0001020

# Embodied concepts in Parkinson's disease: Insights from fruits versus animals semantic fluency impairments.

1 2025-07-24 min 262 NEUROPSYCHOLOGY

**Summary:** Objective: Initial findings indicate that semantic memory retrieval of different categories, such as fruits and animals, is variably impacted in Parkinson's disease (PD). Importantly, theories of embodied cognition propose that these variances may stem from compromised motor processing in PD patient...

http://doi.org/10.1037/neu0001026

Using the Modified Taylor Complex Figure–Recognition Trial (MTCF-RT) to differentiate amnestic patients with Alzheimer's disease from patients with memory deficits due to Parkinson's disease or subcortical ischemic vascular dementia.

1 2025-08-25 min 257 words NEUROPSYCHOLOGY

**Summary:** Objective: The Modified Taylor Complex Figure–Recognition Trial (MTCF-RT) is a visual recognition memory measure that consists of a recognition trial to be administered after the copy and the delayed reproduction of the Modified Taylor Complex Figure Test. The aim of this study was to validate the M...

Read full article:

http://doi.org/10.1037/neu0001036

# Affliction class moderates the dementing impact of amyloidopathy.

1 188 NEUROPSYCHOLOGY words

**Summary:** Objective: The treatment of dementia is increasingly likely to focus on dementia-related biomarkers. Unfortunately, there is variability with regard to biomarker-related effects. This analysis tests an algorithm capable of identifying persons adversely impacted by any dementia-related biomarker in t...

http://doi.org/10.1037/neu0001021

# Semantic processing in subjective cognitive decline: An eyetracking study.

1 2025-09-11 min 205 words NEUROPSYCHOLOGY

**Summary:** Objectives: Alzheimer's disease progresses through several stages, starting with a preclinical phase characterized by subjective cognitive decline (SCD), where individuals express concerns about their memory despite normal cognitive test results. Recent research has indicated subtle semantic difficu...

**Read full article:** 

http://doi.org/10.1037/neu0001022

#### **Monthly Updates [Oct]**







FMHY

Summary: <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our <a href="https://github.com/fmhy/FMHYedit/commits/">https://github.com/fmhy/FMHYedit/commits/</a> main" rel="noreferrer" target=" blank">Commits Page</a> on ...



https://fmhy.net/posts/oct-2025

# The App Store Was Always Authoritarian





HACKER NEWS

Summary: <a href="https://news.ycombinator.com/item?id=45556032">Comments</a>

https://infrequently.org/2025/10/the-app-store-was-always-authoritarian/

#### Important Changes to the 2024 ERP Boot Camp

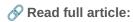






**ERP BOOT CAMP** 

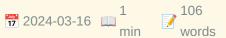
Summary: We are disappointed to announce that we will not be holding a regular 10-day ERP Boot Camp this summer.
class="">We have held Boot Camps nearly every summer since 2007, supported by a series of generous grants from NIMH that allowed us to provide scholarships for all attendees. Unf...



https://erpinfo.org/blog/2024/3/5/changes-to-the-2024-erp-boot-camp

# Registration is now full for the 2024 ERP Boot Camp







ERP BOOT CAMP

Summary: The demand for the<a href="https://erpinfo.org/2024-erp-bootcamp"> 2024 ERP Boot Camp</a> was far beyond our expectations, and we reached our maximum registration of 30 people within one day. We already have a waiting list of over 30 people, so we have closed the registration site.<...



https://erpinfo.org/blog/2024/3/15/registration-full

### New Paper: Using Multivariate Pattern Analysis to Increase **Effect Sizes for ERP Amplitude Comparisons**







ERP BOOT CAMP

Summary: Carrasco, C. D., Bahle, B., Simmons, A. M., & D., Luck, S. J. (2024). Using multivariate pattern analysis to increase effect sizes for event-related potential analyses. Psychophysiology, 61, e14570. <a href="https://doi.org/10.1111/psyp.">https://doi.org/10.1111/psyp.</a> 14570">https://doi.org/10.1111/psyp.14570</a> [<a h...

#### 

https://erpinfo.org/blog/2024/6/10/erp-core-decoding-paper

#### New software package: ERPLAB Studio









ERP BOOT CAMP

Summary: We are excited to announce the release of a new EEG/ERP analysis package, <a href="https://github.com/ucdavis/erplab/releases">ERPLAB Studio</ a>. We think it's a huge improvement over the classic EEGLAB user interface. See our cheesy <a href="https://www.youtube.com/watch?v=llaKVQ9DD6E">...



https://erpinfo.org/blog/2024/6/11/erplab-studio

#### Recording and slides now available for ERPLAB Studio webinar

Steve 1 30 ERP BOOT CAMP

Summary: We held a webinar to demonstration ERPLAB Studio on 28 June 2024.<a href="https://youtu.be/k-nGv00rTP8">Click here</a> to access a recording.<a href="https://ucdavis.box.com/s/" 4fseqz6327dtuouauj12rgvivy1d1nmo">Click here </a>to access a PDF of the slides.<...

https://erpinfo.org/blog/2024/6/28/recording-and-slides-now-available-for-erplab-studio-webinar

# **New Paper: Does the P3b component reflect working memory** updating?

Steve 7 1547 Luck min words

ERP BOOT CAMP

Summary: Carrasco, C. D., Simmons, A. M., Kiat, J. E., & D., Luck, S. J. (in press). Enhanced working memory representations for rare events. <em>Psychophysiology</em>. <a href="https://doi.org/10.1111/psyp.70038">https://doi.org/ 10.1111/psyp.70038</a> [<a href="https://doi.org/10.1101/2024.03.20...

Read full article:

https://erpinfo.org/blog/2025/3/20/new-paper-oddball

#### 10-Day ERP Boot Camp to be held in Davis in Summer 2026







ERP BOOT CAMP

**Summary:** We have received another 5 years of funding from the National Institute of Mental Health, so we plan to hold ERP Boot Camps in each of the next 5 summers. The next one will be in Davis, California in the Summer of 2026. The specific dates will be announced around January 1, 2026, and the...



https://erpinfo.org/blog/2025/8/20/boot-camp-summer-2026

#### **Education: Legal Issues**











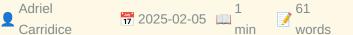
Summary: The safety concerns and standards shared in other sections provide an initial foundation for legal protections. However, calls for stricter consumer protection laws must accompany the proliferation of neurotech devices. Special privacy laws must be promulgated to ensure "cognitive privacy" (Nita Far...

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https://brain.ieee.org/publications/neuroethics-framework/education/education-legal-issues/educationlegal-issues/

#### **Education: Social and Cultural Issues**







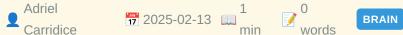
BRAIN

Summary: Devices that therapeutically aid users with cognitive and learning disabilities/ differences should not be equally applied to a general population seeking learning advantages. It must not be assumed that therapies able to improve cognition for mental and cognitive disorders (such as executive control...

#### 

https://brain.ieee.org/publications/neuroethics-framework/education/education-social-and-cultural-issues/ education-social-and-cultural-issues/

#### **Education: Standards**









#### 

https://brain.ieee.org/publications/neuroethics-framework/education/standards-education/educationstandards/

# Reproducibility of fNIRS within subject for visual and motor tasks

1 min



NEUROIMAGE

**Summary:** Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Julie C. Wagner, Anthony Zinos, Scott A. Beardsley, Wei-Liang Chen, Lisa Conant, Marsha Malloy, Joseph Heffernan, Brendan Quirk, Robert Prost, Mohit Maheshwari, Jeffrey Sugar, Harry T. Whelan

**⊗** Read full article:

https://www.sciencedirect.com/science/article/pii/S1053811925004951?dgcid=rss\_sd\_all

# Slow wave dynamics of scalp EEG can be explained by simple statistical models of long-range connections

1 min



NEUROIMAGE

**Summary:** Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Mariia Steeghs-Turchina, Ramesh Srinivasan, Paul L. Nunez, Michael D. Nunez

https://www.sciencedirect.com/science/article/pii/S1053811925004215?dqcid=rss sd all

# Longitudinal changes in late-life brain health after prenatal exposure to the Dutch famine



NEUROIMAGE

**Summary:** Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): A Boots, A Schrantee, B E Padrela, A M Wiegersma, J S Damoiseaux, H J M M Mutsaerts, L Lorenzini, T J Roseboom, S R de Rooij

Read full article:

https://www.sciencedirect.com/science/article/pii/S1053811925005087?dgcid=rss\_sd\_all

# Estimation of brain activity sources of sympathovagal dynamics



NEUROIMAGE

Summary: Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Dario Milea, Vincenzo Catrambone, Gaetano Valenza

https://www.sciencedirect.com/science/article/pii/S105381192500504X?dgcid=rss\_sd\_all

# White matter hyperintensity-associated iron overload links glymphatic system dysfunction to cognitive impairment in cerebral small vessel disease

1 min



NEUROIMAGE

**Summary:** Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Yage Qiu, Ying Hu, Weina Ding, Qingyang Fu, Wentao Hu, Yuanzheng Wang, Qun Xu, Yongming Dai, Yawen Sun, Yan Zhou

**⊗** Read full article:

https://www.sciencedirect.com/science/article/pii/S105381192500518X?dgcid=rss\_sd\_all

# As apparent as real: alpha and beta bands desynchronization unveils apparent motion perception dynamics

1 min



NEUROIMAGE

**Summary:** Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Marcella Romeo, Francesca Genovese, Monica Betta, Alice Rossi Sebastiano, Lorenzo Teresi, Nicoletta Scanferlato, Corrado Sinigaglia, Emiliano Ricciardi, Francesca Garbarini

https://www.sciencedirect.com/science/article/pii/S1053811925005075?dqcid=rss\_sd\_all

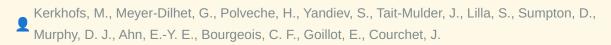
# The intrinsic connectivity between the default mode and dorsal attention networks is an independent fMRI biomarker of Alzheimer's disease pathology burden

NEUROIMAGE

Summary: Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Diego-Martin Lombardo, Christian F Beckmann, Alzheimer's Disease Neuroimaging Initiative

https://www.sciencedirect.com/science/article/pii/S1053811925005129?dgcid=rss\_sd\_all

# The AMPK-related kinase NUAK1 regulates neuronal morphogenesis through the RNA splicing co-factor SON









BIORXIV NEUROSCIENCE

Summary: In recent years, alternative splicing emerged as a major mechanism controlling gene-regulatory networks during brain development, yet how alternative splicing is tuned to the dynamic alterations underlying neuronal maturation remains poorly understood. Here, we identified that NUAK1, an AMPK-related...

https://www.biorxiv.org/content/10.1101/2025.10.10.681550v1?rss=1

## Thalamus-cortex interactions drive cell type-specific cortical development in human pluripotent stem cell-derived assembloids

Nishimura, M., Adachi, S., Kodera, T., Sato, A. Y. Y., Takeuchi, R. F., Osakada,

2025-10-12



BIORXIV NEUROSCIENCE

Summary: The thalamus plays a pivotal role in the development and function of neural circuits in the cerebral cortex. However, how thalamus-cortex interactions influence human cortical development remains unknown primarily because of the inaccessibility of the human embryonic brain. Here, we demonstrate thal...

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https://www.biorxiv.org/content/10.1101/2025.10.11.681772v1?rss=1

#### Protective factors against technostress in secondary school teachers





https://www.nature.com/articles/s41598-025-19604-4

# Central and peripheral neural circuits regulating glucose homeostasis



**Solution** Read full article:

https://www.nature.com/articles/s44385-025-00036-8

# Neural representation of mixed feelings during real-time processing of negative words in pun-humor



https://www.nature.com/articles/s42003-025-08857-4

# Diffusion-weighted imaging and retinal oximetry as potential biomarkers of visual outcomes after optic neuritis



https://www.nature.com/articles/s41598-025-19331-w

# RNF213 c.14429G > A (p.Arg4810Lys) is associated with nonarteritic retinal artery occlusion



**S** Read full article:

https://www.nature.com/articles/s41598-025-19517-2

# Paternal SARS-CoV-2 infection impacts sperm small noncoding RNAs and increases anxiety in offspring in a sex-dependent manner



https://www.nature.com/articles/s41467-025-64473-0

# Generation of synthetic TSPO PET maps from structural MRI images

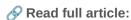






FRONTIERS NEUROINFORMATICS

Summary: IntroductionNeuroinflammation, a pathophysiological process involved in numerous disorders, is typically imaged using [11C]PBR28 (or TSPO) PET. However, this technique is limited by high costs and ionizing radiation, restricting its widespread clinical use. MRI, a more accessible alternative, is com...



https://www.frontiersin.org/articles/10.3389/fninf.2025.1633273

Individualized connectomic tACS immediately improves oscillatory network with language facilitation in post-stroke aphasia: a feasibility study of a dysfunctome-based targeting approach







FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: IntroductionPeople with post-stroke aphasia (PSA) exhibit significant interindividual variability attributed to distinctive network disruption patterns across individuals. This complexity limits the effectiveness of conventional one-size-fits-all brain stimulation approaches, but to date no individu...



https://www.frontiersin.org/articles/10.3389/fncom.2025.1635497

## Statistical characterization of cortical-thalamic dynamics evoked by cortical stimulation in mice

Diana Nigrisoli, Simone Russo, Ruggero Freddi, Nicolas Seseri, Stefania Corti, Linda Ottoboni and Riccardo Barbieri







JOURNAL NEURAL ENGINEERING

Summary: Objective. Statistical models are powerful tools for describing biological phenomena such as neuronal spiking activity. Although these models have been widely used to study spontaneous and stimulated neuronal activity, they have not yet been applied to analyze responses to electrical cortical stimul...



http://iopscience.iop.org/article/10.1088/1741-2552/ae0966

# The impact of CSF-filled cavities on scalp EEG and its **implications**







OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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### Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research

Julius .

1 72 2024-07-02 min words OOSTENVELD ROBERT

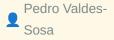
Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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https://pubmed.ncbi.nlm.nih.gov/38956071/?

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#### One hundred years of EEG for brain and behaviour research









OOSTENVELD ROBERT

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# Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity

Richard J A van

1 65 min words

OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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# The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J Gorgolewski 1 82 min words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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### Human cortical high-gamma power scales with movement rate in healthy participants and stroke survivors

Fanny Quandt

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

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# NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**



1 70 min words

OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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# Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>

Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Summary: For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

#### **⊗** Read full article:

https://pubmed.ncbi.nlm.nih.gov/40568426/?

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### Cycling on the Freeway: The perilous state of open-source neuroscience software

1 74 min words

OOSTENVELD ROBERT

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

#### Read full article:

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#### Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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https://pubmed.ncbi.nlm.nih.gov/40800964/?

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# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics



1 71 min words





LOW VISION

Summary: Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41067065/?

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## Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation









LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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https://pubmed.ncbi.nlm.nih.gov/41067900/?

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## Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

#### **⊗** Read full article:

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5N3V9WgCNCS63Z1PLmhwJSPGd18QMT&fc=None&ff=20251012031731&v=2.18.0.post9+e462414

## Multi-interactive feature embedding learning for medical image segmentation



**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

#### Read full article:

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# Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity



**Summary:** CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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## Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



**Summary:** CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

#### **⊗** Read full article:

https://pubmed.ncbi.nlm.nih.gov/41072135/?

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## Ocular Hypertension and Glaucoma After Pars Plana Vitrectomy: A Systematic Review and Meta-analysis



**Summary:** CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

#### Read full article:

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utm\_source=BucketBot&utm\_medium=rss&utm\_campaign=None&utm\_content=1xePBFBNvSlegfqCbvp4 5N3V9WgCNCS63Z1PLmhwJSPGd18QMT&fc=None&ff=20251012031731&v=2.18.0.post9+e462414

## Computer vision-based laser communication system for robust optical beam tracking and alignment

Shuai 1 71 Low visio words

**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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## **Quantifying Effects Of Lifestyle Changes On Progression To Advanced Age-Related Macular Degeneration In High Genetic Risk Individuals**







LOW VISION

Summary: CONCLUSION: Unhealthy behaviors increased incidence of AAMD by 3 to 5fold among a highly genetically susceptible population, and 56-60% of AAMD incidence was attributed to modifiable factors: smoking, high BMI, high caloric intake and low intake of foods rich in lutein-zeaxanthin and omega-3 fatty ...

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## The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

#### **⊗** Read full article:

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## **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40526544/?

## Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1
69
words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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## Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

### Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

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## Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

#### 

https://pubmed.ncbi.nlm.nih.gov/40850311/?

## **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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## Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

### The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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## **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41007234/?

## **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition

Jianming 1 62
Xu min words

Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

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## Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis



7 2025-08-26 min 46 words

BRAILLE

Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40855574/?

### **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

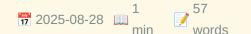
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## A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing











Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

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## **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition



Min 1 64
Zhang min words



BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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## A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

#### Read full article:

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### Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**





1 2025-09-02 min 56 words



BRAILLE

**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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## Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye











Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

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https://pubmed.ncbi.nlm.nih.gov/40937808/?

# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

#### 

https://pubmed.ncbi.nlm.nih.gov/41013315/?

## **Development and Assessment of a Novel Audiosensory** Performance Method for Improving the Oral Health of Visually **Impaired Children**







**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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## Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**









#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41067686/?

## Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)

Xiaoxuan
Tian

Tia

Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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## Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?



1 2025-10-10 min words

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https://pubmed.ncbi.nlm.nih.gov/41069944/?

## Transcranial Direct Current Stimulation as a Therapeutic **Approach for Anxiety and Related Markers: Comprehensive Systematic Review**

Rosa Maria Martins de

1 50 TDCS TACS TRNS words

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

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## The role of the medial prefrontal cortex in risk and time preferences: A tDCS study



Fan 1 70 Li 2025-10-10 min words

TDCS TACS TRNS

**Summary:** Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

#### Read full article:

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## Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### 

https://pubmed.ncbi.nlm.nih.gov/41074127/?

Effects of transcranial direct current stimulation on foot sensorimotor function and postural control in healthy young adults: A systematic review and meta-analysis based on randomized controlled trials



**Summary:** CONCLUSION: In conclusion, the current evidence suggested that tDCS may enhance ankle joint proprioception in healthy young adults, while no significant improvements were observed in foot muscle strength or static and dynamic postural control. Further research is warranted to determine the optimal s...

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## "Shadow government": how transcription factors regulate plant cell wall formation

Natalya
Syrchina

1 2025-10-11 min 66 TDCS TACS TRNS

Summary: The plant cell wall is a dynamic, structurally complex supramolecular compartment essential for the development, defense, and adaptation of plants to their environment. While the biosynthesis and transcriptional regulation of secondary cell walls (SCWs) have been extensively studied and are relative...

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## Lcn2 from neutrophil extracellular traps induces astrogliosis and post-stroke emotional disorders

Zhengrun

1 63 min words

**TDCS TACS TRNS** 

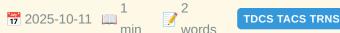
**Summary:** Patients with an ischemic stroke are often predisposed to emotional disorders. However, the mechanisms underlying post-stroke emotional disorders (PSEDs) remain unclear. Recent research highlights the role of neuroinflammation, driven primarily by infiltration of circulating immune cells within the ...

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## Response to Vogelmann et al: Contextualizing Home-Based tDCS Safety: The Remotely Supervised Model







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## Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study









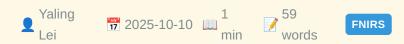


Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41066487/?

# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

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https://pubmed.ncbi.nlm.nih.gov/41069950/?

## Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study









Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

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## Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding



1 63 min words







Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070190/?

Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

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https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol









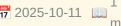
Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

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https://pubmed.ncbi.nlm.nih.gov/41073118/?

## **Effect of Intelligence Quotient Discrepancy on Attention and Executive Function in Children with Attention Deficit Hyperactivity Disorder: An fNIRS Study**









Summary: Intelligence quotient discrepancy (IQD) is associated with neurodevelopmental disorders, but its impact on attention and executive function (EF) deficits in children with attention deficit hyperactivity disorder (ADHD) is unknown. This study aimed to examine the effect of IQD by functional near-infra...

#### 

https://pubmed.ncbi.nlm.nih.gov/41076036/?

## Developmental changes in phonological awareness in Chinese-English bilingual children: an fNIRS longitudinal study



Tai-Li
Chou
Tai-Li
To
words



Summary: Learning to read triggers a cascade of changes in children's minds and brains, changes that lead to the formation of the "reading brain". Importantly, the developmental trajectory of these changes differs across languages. The development of phonological literacy skills comes first for learners of a...

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## Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**







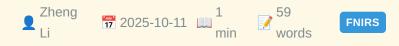


Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

#### Read full article:

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## Machine learning assessment of cognitive reserve using functional near-infrared spectroscopy in older adults with cognitive frailty



**Summary:** Cognitive reserve mitigates aging-related cognitive decline and frailty, yet current assessments lack neurobiological specificity. We aimed to develop a noninvasive, functional near infrared spectroscopy (fNIRS)-based machine learning model to classify cognitive reserve levels in older adults with c...

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## Does increasing canopy liana density decrease the tropical forest carbon sink?



**Summary:** The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

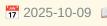
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## Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces







**Summary:** [This corrects the article DOI: 10.1371/journal.pone.0311075.].

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## Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding









Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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## Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

Jinsong 1 29
Wu min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

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## A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



1 2025-10-10 min 66 words

BRAIN COMPUTER INTERFACE

Summary: Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

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## **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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### Novel analysis method to determine the neural activation function of the inner hair cell

1 79 min words

BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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## Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]







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## **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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### Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**







Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

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## Ask HN: Abandoned/dead projects you think died before their time and why?





Summary: <a href="https://news.ycombinator.com/item?id=45553132">Comments</a>



https://news.ycombinator.com/item?id=45553132

#### **Education: Additional Resources**







BRAIN

Summary: Buckingham Shum, S. (2022). The UTS "EdTech Ethics" Deliberative Democracy Consultation: Rationale, Process and Outcomes. Connected Intelligence Centre, University of Technology Sydney, AUS. https://cic.uts.edu.au/projects/edtech-ethics León Declaration on European neurotechnology (2023): a human-fo...

#### 

https://brain.ieee.org/publications/neuroethics-framework/education/educational-and-training-resourceseducation/education-additional-resources/

#### **Education: References**









BRAIN

Summary: [1] OECD "Neurotechnology Toolkit To support policymakers in implementing the OECD Recommendation on Responsible Innovation in Neurotechnology," 2024.: https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/emerging-technologies/ neurotech-toolkit.pdf. [2] van Kesteren and Meeter, 2020 htt...

#### 

https://brain.ieee.org/publications/neuroethics-framework/education/references/education-references/

### **IEEE Brain Annual Flagship Workshop a Success**

**Summary:** IEEE Brain once again hosted the IEEE Brain Discovery and Neurotechnology Workshop as a satellite event to the 2024 Society of Neuroscience Workshop (SfN). Approximately 180 attended the two-day event, which was held at the University of Illinois Chicago (UIC), October 3-4, 2024 (Figure 1). Groundbr...

https://brain.ieee.org/braininsight-articles/ieee-brain-annual-flagship-workshop-a-success/

# **Exploring phantom phenomena following brachial plexus** block in intact limbs

1 19 BRAIN RESEARCH words

**Summary:** Publication date: 15 November 2025<b>Source:</b> Brain Research, Volume 1867Author(s): Emily Pettersen, Giacomo Valle, Paolo Sassu, Carina Reinholdt, Max Ortiz-Catalan

https://www.sciencedirect.com/science/article/pii/S0006899325005189?dgcid=rss\_sd\_all

Resting EEG partial coherence demonstrates increased <math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si34.svg" class="math"><mrow><mrow><mi mathvariant="bold-italic">y</mi></mrow></mrow></math> range central functional connectivity in amnestic mild cognitive impairment





BRAIN RESEARCH

**Summary:** Publication date: 15 November 2025<b>Source:</b> Brain Research, Volume 1867Author(s): Ioannis Vlachos, Christos Moschovos, Loukia Apostolakopoulou, Kyriaki Karasavvidou, Eva Ntanasi, Eirini Mamalaki, Dimitris Kugiumtzis, Vasilios K. Kimiskidis, Nikolaos Scarmeas, Andreas Kyrozis



https://www.sciencedirect.com/science/article/pii/S0006899325005360?dgcid=rss\_sd\_all

# LncRNA HOXA-AS3 drives glioma progression through miR-542-5p-Mediated regulation of HOXA1 and WNT5A signaling

1 min



BRAIN RESEARCH

**Summary:** Publication date: 15 November 2025<b>Source:</b> Brain Research, Volume 1867Author(s): Lianxu Cui, Ruiyu He, Haomin Li, Siwei Peng, Meiru Zhang, Zhanchuan Ma, Zaiyu Li

**S** Read full article:

https://www.sciencedirect.com/science/article/pii/S0006899325005153?dgcid=rss\_sd\_all

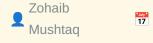
# Photobiomodulation in stroke prevention and treatment: neuroprotective mechanisms and therapeutic challenges

1 19 BRAIN RESEARCH words

**Summary:** Publication date: 1 December 2025<b>Source:</b> Brain Research, Volume 1868Author(s): Yuecheng Li, Lei Zhang, Jiaqiang Lin, Luodan Yang, Rui Duan

https://www.sciencedirect.com/science/article/pii/S000689932500544X?dgcid=rss\_sd\_all

# Editorial: Advancements in smart diagnostics for understanding neurological behaviors and biosensing applications





FRONTIERS COMPUTATIONAL NEUROSCIENCE

**⊗** Read full article:

https://www.frontiersin.org/articles/10.3389/fncom.2025.1693327

# From adolescence to old age: how sensory precision shapes body ownership during physiological aging

Michela

Bassolino

Michela

1

257

words

FRONTIERS HUMAN NEUROSCIENCE

**Summary:** Body ownership relies on the integration of multisensory signals coming from the environment and the body itself. Considering the substantial neurophysiological and sensory modifications occurring across the lifespan, this study aims to quantitatively evaluate age-related changes in hand ownership a...

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1663505

## Variable admittance control with sEMG-based support for wearable wrist exoskeleton

Nicole 1 262
Wenderoth words



FRONTIERS NEUROROBOTICS

**Summary:** IntroductionWrist function impairment is common after stroke and heavily impacts the execution of daily tasks. Robotic therapy, and more specifically wearable exoskeletons, have the potential to boost training dose in context-relevant scenarios, promote voluntary effort through motor intent detectio...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1562675

# Network topological reorganization mechanisms of primary visual cortex under multimodal stimulation

Ming
Li

2025-10-08 min

227

FRONTIERS NEUROSCIENCE

**Summary:** IntroductionThe functional connectivity topology of the primary visual cortex (V1) shapes sensory processing and cross-modal integration, yet how different sensory modalities reorganize V1 network architecture remains unclear. We hypothesized that multimodal input drives a shift from hub-centric, mo...

#### 

https://www.frontiersin.org/articles/10.3389/fnins.2025.1678035

### Helical neural implants for intracerebral drug delivery

Batoul Khlaifat, Mahmoud Elbeh, Shreya Manjrekar, Seung-Jean Kang, Yusheng Zhang, Parima

Phowarasoontorn, Sadaf Usmani, Abdel-Hameed Dabbour, Heba T Naser, Hanan Mohammed, Minsoo Kim and Khalil B Ramadi

1 280 JOURNAL NEURAL ENGINEERING words

**Summary:** Objective. Neurological disorders often arise from specific regions of dysfunction in the brain. One approach to target these pathologic regions is through chemical delivery using intracerebral implants. Previous works have designed implants that are small and flexible, minimizing the mechanical mis...

#### **S** Read full article:

http://iopscience.iop.org/article/10.1088/1741-2552/ae0523

# The impact of CSF-filled cavities on scalp EEG and its **implications**

Maria Carla
Piastra

1
2024-06-14

min

64

words

OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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# Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research



1 72 min words

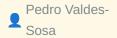
OOSTENVELD ROBERT

Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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https://pubmed.ncbi.nlm.nih.gov/38956071/?

### One hundred years of EEG for brain and behaviour research







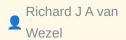
OOSTENVELD ROBERT

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# Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity









OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

#### 

https://pubmed.ncbi.nlm.nih.gov/39229492/?

## The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J
Gorgolewski

1 2024-09-23 min 82
words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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# **Human cortical high-gamma power scales with movement** rate in healthy participants and stroke survivors

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

#### 

https://pubmed.ncbi.nlm.nih.gov/39786979/?

## NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**

Luca 1 70
Pollonini 2025-01-27 min words

OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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# Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>

Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Oostenveld robert

**Summary:** For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40568426/?

### Cycling on the Freeway: The perilous state of open-source neuroscience software

Tim M
Tierney

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

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### Optimal configuration of on-scalp OPMs with fixed channel counts









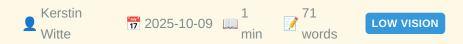
OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

#### 

https://pubmed.ncbi.nlm.nih.gov/40800964/?

# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics



**Summary:** Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

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# Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation









Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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https://pubmed.ncbi.nlm.nih.gov/41067900/?

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# Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

#### **⊗** Read full article:

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# Multi-interactive feature embedding learning for medical image segmentation



**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

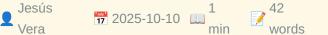
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# Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







LOW VISION

Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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https://pubmed.ncbi.nlm.nih.gov/41071217/?

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# Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



**Summary:** CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

#### **⊗** Read full article:

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# Ocular Hypertension and Glaucoma After Pars Plana Vitrectomy: A Systematic Review and Meta-analysis



**Summary:** CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

#### Read full article:

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# Computer vision-based laser communication system for robust optical beam tracking and alignment



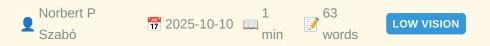
**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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# **Quantifying Effects Of Lifestyle Changes On Progression To Advanced Age-Related Macular Degeneration In High Genetic Risk Individuals**







LOW VISION

Summary: CONCLUSION: Unhealthy behaviors increased incidence of AAMD by 3 to 5fold among a highly genetically susceptible population, and 56-60% of AAMD incidence was attributed to modifiable factors: smoking, high BMI, high caloric intake and low intake of foods rich in lutein-zeaxanthin and omega-3 fatty ...

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# The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

#### **⊗** Read full article:

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# **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40526544/?

# Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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https://pubmed.ncbi.nlm.nih.gov/40577301/?

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# Directional vibro-tactile hazard warnings for drivers with vision impairments



TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

## Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

#### **⊗** Read full article:

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# Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

#### 

https://pubmed.ncbi.nlm.nih.gov/40850311/?

# **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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# Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

# The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

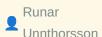
Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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# **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights







TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41007234/?

# **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition



Jianming 1 62
Xu min words

Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

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# Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis



1 46 min words





BRAILLE

Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

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### **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

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# A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing









BRAILLE

Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40874468/?

# **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition







BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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# A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

#### Read full article:

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### Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**





1 2025-09-02 min 56 words





BRAILLE

**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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# Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye





1 55 min words





BRAILLE

Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

#### 

https://pubmed.ncbi.nlm.nih.gov/40937808/?

# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

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https://pubmed.ncbi.nlm.nih.gov/41013315/?

# **Development and Assessment of a Novel Audiosensory** Performance Method for Improving the Oral Health of Visually **Impaired Children**







**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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# Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**









TDCS TACS TRNS

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41067686/?

# Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)

Xiaoxuan
Tian

Tia

Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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# Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?









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https://pubmed.ncbi.nlm.nih.gov/41069944/?

# Transcranial Direct Current Stimulation as a Therapeutic **Approach for Anxiety and Related Markers: Comprehensive Systematic Review**

Rosa Maria Martins de

1 50 TDCS TACS TRNS words

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

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# The role of the medial prefrontal cortex in risk and time preferences: A tDCS study

Fan 1 70 Li 2025-10-10 min words

TDCS TACS TRNS

**Summary:** Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41072297/?

# Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







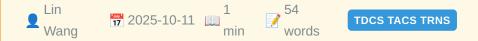
TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### 

https://pubmed.ncbi.nlm.nih.gov/41074127/?

Effects of transcranial direct current stimulation on foot sensorimotor function and postural control in healthy young adults: A systematic review and meta-analysis based on randomized controlled trials



**Summary:** CONCLUSION: In conclusion, the current evidence suggested that tDCS may enhance ankle joint proprioception in healthy young adults, while no significant improvements were observed in foot muscle strength or static and dynamic postural control. Further research is warranted to determine the optimal s...

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r1ebioUg42SIGRyVKSoW4m6X-ecQ00&fc=None&ff=20251012024610&v=2.18.0.post9+e462414

# "Shadow government": how transcription factors regulate plant cell wall formation

Natalya
Syrchina

1 2025-10-11 min 66 TDCS TACS TRNS

Summary: The plant cell wall is a dynamic, structurally complex supramolecular compartment essential for the development, defense, and adaptation of plants to their environment. While the biosynthesis and transcriptional regulation of secondary cell walls (SCWs) have been extensively studied and are relative...

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# Lcn2 from neutrophil extracellular traps induces astrogliosis and post-stroke emotional disorders

Zhengrun

1 63 min words



**TDCS TACS TRNS** 

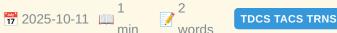
**Summary:** Patients with an ischemic stroke are often predisposed to emotional disorders. However, the mechanisms underlying post-stroke emotional disorders (PSEDs) remain unclear. Recent research highlights the role of neuroinflammation, driven primarily by infiltration of circulating immune cells within the ...

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# Response to Vogelmann et al: Contextualizing Home-Based tDCS Safety: The Remotely Supervised Model







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# Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study











Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

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# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

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# Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study









Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding











Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

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Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol









Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

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# **Effect of Intelligence Quotient Discrepancy on Attention and Executive Function in Children with Attention Deficit Hyperactivity Disorder: An fNIRS Study**









Summary: Intelligence quotient discrepancy (IQD) is associated with neurodevelopmental disorders, but its impact on attention and executive function (EF) deficits in children with attention deficit hyperactivity disorder (ADHD) is unknown. This study aimed to examine the effect of IQD by functional near-infra...

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# Developmental changes in phonological awareness in Chinese-English bilingual children: an fNIRS longitudinal study



Tai-Li
Chou
Tai-Li
To
words



Summary: Learning to read triggers a cascade of changes in children's minds and brains, changes that lead to the formation of the "reading brain". Importantly, the developmental trajectory of these changes differs across languages. The development of phonological literacy skills comes first for learners of a...

### **⊗** Read full article:

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# Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**









Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

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# Machine learning assessment of cognitive reserve using functional near-infrared spectroscopy in older adults with cognitive frailty



**Summary:** Cognitive reserve mitigates aging-related cognitive decline and frailty, yet current assessments lack neurobiological specificity. We aimed to develop a noninvasive, functional near infrared spectroscopy (fNIRS)-based machine learning model to classify cognitive reserve levels in older adults with c...

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# Does increasing canopy liana density decrease the tropical forest carbon sink?



**Summary:** The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

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# Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces







**Summary:** [This corrects the article DOI: 10.1371/journal.pone.0311075.].

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding









Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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# Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

Jinsong 1 29
Wu min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

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# A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



1 2025-10-10 min 66 words

BRAIN COMPUTER INTERFACE

Summary: Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

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# **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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## Novel analysis method to determine the neural activation function of the inner hair cell







BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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# Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]





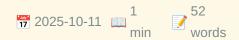


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# **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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## Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**

Murad
Althobaiti

1 2025-10-11 min words BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

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# I shared 300+ Python Data Science Videos on YouTube (Tutorials, Projects and Full Courses)







REDDIT PYTHON

Summary: <!-- SC\_OFF --><div class="md">Hello, I am sharing free Python Data Science Tutorials for over 2 years on YouTube and I wanted to share my playlists. I believe they are great for learning the field, I am sharing them below. Thanks for reading! Python Tutorials -> <a href="https://youtub..."

### **Read full article:**

https://www.reddit.com/r/Python/comments/103r5tp/i shared 300 python data science videos on/

# Announcing html-to-markdown v2: Rust rewrite, full CommonMark 1.2 compliance, and hOCR support

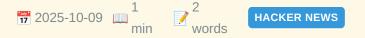


**Summary:** <!-- SC\_OFF --><div class="md">Hi Pythonistas, I'm glad to announce the v2 release of <a href="https://github.com/Goldziher/html-to-markdown">html-to-markdown</a>. This library started life as a fork of <code>markdownify</code>, a Python library for converting HTML to Markdown. I fo...

### 

https://www.reddit.com/r/Python/comments/1o3sqqz/announcing\_htmltomarkdown\_v2\_rust\_rewrite\_full/

### I/O Multiplexing (select vs. poll vs. epoll/kqueue)



Summary: <a href="https://news.ycombinator.com/item?id=45523370">Comments</a>

### Read full article:

https://nima101.github.io/io multiplexing

### **IEEE Brain Workshop on AI for Neurotechnology**



**Summary:** The IEEE Brain Workshop on AI for Neurotechnology was held on June 30, 2024, at the Pacifico Yokohama Conference Center in Japan. This event was part of the World Congress on Computational Intelligence (WCCI 2024) and was conducted in association with the International Joint Conference on Neural Net...

### 

https://brain.ieee.org/braininsight-articles/ieee-brain-workshop-on-ai-for-neurotechnology/

### **Call for Papers: IEEE Brain Special Issue**



**Summary:** In a unique interdisciplinary collaboration with the IEEE's Society on Social Implications of Technology (SSIT) and IEEE Brain, J-FLEX is joining forces to explore both the technology of the Internet-of-Medical-Things (IoMT) solutions and medical wearables/implantables.

### 

https://brain.ieee.org/braininsight-articles/ieee-journal-on-flexible-electronics/

### **IEEE Brain Joins the American Brain Coalition**

**Summary:** IEEE Brain is pleased to announce its acceptance as a nonprofit member of the American Brain Coalition (ABC), a prestigious alliance of over 150 organizations dedicated to advancing brain research, advocacy, and improving treatments for individuals affected by brain conditions. The ABC Board has ent...

### 

https://brain.ieee.org/braininsight-articles/ieee-brain-joins-the-american-brain-coalition-as-a-nonprofit-member/

# Call for Papers: IEEE Transactions on Human-Machine Systems



**Summary:** Special Issue on Brain Discovery and Neurotechnology: Featured Research from 2024 IEEE Brain Discovery & Neurotechnology Workshop This special issue is motivated by the success of the IEEE Brain Discovery and Neurotechnology Workshop held in October 2024. This annual workshop is sponsore...

#### 

https://brain.ieee.org/braininsight-articles/call-for-papers-ieee-transactions-on-human-machine-systems/

# **Evaluation on Human Perception of Various Vibrotactile Encoding Methods Through a High Density Haptic Feedback** Interface

1 197 min words

TRANSACTIONS HAPTICS

Summary: High density (HD) haptic interfaces have become increasingly common for entertainment thanks to advancements in virtual reality technology, however their flexibility may make them a useful sensory substitution interface for motor rehabilitation. Yet little research has explored how users interpret d...

**⊗** Read full article:

http://ieeexplore.ieee.org/document/10994678

# **Enhancing Video Experiences for DHH Individuals Through Sound-Inspired Motion Caption-Based Spatiotemporal Tacton**

1 146 min words





TRANSACTIONS HAPTICS

Summary: When deaf and hard of hearing (DHH) individuals watch videos, captions are essential for them to understand the linguistic content. Current captions, however, are not suitable for conveying non-verbal sound information, such as background music, sound effects, or speech nuances. In this paper, we de...

Read full article:

http://ieeexplore.ieee.org/document/10946856

### **Call for 2025 Society Awards Nominations**









**Summary:** The post <a href="https://www.embs.org/awards/society-awards/" #new tab">Call for 2025 Society Awards Nominations</a> appeared first on <a href="https://www.embs.org">IEEE EMBS</a>.



https://www.embs.org/awards/society-awards/#new\_tab

### **Bridging Biotech: Regional shifts and patterns**







Summary: The post <a href="https://www.embs.org/blog-post/regional-shifts-andpatterns/">Bridging Biotech: Regional shifts and patterns</a> appeared first on <a href="https://www.embs.org">IEEE EMBS</a>.



https://www.embs.org/blog-post/regional-shifts-and-patterns/

# Welcoming Dr. Ana Kyani as the New Women in Biomedical **Engineering Chair for IEEE EMBS**







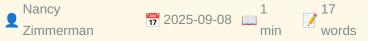


Summary: The post <a href="https://www.embs.org/blog-post/welcoming-dr-ana-kyanias-wibme-chair-ieee-embs/">Welcoming Dr. Ana Kyani as the New Women in Biomedical Engineering Chair for IEEE EMBS</a> appeared first on <a href="https:// www.embs.org">IEEE EMBS</a>.

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https://www.embs.org/blog-post/welcoming-dr-ana-kyani-as-wibme-chair-ieee-embs/

# Ivan Lee, Appointed Editor-in-Chief of EMBC Proceedings











**Summary:** The post <a href="https://www.embs.org/press/embc-eicsunghoon-ivan-lee/#new tab">Ivan Lee, Appointed Editor-in-Chief of EMBC Proceedings</ a> appeared first on <a href="https://www.embs.org">IEEE EMBS</a>.

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https://www.embs.org/press/embc-eic-sunghoon-ivan-lee/#new tab

# Methodological advances in encoding models of brain: Applying temporal response functions to magnetoencephalography for written text perception



NEUROIMAGE

**Summary:** Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Gurgen Soghoyan, Anastasia Neklyudova, Olga Martynova, Olga Sysoeva

https://www.sciencedirect.com/science/article/pii/S1053811925004872?dgcid=rss\_sd\_all

# Functional transition rate of the default mode network is associated with self-reported resilience



NEUROIMAGE

Summary: Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Chun-Wei Hsu, Shulan Hsieh, Wan-Rue Lin, Ya-Ting Chang, Yu-Shiang Su, Cheng-Ta Yang, Yun-Hsuan Chang, Sheng-Hsiang Lin, Joshua Oon Soo Goh

https://www.sciencedirect.com/science/article/pii/S1053811925005117?dqcid=rss sd all

# Neural signatures and personalized neuromodulation in a subject experiencing context-dependent inhibitory control deficits

1 min



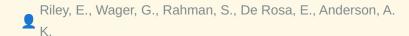
NEUROIMAGE

**Summary:** Publication date: 1 November 2025<b>Source:</b> NeuroImage, Volume 321Author(s): Layth S. Mattar, Shraddha Shah, Lily S. Chamakura, Denise Oswalt, Yue Zhang, Davin Devara, Jung Uk Kang, Zahra Jourahmad, Ryan Jafri, Geoffrey Liu, Joshua Adkinson, Isabel A. Danstrom, Xiaoxu Fan, Yvonn...

**⊗** Read full article:

https://www.sciencedirect.com/science/article/pii/S1053811925005105?dgcid=rss\_sd\_all

# Vagal nerve stimulation alters task-evoked pupillary responses in older adults but not younger adults in a single-blind sham-controlled crossover trial







BIORXIV NEUROSCIENCE

**Summary:** Introduction: The locus coeruleus (LC) undergoes age-related changes and is involved in Alzheimer's disease pathogenesis. Vagal nerve stimulation (VNS) may modulate LC activity and could be used therapeutically, but age-related differences in VNS responses remain unexplored. Methods: We used a singl...

**Read full article:** 

https://www.biorxiv.org/content/10.1101/2025.10.10.681160v1?rss=1

# Single-dose psilocybin rapidly and sustainably relieves allodynia and anxiodepressive-like behaviors in mouse models of chronic pain

1 2025-10-02 min 42 NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 02 October 2025; <a href="https://"><a href="https://"></a> www.nature.com/articles/s41593-025-02068-0">doi:10.1038/s41593-025-02068-0</a></ p>Hammo et al. show that a single dose of psilocybin rapidly and sustainably relieves both chronic pain and anxiodepressive-like behaviors in mi...

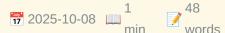
**⊗** Read full article:

https://www.nature.com/articles/s41593-025-02068-0

# A multilayered gap junction network is essential for social decision-making

Airi NakayamaHiroo KuroyanagiHironori J. MatsuyamaIkue MoriNaoki HisamotoShunji

NakanoaDepartment of Biological Science, Division of Natural Science, Graduate School of Science, Nagoya University, Nagoya 464-8602, JapanbNeuroscience Institute, Division of Natural Science, Graduate School of Science, Nagoya University, Nagoya 464-8602, Japan







PNAS NEUROSCIENCE

Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 41, October 2025. <br/>
<br/>
SignificanceEarly social experiences strongly influence emotions and behaviors, but the underlying neural mechanisms are unclear. This study shows that early experience of crowding exerts lasting effects on fo...

https://www.pnas.org/doi/abs/10.1073/pnas.2510579122?af=R

### Statistical physics of large-scale neural activity with loops

David P. CarcamoChristopher W. LynnaDepartment of Physics, Yale University, New Haven, CT

● 06511bQuantitative Biology Institute, Yale University, New Haven, CT 06511cWu Tsai Institute, Yale University, New Haven, CT 06510



**Summary:** Proceedings of the National Academy of Sciences, Volume 122, Issue 41, October 2025. <br/>
SignificanceExperimental advances provide recordings of neural activity at unprecedented scales. But to understand how this activity emerges from the correlations between neurons, we need models that can simul...

https://www.pnas.org/doi/abs/10.1073/pnas.2426926122?af=R

# Transpupillary in vivo two-photon imaging reveals enhanced surveillance of retinal microglia in diabetic mice

Noriyuki SotaniSentaro KusuharaRyuto NishishoHiroto KunoHidenori ShimaKoichiro HaruwakaYuka MoriMaya KishiTomoyuki FuruyashikiKenta KobayashiHiroaki WakeToru TakumiMakoto NakamuraYoshihisa TachibanaaDepartment of Physiology and Cell Biology, Kobe University Graduate School of Medicine, Kobe 650-0017, JapanbDivision of Ophthalmology, Department of Surgery, Kobe University Graduate School of Medicine, Kobe 650-0017, JapancCenter for Neuroimmunology and Glial Biology, Institute of Molecular Medicine, University of Texas Health Science Center, Houston, TX 77030dDivision of Pharmacology, Kobe University Graduate School of Medicine, Kobe 650-0017, JapaneSection of Viral Vector Development, National Institute for Physiological Sciences, Okazaki 444-8585, JapanfDepartment of Anatomy and Molecular Cell Biology, Nagoya University Graduate School of Medicine, Nagoya 466-8550, Japan



**Summary:** Proceedings of the National Academy of Sciences, Volume 122, Issue 41, October 2025. <br/>
SignificanceNumerous studies have developed imaging techniques for visualizing diverse cell types in the retina. However, these techniques often face challenges such as low resolution and the need for technica...



https://www.pnas.org/doi/abs/10.1073/pnas.2426241122?af=R

# Beauty in the shadow of neurodegenerative disease: a narrative review on aesthetic experience, neural mechanisms, and therapeutic frontiers

Rocco Salvatore

1 199 min words

FRONTIERS HUMAN NEUROSCIENCE

**Summary:** Neuroaesthetics, an emerging field at the intersection of neuroscience, psychology, and the arts, offers new perspectives on the biological and cognitive mechanisms of aesthetic experience. This narrative review explores the convergence of neuroaesthetics and neurodegenerative disorders, focusing on...

Read full article:

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1658617

# **Imitation-relaxation reinforcement learning for sparse** badminton strikes via dynamic trajectory generation



1 174 min words



FRONTIERS NEUROROBOTICS

Summary: Robotic racket sports provide exceptional benchmarks for evaluating dynamic motion control capabilities in robots. Due to the highly non-linear dynamics of the shuttlecock, the stringent demands on robots' dynamic responses, and the convergence difficulties caused by sparse rewards in reinforcement ...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1649870

# RSA-TransUNet: a robust structure-adaptive TransUNet for enhanced road crack segmentation



Ruoli 1 234
Yang min words



FRONTIERS NEUROROBOTICS

Summary: With the advancement of deep learning, road crack segmentation has become increasingly crucial for intelligent transportation safety. Despite notable progress, existing methods still face challenges in capturing fine-grained textures in small crack regions, handling blurred edges and significant wid...



https://www.frontiersin.org/articles/10.3389/fnbot.2025.1633697

# Approaches for retraining sEMG classifiers for upper-limb prostheses

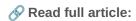






FRONTIERS NEUROROBOTICS

Summary: IntroductionAbandonment rates for myoelectric upper limb prostheses can reach 44%, negatively affecting quality of life and increasing the risk of injury due to compensatory movements. Traditional myoelectric prostheses rely on conventional signal processing for the detection and classification of m...



https://www.frontiersin.org/articles/10.3389/fnbot.2025.1627872

# DWMamba: a structure-aware adaptive state space network for image quality improvement

FRONTIERS NEUROROBOTICS

Summary: Overcoming visual degradation in challenging imaging scenarios is essential for accurate scene understanding. Although deep learning methods have integrated various perceptual capabilities and achieved remarkable progress, their high computational cost limits practical deployment under resource-cons...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1676787

# The impact of CSF-filled cavities on scalp EEG and its implications

Maria Carla Piastra

1 64 min words





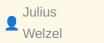
OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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## Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research







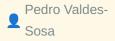
Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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### One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

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# Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity

Richard J A van

1 65 min words

OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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# The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J Gorgolewski 1 82 min words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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## Human cortical high-gamma power scales with movement rate in healthy participants and stroke survivors

Fanny Quandt

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

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# NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**



1 70 min words

OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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# Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>

Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Oostenveld robert

Summary: For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

### **⊗** Read full article:

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### Cycling on the Freeway: The perilous state of open-source neuroscience software

1 74 min words

OOSTENVELD ROBERT

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

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### Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics



1 71 min words





LOW VISION

Summary: Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

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# Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation







LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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https://pubmed.ncbi.nlm.nih.gov/41067900/?

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# Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

### **Read full article:**

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# Multi-interactive feature embedding learning for medical image segmentation



**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

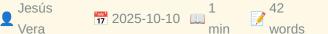
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# Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







LOW VISION

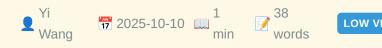
Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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https://pubmed.ncbi.nlm.nih.gov/41071217/?

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# Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



**Summary:** CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

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# Ocular Hypertension and Glaucoma After Pars Plana Vitrectomy: A Systematic Review and Meta-analysis



**Summary:** CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

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# Computer vision-based laser communication system for robust optical beam tracking and alignment

Shuai 1 71 1 2025-10-10 min words

Summary: Free-space optical (FSO) communication is a promising technology for highspeed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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https://pubmed.ncbi.nlm.nih.gov/41073513/?

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</ sub> storage assessment in Northwest Australia







LOW VISION

**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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# **Quantifying Effects Of Lifestyle Changes On Progression To Advanced Age-Related Macular Degeneration In High Genetic Risk Individuals**







LOW VISION

Summary: CONCLUSION: Unhealthy behaviors increased incidence of AAMD by 3 to 5fold among a highly genetically susceptible population, and 56-60% of AAMD incidence was attributed to modifiable factors: smoking, high BMI, high caloric intake and low intake of foods rich in lutein-zeaxanthin and omega-3 fatty ...

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# The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

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# **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

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## Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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https://pubmed.ncbi.nlm.nih.gov/40577301/?

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## Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

## Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

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## Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

#### 

https://pubmed.ncbi.nlm.nih.gov/40850311/?

## **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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## Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

## The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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## **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41007234/?

## **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition









Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

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## Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis









BRAILLE

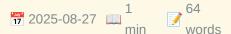
Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40855574/?

### **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

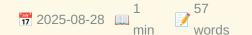
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## A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing









BRAILLE

Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40874468/?

## **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition







BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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## A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









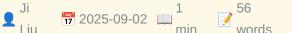
**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

#### Read full article:

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## Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**











**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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## Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye











Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

#### 

https://pubmed.ncbi.nlm.nih.gov/40937808/?

# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

#### 

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## **Development and Assessment of a Novel Audiosensory** Performance Method for Improving the Oral Health of Visually **Impaired Children**







**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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## Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**







TDCS TACS TRNS

### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41067686/?

## Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)

Xiaoxuan
Tian

Tia

Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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## Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?



1 2025-10-10 min words

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https://pubmed.ncbi.nlm.nih.gov/41069944/?

## Transcranial Direct Current Stimulation as a Therapeutic **Approach for Anxiety and Related Markers: Comprehensive Systematic Review**

Rosa Maria Martins de

1 50 TDCS TACS TRNS words

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

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## The role of the medial prefrontal cortex in risk and time preferences: A tDCS study

Fan 1 70 Li 2025-10-10 min words

TDCS TACS TRNS

**Summary:** Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41072297/?

## Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### 

https://pubmed.ncbi.nlm.nih.gov/41074127/?

Effects of transcranial direct current stimulation on foot sensorimotor function and postural control in healthy young adults: A systematic review and meta-analysis based on randomized controlled trials



**Summary:** CONCLUSION: In conclusion, the current evidence suggested that tDCS may enhance ankle joint proprioception in healthy young adults, while no significant improvements were observed in foot muscle strength or static and dynamic postural control. Further research is warranted to determine the optimal s...

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https://pubmed.ncbi.nlm.nih.gov/41075626/?

## "Shadow government": how transcription factors regulate plant cell wall formation

Natalya
Syrchina

1 2025-10-11 min 66 TDCS TACS TRNS

Summary: The plant cell wall is a dynamic, structurally complex supramolecular compartment essential for the development, defense, and adaptation of plants to their environment. While the biosynthesis and transcriptional regulation of secondary cell walls (SCWs) have been extensively studied and are relative...

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## Lcn2 from neutrophil extracellular traps induces astrogliosis and post-stroke emotional disorders

Zhengrun

1 63 min words



**TDCS TACS TRNS** 

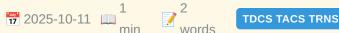
**Summary:** Patients with an ischemic stroke are often predisposed to emotional disorders. However, the mechanisms underlying post-stroke emotional disorders (PSEDs) remain unclear. Recent research highlights the role of neuroinflammation, driven primarily by infiltration of circulating immune cells within the ...

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https://pubmed.ncbi.nlm.nih.gov/41075784/?

## Response to Vogelmann et al: Contextualizing Home-Based tDCS Safety: The Remotely Supervised Model







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## Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study









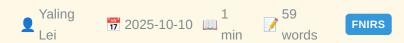


Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41066487/?

# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41069950/?

## Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study



1 57 min words



Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

#### **⊗** Read full article:

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## Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding



1 63 min words







Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070190/?

Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

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https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol







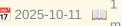
Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

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https://pubmed.ncbi.nlm.nih.gov/41073118/?

## **Effect of Intelligence Quotient Discrepancy on Attention and Executive Function in Children with Attention Deficit Hyperactivity Disorder: An fNIRS Study**









Summary: Intelligence quotient discrepancy (IQD) is associated with neurodevelopmental disorders, but its impact on attention and executive function (EF) deficits in children with attention deficit hyperactivity disorder (ADHD) is unknown. This study aimed to examine the effect of IQD by functional near-infra...

#### 

https://pubmed.ncbi.nlm.nih.gov/41076036/?

## Developmental changes in phonological awareness in Chinese-English bilingual children: an fNIRS longitudinal study



Tai-Li
Chou
Tai-Li
To
words



Summary: Learning to read triggers a cascade of changes in children's minds and brains, changes that lead to the formation of the "reading brain". Importantly, the developmental trajectory of these changes differs across languages. The development of phonological literacy skills comes first for learners of a...

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## Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**







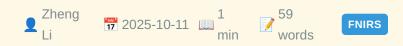


Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41076093/?

# Machine learning assessment of cognitive reserve using functional near-infrared spectroscopy in older adults with cognitive frailty



**Summary:** Cognitive reserve mitigates aging-related cognitive decline and frailty, yet current assessments lack neurobiological specificity. We aimed to develop a noninvasive, functional near infrared spectroscopy (fNIRS)-based machine learning model to classify cognitive reserve levels in older adults with c...

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## Does increasing canopy liana density decrease the tropical forest carbon sink?



**Summary:** The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

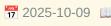
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## Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces







**Summary:** [This corrects the article DOI: 10.1371/journal.pone.0311075.].

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## Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding







Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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## Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

Jinsong 1 29
Wu min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

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## A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



1 2025-10-10 min 66 words

BRAIN COMPUTER INTERFACE

Summary: Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

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## **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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## Novel analysis method to determine the neural activation function of the inner hair cell



1 79 min words





BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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## Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]





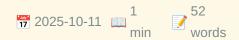


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## **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







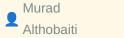
BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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## Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**







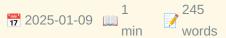
Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

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## **Psychometric properties of the Chinese version of Nightmare** Distress Questionnaire in adolescents with psychiatric disorders.







Summary: Nightmare Distress Questionnaire (NDQ) is commonly used to assess nightmare distress. The psychometric properties of the Chinese version of NDQ (NDQ-CV) have been shown to be satisfactory in the general population of Chinese adolescents. This study aims to evaluate the psychometric properties of NDQ...



### Assessing attitudes toward dream incubation: A new scale.



**Summary:** This study aims to develop the Dream Incubation Attitude Scale for assessing attitudes toward dream incubation. The Dream Incubation Attitude Scale underwent psychometric testing based on responses drawn from 109 Hong Kong participants. This resulted in a three-factor structure comprising self-effic...



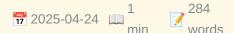
http://doi.org/10.1037/drm0000306

## Flying dreams stimulated by targeted movement and sound: Art and science in the dream hotel.



**Summary:** We present Dream Hotel Room 1, a sculptural artwork by Carsten Höller (with Adam Haar Horowitz) that uses dream engineering techniques to induce flying dreams. Dreams of flying are an exceptional experience; even years after their occurrence, people report these remain some of the most meaningful an...

### Nightmare disorder in women.





DREAMING

**Summary:** The aim of this study is to identify the short-term proximate triggers and effects of nightmares in adult women. In total, 85 females and 29 males participated in a 2-week intensive longitudinal assessment of mood, stress, social conflict, and sleep architecture measures. Sleep architecture was moni...



http://doi.org/10.1037/drm0000309

## Impact of childhood trauma on dreams in adulthood: An **Argentine survey.**







DREAMING

**Summary:** The aim of this study was to assess whether participants who present more frequently with nightmares or distressing dreams have had traumatic experiences in their childhood and their relationship with current personality traits. Three instruments were administered to a sample of 446 adults from the ...



### The impact of unemployment on dream content.

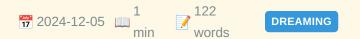


**Summary:** This study examines the relationship between employment status and dream content using a data set of 6,478 dream reports collected from Reddit. We used machine learning to analyze thematic differences between unemployed individuals and a control group. The results revealed that the dreams of unemplo...

#### 

http://doi.org/10.1037/drm0000310

## From falling apart to disturbing dreams: A preliminary examination of self-fragmentation and nightmares.



**Summary:** Previous theory suggested a relationship between fragmentation of the self-structure and nightmares. This article examines this possibility by providing an overview of the theoretical rationale for their relationship and a preliminary empirical study exploring the relationships between a brief measu...

#### **Read full article:**

## Anatomical connectivity-based parcellation of the human orbitofrontal cortex.





BEHAVIORAL NEUROSCIENCE

Summary: The orbitofrontal cortex (OFC) is critical for learning and decision making, but its organization in terms of anatomical connections to other brain areas is not well understood in humans. Here we used diffusion magnetic resonance imaging and probabilistic tractography to characterize the cortical an...



http://doi.org/10.1037/bne0000628

## Major security breach at Austrian AI startup localmind.ai

1 2 words



HACKER NEWS

Summary: <a href="https://news.ycombinator.com/item?id=45555053">Comments</a>

https://localmind.ai/

## Spyware maker NSO Group confirms acquisition by US investors



Summary: <a href="https://news.ycombinator.com/item?id=45555570">Comments</a>

https://techcrunch.com/2025/10/10/spyware-maker-nso-group-confirms-acquisition-by-us-investors/

## **Pipelining in psql (PostgreSQL 18)**



Summary: <a href="https://news.ycombinator.com/item?id=45555308">Comments</a>

https://postgresql.verite.pro/blog/2025/10/01/psql-pipeline.html

### Major security breach at Austrian AI startup localmind.ai

tobwen 7 2025-10-12 min 13 HACKER NEWS

**Summary:** Article URL: <a href="https://localmind.ai/">https://localmind.ai/</a> Comments URL: <a href="https://news.ycombinator.com/item?id=45555053">https://news.ycombinator.com/item?id=45555053">https://news.ycombinator.com/item?id=45555053</a> Points: 10 # Comments: 2

https://localmind.ai/

## **Pipelining in psql (PostgreSQL 18)**

tanelpoder 7 2025-10-12 min 1 13 words

**Summary:** Article URL: <a href="https://postgresql.verite.pro/blog/2025/10/01/psql-pipeline.html">https://postgresql.verite.pro/blog/2025/10/01/psql-pipeline.html</a> Comments URL: <a href="https://news.ycombinator.com/item?id=45555308">https://news.ycombinator.com/item?id=45555308</a> Points...

https://postgresql.verite.pro/blog/2025/10/01/psql-pipeline.html

## Spyware maker NSO Group confirms acquisition by US investors

corvad 72 2025-10-12 min 13 words

**Summary:** Article URL: <a href="https://techcrunch.com/2025/10/10/spyware-maker-nso-group-confirms-acquisition-by-us-investors/">https://techcrunch.com/2025/10/10/spyware-maker-nso-group-confirms-acquisition-by-us-investors/</a> Comments URL: <a href="https://news.ycombinator.com/item?id=45555570">h...

https://techcrunch.com/2025/10/10/spyware-maker-nso-group-confirms-acquisition-by-us-investors/

## VibTac: A High-Resolution High-Bandwidth Tactile Sensing Finger for Multi-Modal Perception in Robotic Manipulation

1 169 TRANSACTIONS HAPTICS words

**Summary:** Tactile sensing is pivotal for enhancing robot manipulation abilities by providing crucial feedback for localized information. However, existing sensors often lack the necessary resolution and bandwidth required for intricate tasks. To address this gap, we introduce VibTac, a novel multi-modal tacti...

http://ieeexplore.ieee.org/document/10965524

## Age-Related Impact in Illusory Torque Cues Induced by Asymmetric Vibrations

1 197 TRANSACTIONS HAPTICS words

**Summary:** Illusory pulling sensations in the translational or rotational direction are induced by asymmetric vibrations applied to the fingertips. Although previous studies have discussed the involvement of mechanoreceptors associated with skin deformation and spatial processing in the parietal association co...

http://ieeexplore.ieee.org/document/10955171

## Sensorimotor Theta Oscillations Coordinate Speech Movements



**BIORXIV NEUROSCIENCE** 

**Summary:** Fluent speech depends on precisely timed motor commands that coordinate rapid transitions between successive articulatory gestures. Using direct cortical recordings, we identified a prominent sensorimotor theta oscillation (6-10 Hz) that supports this coordination. During articulation, premotor spee...

https://www.biorxiv.org/content/10.1101/2025.10.09.681482v1?rss=1

#### NATO3 protects dopaminergic neurons in mouse in vivo and human in vitro Parkinson's disease models

Valencia-Alarcon, E. P., Duret, L. C., Kobayashi, E., Cattaneo, O., Schneider, B. L., Nagoshi,

1 147 min words

BIORXIV NEUROSCIENCE

Summary: Parkinson's disease (PD) is a devastating neurodegenerative disorder primarily characterized by the progressive and unstoppable loss of dopaminergic (DA) neurons in the substantia nigra. We previously identified NATO3 (FERD3L), a conserved developmental transcription factor, as essential for maintai...

https://www.biorxiv.org/content/10.1101/2025.10.10.681573v1?rss=1

# Notch canonical activity in a subset of glial cells regulates short-term memory in Drosophila

Aguirre, A., Girard, D., Parrot, S., Clugnet, A.-A., Biolchini, X., Li, H., Seugnet,

2025-10-10



BIORXIV NEUROSCIENCE

Summary: Notch is a transmembrane receptor expressed at the cell surface that mediates transcriptional responses upon binding to its ligands, in a variety of contexts. Evolutionarily conserved, Notch plays a key role in numerous cell fate decisions during development and is also required in post-mitotic brai...

**⊗** Read full article:

https://www.biorxiv.org/content/10.1101/2025.10.10.681599v1?rss=1

### Altered Sense of Agency in First-Episode Schizophrenia Patients: A Comparative Study Across Two Sites

Volfikova, K., Tomecek, D., Spaniel, F., Tintera, J., Rydlo, J., Hlinka,

J.

216
words

BIORXIV NEUROSCIENCE

**Summary:** Background: Disturbances in the sense of agency are a key marker of schizophrenia and are closely linked to core symptoms such as hallucinations and delusions of influence. Neuroimaging studies have implicated cortical midline structures and the default mode network (DMN) associated with self-relate...

https://www.biorxiv.org/content/10.1101/2025.10.10.681418v1?rss=1

# **Attention Improves Population Codes by Warping Neural Manifolds in Human Visual Cortex**



**BIORXIV NEUROSCIENCE** 

**Summary:** Decades of research on visual attention have revealed its numerous effects on neural responses. Two competing models have been proposed for how these effects lead to improved population representations: one highlights changes in neural tuning, while the other points towards changes in trial-by-trial...

https://www.biorxiv.org/content/10.1101/2025.10.09.681102v1?rss=1

## Muscle-derived miR-126 regulates TDP-43 axonal local synthesis and NMJ integrity in ALS models

Eran

Perlson

Perlso

Summary: Nature Neuroscience, Published online: 03 October 2025; <a href="https://"><a href="https://"></a> www.nature.com/articles/s41593-025-02062-6">doi:10.1038/s41593-025-02062-6</a></ p>Ionescu, Ankol et al. show that, in ALS mouse and iPSC models, TDP-43 aggregation at NMJs stems from aberrant axonal translation, normally rep...

https://www.nature.com/articles/s41593-025-02062-6

# Mapping macaque to human cortex with natural scene responses

Kasper VinkenSaloni SharmaMargaret S. LivingstoneaDepartment of Neurobiology, Harvard Medical School, Boston, MA 02115

1 2025-09-30 min 48 PNAS NEUROSCIENCE





Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 40, October 2025. <br/>
SignificanceUnderstanding how human and nonhuman primate brains are related is central to neuroscience, but matching brain areas across species remains challenging. Traditional methods rely on simplified inter...

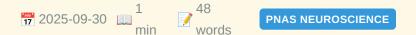
Read full article:

https://www.pnas.org/doi/abs/10.1073/pnas.2512619122?af=R

# Hippocampal CA2 to CA1: A metaplastic switch for memory encoding

Mohammad Zaki Bin IbrahimLouise Zi Ning GohNicholas Wee Kiat KohJai S. PolepalliThomas BehnischSreedharan SajikumaraDepartment of Physiology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore 117593, SingaporebNeurobiology Programme, Life Sciences Institute, National University of Singapore, Singapore 117456, SingaporecDepartment of Anatomy,

Yong Loo Lin School of Medicine, National University of Singapore, Singapore 117594,
 SingaporedHealthy Longevity Translational Research Programme, Yong Loo Lin School of Medicine,
 National University of Singapore, Singapore 117456, SingaporeeInstitutes of Brain Science, State Key
 Laboratory of Medical Neurobiology, Ministry of Education Frontiers Center for Brain Science, Fudan
 University, Shanghai 200032, China



**Summary:** Proceedings of the National Academy of Sciences, Volume 122, Issue 40, October 2025. <br/>
SignificanceWe experience space and events alongside social interactions, enriching our memories. Hippocampal circuitry mainly encodes space and events. Meanwhile, area CA2, an often-overlooked hippocampal sub...

Read full article:

https://www.pnas.org/doi/abs/10.1073/pnas.2505936122?af=R

# Higher-order interactions in neuronal function: From genes to ionic currents in biophysical models

Maria RevaAlexis ArnaudonMickael ZbiliAbdullah MakkehHenry MarkramJean-Marc GoaillardWerner Van GeitaBlue Brain Project, École polytechnique fédérale de Lausanne (EPFL), Geneva 1202, SwitzerlandbDepartment of Data-driven Analysis of Biological Networks, Göttingen Campus Institute for Dynamics of Biological Networks, University of Göttingen, Göttingen 37077, GermanycComplex Systems Theory, Max Planck Institute for Dynamics and Self-Organization, Göttingen 37018, GermanydLaboratory of Neural Microcircuitry, Brain Mind Institute, Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne 1015, SwitzerlandeSystems Approaches to Neuronal Excitability, Inst. de Neurosciences de la Timone, UMR7289 CNRS & Aix Marseille Université, Marsellie 13385, France



**Summary:** Proceedings of the National Academy of Sciences, Volume 122, Issue 40, October 2025. <br/>
SignificanceHow neurons acquire their electrical identities is a central question in neuroscience. This study shows that combinations of ion channels interact in complex, high-dimensional ways to shape neurona...

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https://www.pnas.org/doi/abs/10.1073/pnas.2500048122?af=R

# Super-resolution microscopy and deep learning methods: what can they bring to neuroscience: from neuron to 3D spine segmentation

Lydia 1 130 Danglot min words

FRONTIERS NEUROINFORMATICS

Summary: In recent years, advances in microscopy and the development of novel fluorescent probes have significantly improved neuronal imaging. Many neuropsychiatric disorders are characterized by alterations in neuronal arborization, neuronal loss—as seen in Parkinson's disease—or synaptic loss, as in Alzhei...

**⊗** Read full article:

https://www.frontiersin.org/articles/10.3389/fninf.2025.1630133

# Early heart disease prediction using LV-PSO and Fuzzy Inference Xception Convolution Neural Network on phonocardiogram signals

C. 254
Palanisamy min words

FRONTIERS NEUROINFORMATICS

**Summary:** IntroductionHeart disease is one of the leading causes of mortality worldwide, and early detection is crucial for effective treatment. Phonocardiogram (PCG) signals have shown potential in diagnosing cardiovascular conditions. However, accurate classification of PCG signals remains challenging due t...

Read full article:

https://www.frontiersin.org/articles/10.3389/fninf.2025.1655003

# Circuit-level modeling of prediction error computation of multi-dimensional features in voluntary actions

Yiling 1 207

FRONTIERS COMPUTATIONAL NEUROSCIENCE

**Summary:** IntroductionPredictive processing posits that the brain minimizes discrepancies between internal predictions and sensory inputs, offering a unifying account of perception, cognition, and action. In voluntary actions, it is thought to suppress self-generated sensory outcomes. Although sensory mismatc...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1551555

# Tuning into flavor: predicting coffee sensory attributes from **EEG** with boosted-tree regression models



1 155 min words

FRONTIERS HUMAN NEUROSCIENCE

Summary: Flavor, a multimodal perception based on taste, smell, and tactile cues, plays a significant role in consumer preferences and purchase intentions toward coffee. In this exploratory study, we assessed the potential of electroencephalography (EEG) and machine learning (ML) techniques to predict coffee...

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1661214

# **Correction: Association between neuroticism and physical** activity: a systematic review and meta-analysis







FRONTIERS HUMAN NEUROSCIENCE



https://www.frontiersin.org/articles/10.3389/fnhum.2025.1713272

# Remarkable therapeutic effects of methylphenidate in periodic limb movement disorder comorbid with excessive daytime sleepiness: a case report









FRONTIERS NEUROSCIENCE

Summary: BackgroundPeriodic limb movement disorder (PLMD) is a sleep-related movement disorder, which may be accompanied by a complaint of excessive daytime sleepiness (EDS). With this study, we reported a clinical therapy process up to 2.5 years follow-up, exploring the therapeutic effect of a series of med...

https://www.frontiersin.org/articles/10.3389/fnins.2025.1659120

# Neural mechanism of HT7 electroacupuncture in myocardial ischemia: critical role of the paraventricular nucleus oxytocin system



**Summary:** ObjectiveElectroacupuncture (EA) at Shenmen (HT7) alleviates acute myocardial ischemia (AMI), but its central neuromodulatory mechanisms remain insufficiently defined. This study investigated whether oxytocinergic (OT) neurons in the hypothalamic paraventricular nucleus (PVN) mediate the cardioprote...

**⊗** Read full article:

https://www.frontiersin.org/articles/10.3389/fnins.2025.1678938

# Exercise, circadian rhythms, and muscle regeneration: a path to healthy aging



**Summary:** The circadian system regulates core physiological processes, including muscle regeneration, protein synthesis, and cellular homeostasis. Disruptions in circadian rhythms contribute to impaired muscle function in older adults, with age-related declines in muscle mass and regenerative capacity serving...

https://www.frontiersin.org/articles/10.3389/fnins.2025.1633835

# Case Report: Unraveling clinical heterogeneity in DEPDC5related epilepsy: a genotype-phenotype correlation study in eight pediatric cases







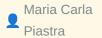
FRONTIERS NEUROSCIENCE

Summary: ObjectiveTo summarize the clinical characteristics of eight children with DEPDC5 gene variant-associated epilepsy. Methods Clinical data of children with DEPDC5related epilepsy treated at Hebei Provincial Children's Hospital from April 2020 to November 2024 were retrospectively analyzed. Results Among ...



https://www.frontiersin.org/articles/10.3389/fnins.2025.1595667

## The impact of CSF-filled cavities on scalp EEG and its **implications**







OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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### Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research

Julius .

1 72 2024-07-02 min words OOSTENVELD ROBERT

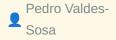
Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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#### One hundred years of EEG for brain and behaviour research









OOSTENVELD ROBERT

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# Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity

Richard J A van

1 65 min words

OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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# The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J Gorgolewski 1 82 min words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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### Human cortical high-gamma power scales with movement rate in healthy participants and stroke survivors

Fanny Quandt

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

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# NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**



1 70 min words

OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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# Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>

Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Summary: For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

#### **⊗** Read full article:

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#### Cycling on the Freeway: The perilous state of open-source neuroscience software

1 74 min words



OOSTENVELD ROBERT

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

#### Read full article:

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#### Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics



1 71 min words





LOW VISION

Summary: Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

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# Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation









LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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https://pubmed.ncbi.nlm.nih.gov/41067900/?

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# Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

#### **⊗** Read full article:

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# Multi-interactive feature embedding learning for medical image segmentation



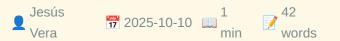
**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

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# Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity





LOW VISION

Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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# Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



**Summary:** CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection KPLA in resource-limited settin...

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# Ocular Hypertension and Glaucoma After Pars Plana Vitrectomy: A Systematic Review and Meta-analysis



**Summary:** CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

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# Computer vision-based laser communication system for robust optical beam tracking and alignment



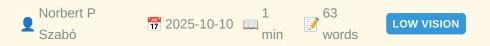
**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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# **Quantifying Effects Of Lifestyle Changes On Progression To Advanced Age-Related Macular Degeneration In High Genetic Risk Individuals**







LOW VISION

Summary: CONCLUSION: Unhealthy behaviors increased incidence of AAMD by 3 to 5fold among a highly genetically susceptible population, and 56-60% of AAMD incidence was attributed to modifiable factors: smoking, high BMI, high caloric intake and low intake of foods rich in lutein-zeaxanthin and omega-3 fatty ...

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# The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

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# **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

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# Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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# Directional vibro-tactile hazard warnings for drivers with vision impairments



Alex R

Bowers

1

80

min

words





TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

### Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

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# Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

#### 

https://pubmed.ncbi.nlm.nih.gov/40850311/?

# **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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# Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

# The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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# **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41007234/?

# **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition







Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

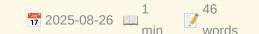
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# Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis









BRAILLE

Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40855574/?

#### **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

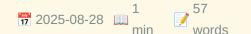
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# A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing









BRAILLE

Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40874468/?

# **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition



Min 1 64
Zhang min words



BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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# A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**







**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

#### Read full article:

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#### Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**







BRAILLE

**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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# Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye











Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

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https://pubmed.ncbi.nlm.nih.gov/40937808/?

# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

#### 

https://pubmed.ncbi.nlm.nih.gov/41013315/?

# **Development and Assessment of a Novel Audiosensory** Performance Method for Improving the Oral Health of Visually **Impaired Children**







**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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# Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**







TDCS TACS TRNS

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41067686/?

# Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)

Xiaoxuan
Tian

Tia

Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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# Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?









#### 

https://pubmed.ncbi.nlm.nih.gov/41069944/?

# Transcranial Direct Current Stimulation as a Therapeutic **Approach for Anxiety and Related Markers: Comprehensive Systematic Review**

Rosa Maria Martins de

1 50 TDCS TACS TRNS words

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

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# The role of the medial prefrontal cortex in risk and time preferences: A tDCS study

Fan 1 70 Li 2025-10-10 min words

TDCS TACS TRNS

**Summary:** Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41072297/?

# Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### 

https://pubmed.ncbi.nlm.nih.gov/41074127/?

Effects of transcranial direct current stimulation on foot sensorimotor function and postural control in healthy young adults: A systematic review and meta-analysis based on randomized controlled trials



**Summary:** CONCLUSION: In conclusion, the current evidence suggested that tDCS may enhance ankle joint proprioception in healthy young adults, while no significant improvements were observed in foot muscle strength or static and dynamic postural control. Further research is warranted to determine the optimal s...

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https://pubmed.ncbi.nlm.nih.gov/41075626/?

# "Shadow government": how transcription factors regulate plant cell wall formation

Natalya
Syrchina

1 2025-10-11 min 66 TDCS TACS TRNS

Summary: The plant cell wall is a dynamic, structurally complex supramolecular compartment essential for the development, defense, and adaptation of plants to their environment. While the biosynthesis and transcriptional regulation of secondary cell walls (SCWs) have been extensively studied and are relative...

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# Lcn2 from neutrophil extracellular traps induces astrogliosis and post-stroke emotional disorders

Zhengrun

1 63 min words



**TDCS TACS TRNS** 

**Summary:** Patients with an ischemic stroke are often predisposed to emotional disorders. However, the mechanisms underlying post-stroke emotional disorders (PSEDs) remain unclear. Recent research highlights the role of neuroinflammation, driven primarily by infiltration of circulating immune cells within the ...

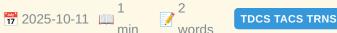
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# Response to Vogelmann et al: Contextualizing Home-Based tDCS Safety: The Remotely Supervised Model







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# Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study









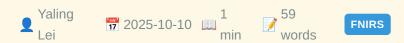


Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41066487/?

# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41069950/?

# Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study



1 57 min words



Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

#### **⊗** Read full article:

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding



1 63 min words







Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070190/?

Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

#### 

https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol









Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41073118/?

# **Effect of Intelligence Quotient Discrepancy on Attention and Executive Function in Children with Attention Deficit Hyperactivity Disorder: An fNIRS Study**









Summary: Intelligence quotient discrepancy (IQD) is associated with neurodevelopmental disorders, but its impact on attention and executive function (EF) deficits in children with attention deficit hyperactivity disorder (ADHD) is unknown. This study aimed to examine the effect of IQD by functional near-infra...

#### 

https://pubmed.ncbi.nlm.nih.gov/41076036/?

# Developmental changes in phonological awareness in Chinese-English bilingual children: an fNIRS longitudinal study



Tai-Li
Chou
Tai-Li
To
words



Summary: Learning to read triggers a cascade of changes in children's minds and brains, changes that lead to the formation of the "reading brain". Importantly, the developmental trajectory of these changes differs across languages. The development of phonological literacy skills comes first for learners of a...

#### **⊗** Read full article:

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# Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**









Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

#### Read full article:

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# Machine learning assessment of cognitive reserve using functional near-infrared spectroscopy in older adults with cognitive frailty



**Summary:** Cognitive reserve mitigates aging-related cognitive decline and frailty, yet current assessments lack neurobiological specificity. We aimed to develop a noninvasive, functional near infrared spectroscopy (fNIRS)-based machine learning model to classify cognitive reserve levels in older adults with c...

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# Does increasing canopy liana density decrease the tropical forest carbon sink?



**Summary:** The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

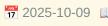
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# Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces







**Summary:** [This corrects the article DOI: 10.1371/journal.pone.0311075.].

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+e462414

# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding









Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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# Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

Jinsong 1 29
Wu min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

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# A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



1 2025-10-10 min 66 words

BRAIN COMPUTER INTERFACE

Summary: Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

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# **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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## Novel analysis method to determine the neural activation function of the inner hair cell



1 79 min words

BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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# Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]







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# **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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# Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**

Murad
Althobaiti

1
2025-10-11
min

43
BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

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### How Kyoto, Japan Became the Loveliest Tourist-Trap

1 2025-10-09 min words HACKER NEWS

Summary: <a href="https://news.ycombinator.com/item?id=45533175">Comments</a>

https://nymag.com/intelligencer/article/kyoto-japan-tourism-attraction-travel-tourist-trap.html

# CamoLeak: Critical GitHub Copilot Vulnerability Leaks Private Source Code

greyadept 7 2025-10-11 min 13 words

**Summary:** Article URL: <a href="https://www.legitsecurity.com/blog/camoleak-critical-github-copilot-vulnerability-leaks-private-source-code">https://www.legitsecurity.com/blog/camoleak-critical-github-copilot-vulnerability-leaks-private-source-code</a> Comments URL: <a href="https://news.ycombinator...">https://news.ycombinator...

https://www.legitsecurity.com/blog/camoleak-critical-github-copilot-vulnerability-leaks-private-source-code

# **Coral Protocol Open Infrastructure Connecting the Internet of Agents**

① joj333 7 2025-10-12 1 13 HACKER NEWS

**Summary:** Article URL: <a href="https://arxiv.org/abs/2505.00749">https://arxiv.org/abs/2505.00749">https://arxiv.org/abs/2505.00749</a> Comments URL: <a href="https://news.ycombinator.com/item?id=45555012">https://news.ycombinator.com/item?id=45555012</a> Points: 3 # Comments: 0

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https://arxiv.org/abs/2505.00749

# A Force/Torque Taxonomy for Classifying States During **Physical Co-Manipulation**

1 149 min words

TRANSACTIONS HAPTICS

**Summary:** Achieving seamless human-robot collaboration requires a deeper understanding of how agents manage and communicate forces during shared tasks. Force interactions during collaborative manipulation are inherently complex, especially when considering how they evolve over time. To address this complexity...

http://ieeexplore.ieee.org/document/11037651

### Haptic Relocation Away From the Fingertip: Where, Why, and How

1 194 min words



TRANSACTIONS HAPTICS

Summary: Tactile haptic devices are often designed to render meaningful, complex, and realistic touch-based information on users' skin. While fingertips and hands are the most preferred body locations to render haptic feedback, recent trends allow such feedback to be extended to alternative body locations (e...

Read full article:

### **Tactile-Thermal Interactions: Cooperation and Competition**

1 198 TRANSACTIONS HAPTICS

**Summary:** This review focuses on the interactions between the cutaneous senses, and in particular touch and temperature, as these are the most relevant for developing skin-based display technologies for use in virtual reality (VR) and for designing multimodal haptic devices. A broad spectrum of research is re...

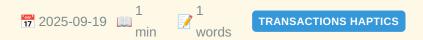
http://ieeexplore.ieee.org/document/10918829

# **Twenty Years of World Haptics: Retrospective and Future Directions**



http://ieeexplore.ieee.org/document/11174044

#### **Table of Contents**



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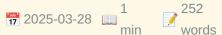


TRANSACTIONS HAPTICS



http://ieeexplore.ieee.org/document/11174042

# An Exploration of the Electrocorticogram Signatures Evoked by Ultrasound Thalamus Stimulation Under Isoflurane **Anesthesia in Rats**







TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: The transcranial ultrasound stimulation (TUS) on the thalamus can indirectly induce cortical response. Studies have shown that general anesthetic induced unconsciousness is related to interruption of thalamocortical connectivity. However, the neural mechanism of how anesthesia levels infl...



# **Pulmonary Hypertension Detection From Heart Sound Analysis**

1 206 min words

TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: The detection of Pulmonary Hypertension (PH) from the computer analysis of digitized heart sounds is a low-cost and non-invasive solution for early PH detection and screening. We present an extensive cross-domain evaluation methodology with varying animals (humans and porcine animals) and varying au...

http://ieeexplore.ieee.org/document/10944577

## Transcranial Focused Ultrasound Modulates Visual Thalamus in a Nonhuman Primate Model

1 2025-04-07 min 250 words





TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: The thalamus plays a pivotal role as a neural hub, integrating and distributing visual information to cortical regions responsible for visual processing. Transcranial focused ultrasound (tFUS) has emerged as a promising non-invasive brain stimulation technology, enabling modulation of neu...

Read full article:

# Early menopause is associated with reduced global brain activity

Liu, X., Liu, X., Luo, L., Pritschet, L., Mao, Y., Han, F., Proctor,

1 2025-10-11 min

216 words

BIORXIV NEUROSCIENCE

Summary: Menopause affects the aging process in women through significant ovarian hormone production decline in midlife. Women who experience early menopause face an accelerated physiological aging rate, along with impaired memory and increased risks of neurodegenerative diseases. However, it remains elusive...

#### 

https://www.biorxiv.org/content/10.1101/2025.10.10.681622v1?rss=1

# The impact of CSF-filled cavities on scalp EEG and its **implications**







OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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# Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research

Julius .

1 72 2024-07-02 min words OOSTENVELD ROBERT

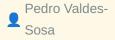
Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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### One hundred years of EEG for brain and behaviour research









OOSTENVELD ROBERT

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# Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity

Richard J A van

1 65 min words

OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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# The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J Gorgolewski 1 82 min words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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# Human cortical high-gamma power scales with movement rate in healthy participants and stroke survivors

Fanny Quandt

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

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# NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**



1 70 min words





OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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# Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>

Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Summary: For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

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### Cycling on the Freeway: The perilous state of open-source neuroscience software

1 74 min words

OOSTENVELD ROBERT

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

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### Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics









LOW VISION

Summary: Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

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# Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation







LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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# Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

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# Multi-interactive feature embedding learning for medical image segmentation



**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

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# Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







LOW VISION

Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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# Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



Yi 1 38 Wang min words

Summary: CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

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# Ocular Hypertension and Glaucoma After Pars Plana **Vitrectomy: A Systematic Review and Meta-analysis**



1 43 words

LOW VISION

Summary: CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

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# Computer vision-based laser communication system for robust optical beam tracking and alignment

Shuai 1 71 Low VISION min words

**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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# **Quantifying Effects Of Lifestyle Changes On Progression To Advanced Age-Related Macular Degeneration In High Genetic Risk Individuals**







LOW VISION

Summary: CONCLUSION: Unhealthy behaviors increased incidence of AAMD by 3 to 5fold among a highly genetically susceptible population, and 56-60% of AAMD incidence was attributed to modifiable factors: smoking, high BMI, high caloric intake and low intake of foods rich in lutein-zeaxanthin and omega-3 fatty ...

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# The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

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# **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40526544/?

# Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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# Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

# Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

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# Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

#### 

https://pubmed.ncbi.nlm.nih.gov/40850311/?

# **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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# Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

# The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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# **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41007234/?

# **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition

Jianming 1 62
Xu min words



Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

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# Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis



7 2025-08-26 min 46 words





BRAILLE

Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

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### **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

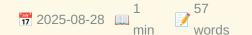
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# A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing











Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40874468/?

# **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition







BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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# A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









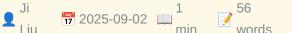
**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

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# Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**











**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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# Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye











Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

#### 

https://pubmed.ncbi.nlm.nih.gov/40937808/?

# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

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# **Development and Assessment of a Novel Audiosensory** Performance Method for Improving the Oral Health of Visually **Impaired Children**







**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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# Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**







TDCS TACS TRNS

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# Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)

Xiaoxuan
Tian

Tia

Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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# Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?



1 2025-10-10 min words

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https://pubmed.ncbi.nlm.nih.gov/41069944/?

# Transcranial Direct Current Stimulation as a Therapeutic **Approach for Anxiety and Related Markers: Comprehensive Systematic Review**

Rosa Maria Martins de

1 50 TDCS TACS TRNS words

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

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# The role of the medial prefrontal cortex in risk and time preferences: A tDCS study

Fan 1 70 Li 2025-10-10 min words

TDCS TACS TRNS

**Summary:** Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

#### Read full article:

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# Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







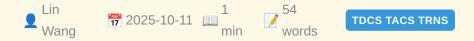
TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### 

https://pubmed.ncbi.nlm.nih.gov/41074127/?

Effects of transcranial direct current stimulation on foot sensorimotor function and postural control in healthy young adults: A systematic review and meta-analysis based on randomized controlled trials



**Summary:** CONCLUSION: In conclusion, the current evidence suggested that tDCS may enhance ankle joint proprioception in healthy young adults, while no significant improvements were observed in foot muscle strength or static and dynamic postural control. Further research is warranted to determine the optimal s...

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https://pubmed.ncbi.nlm.nih.gov/41075626/?

# "Shadow government": how transcription factors regulate plant cell wall formation

Natalya
Syrchina

1 2025-10-11 min 66 TDCS TACS TRNS

Summary: The plant cell wall is a dynamic, structurally complex supramolecular compartment essential for the development, defense, and adaptation of plants to their environment. While the biosynthesis and transcriptional regulation of secondary cell walls (SCWs) have been extensively studied and are relative...

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# Lcn2 from neutrophil extracellular traps induces astrogliosis and post-stroke emotional disorders

Zhengrun

1 63 min words

**TDCS TACS TRNS** 

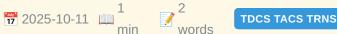
**Summary:** Patients with an ischemic stroke are often predisposed to emotional disorders. However, the mechanisms underlying post-stroke emotional disorders (PSEDs) remain unclear. Recent research highlights the role of neuroinflammation, driven primarily by infiltration of circulating immune cells within the ...

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# Response to Vogelmann et al: Contextualizing Home-Based tDCS Safety: The Remotely Supervised Model







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# Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study











Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

#### Read full article:

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# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

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https://pubmed.ncbi.nlm.nih.gov/41069950/?

# Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study









Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding









Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

#### Read full article:

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Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

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https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol









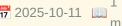
Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

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https://pubmed.ncbi.nlm.nih.gov/41073118/?

# **Effect of Intelligence Quotient Discrepancy on Attention and Executive Function in Children with Attention Deficit Hyperactivity Disorder: An fNIRS Study**









Summary: Intelligence quotient discrepancy (IQD) is associated with neurodevelopmental disorders, but its impact on attention and executive function (EF) deficits in children with attention deficit hyperactivity disorder (ADHD) is unknown. This study aimed to examine the effect of IQD by functional near-infra...

#### 

https://pubmed.ncbi.nlm.nih.gov/41076036/?

# Developmental changes in phonological awareness in Chinese-English bilingual children: an fNIRS longitudinal study



Tai-Li
Chou
Tai-Li
To
words



Summary: Learning to read triggers a cascade of changes in children's minds and brains, changes that lead to the formation of the "reading brain". Importantly, the developmental trajectory of these changes differs across languages. The development of phonological literacy skills comes first for learners of a...

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# Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**









Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

#### Read full article:

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# Machine learning assessment of cognitive reserve using functional near-infrared spectroscopy in older adults with cognitive frailty



**Summary:** Cognitive reserve mitigates aging-related cognitive decline and frailty, yet current assessments lack neurobiological specificity. We aimed to develop a noninvasive, functional near infrared spectroscopy (fNIRS)-based machine learning model to classify cognitive reserve levels in older adults with c...

#### **⊗** Read full article:

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# Does increasing canopy liana density decrease the tropical forest carbon sink?



**Summary:** The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

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# Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces







**Summary:** [This corrects the article DOI: 10.1371/journal.pone.0311075.].

#### 

https://pubmed.ncbi.nlm.nih.gov/41066375/? utm\_source=BucketBot&utm\_medium=rss&utm\_campaign=None&utm\_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251012011744&v=2.18.0.post9

# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding



+e462414







Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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# Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

Jinsong 1 29
Wu min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

#### 

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# A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



1 2025-10-10 min 66 words

BRAIN COMPUTER INTERFACE

Summary: Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

### 

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# **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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# Novel analysis method to determine the neural activation function of the inner hair cell

1 79 min words

BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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# Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]







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# **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study









BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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# Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**

Murad
Althobaiti

1 43 min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

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# Implicit learning of melodic structure: A role for pitch?

1 180 min words





**PSYCHOMUSICOLOGY** 

Summary: Growing evidence suggests that pitch influences musical processing, with melodic processing being enhanced in higher pitch ranges (e.g., Fujioka et al., 2005) and rhythmic processing being enhanced in lower pitches, and these effects may have a basis in elementary properties of the auditory system (...

http://doi.org/10.1037/pmu0000303

# The sound of manufactured music: Reviewing the role of artificial stimuli in music cognition research.

259 PSYCHOMUSICOLOGY words

**Summary:** Having participants listen and react to musical stimuli is one of music cognition's foundational methods. Whereas most researchers have used stimuli adapted from existing musical traditions in such work, others have incorporated artificial stimuli (i.e., stimuli generated specifically for research t...

http://doi.org/10.1037/pmu0000304

# Neighbor shielded 7-year-old during South Shore federal raid

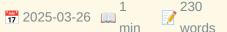


**Summary:** Article URL: <a href="https://chicago.suntimes.com/immigration/2025/10/10/neighbor-shielded-7-year-old-during-south-shore-federal-raid-i-didnt-want-them-to-take-her">https://chicago.suntimes.com/immigration/2025/10/10/neighbor-shielded-7-year-old-during-south-shore-federal-raid-i-didnt-want-them-...

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An Active Insole to Reduce Plantar Pressure Loading: Using **Predictive Finite Element Driven Soft Hydraulic Actuators to** Minimize Plantar Pressure and the Pressure Time Integral for **Diabetic Foot Ulceration Risk Management** 







TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: This article aims to design, manufacture and evaluate an active insole to reduce plantar tissue loading to minimise the risk of diabetic foot ulceration for people living with diabetes. Methods: A prototype hydraulic soft robotic actuating insole was produced. It was controlled by an appr...



http://ieeexplore.ieee.org/document/10938869

# **Optimizing Non-Intersecting Synthetic Vascular Trees in Nonconvex Organs**







TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: The understanding of the mechanisms driving vascular development is still limited. Techniques to generate vascular trees synthetically have been developed to tackle this problem. However, most algorithms are limited to single trees inside convex perfusion volumes. We introduce a new frame...



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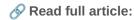
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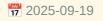


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# **IEEE Transactions on Biomedical Engineering Handling Editors Information**





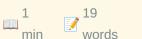


TRANSACTIONS BIOMEDICAL ENGINEERING

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http://ieeexplore.ieee.org/document/11174022

# BNIP3L/NIX-mediated mitophagy: Future directions in Alzheimer's disease



BRAIN RESEARCH

Summary: Publication date: 15 November 2025<b>Source:</b> Brain Research, Volume 1867Author(s): Violina Kakoty, Khang Wen Goh, Prashant Kesharwani, Young Tag Ko

#### 

https://www.sciencedirect.com/science/article/pii/S0006899325005335?dgcid=rss\_sd\_all

## Rethinking task importance in the visual world paradigm

1 min

**BRAIN RESEARCH** 

**Summary:** Publication date: 15 November 2025<b>Source:</b> Brain Research, Volume 1867Author(s): Falk Huettig, Michael K. Tanenhaus

https://www.sciencedirect.com/science/article/pii/S0006899325005281?dgcid=rss sd all

# Single-cell RNA sequencing reveals the ameliorative effects of Kai-Xin-San on depression via regulating neuroplasticity and inflammation in the hypothalamus of rats





**NEUROSCIENCE JOURNAL** 

**Summary:** Publication date: 10 November 2025<b>Source:</b><br/>Neuroscience, Volume 587Author(s): Xiaoxi Li, Yiming Hua, Huiling Li, Yingnan<br/>Feng, Chao Wu, Xin Hu, Zhichao Zhang, Xiaojiang Zhou, Xianzhe Dong

https://www.sciencedirect.com/science/article/pii/S0306452225009674?dgcid=rss\_sd\_all

# GlyT1 inhibition promotes post-ischemic neuroprotection in the MCAO model

NEUROSCIENCE JOURNAL

Summary: Publication date: 10 November 2025<b>Source:</b> Neuroscience, Volume 587Author(s): Daniel Pereira Cavalcante, Antônio Ítalo dos Santos Nunes, Gustavo Almeida de Carvalho, Renato Santiago Gomez, Leandro do Prado Assunção, Alexandre Melo Bailão, Mauro Cunha Xavier Pinto



https://www.sciencedirect.com/science/article/pii/S0306452225009637?dgcid=rss\_sd\_all

# Blackcurrant anthocyanins improve visual contrast resolution for optokinetic responses in aging mice





NEUROSCIENCE JOURNAL

Summary: Publication date: 10 November 2025<b>Source:</b> Neuroscience, Volume 587Author(s): Yuko Sugita, Koki Kobayashi, Hung-Ya Tu, Daisuke Okuzaki, Takahisa Furukawa



https://www.sciencedirect.com/science/article/pii/S0306452225009170?dqcid=rss sd all

# The impact of CSF-filled cavities on scalp EEG and its **implications**

Maria Carla
Piastra

1
2024-06-14

min

64

words

OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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# Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research



1 72 min words

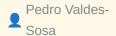
OOSTENVELD ROBERT

Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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## One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

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# Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity







OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

#### 

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# The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J
Gorgolewski

1 2024-09-23 min 82
words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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# **Human cortical high-gamma power scales with movement** rate in healthy participants and stroke survivors

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

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# NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**

Luca 1 70
Pollonini 2025-01-27 min words

OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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# Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>



Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Oostenveld robert



**Summary:** For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

#### Read full article:

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# Cycling on the Freeway: The perilous state of open-source neuroscience software

Tim M
Tierney

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

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# Optimal configuration of on-scalp OPMs with fixed channel counts









OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics



**Summary:** Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

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# Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation









Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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## Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

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## Multi-interactive feature embedding learning for medical image segmentation



**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

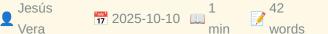
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## Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







LOW VISION

Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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## Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



Yi 1 38 Wang min words



Summary: CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

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## Ocular Hypertension and Glaucoma After Pars Plana **Vitrectomy: A Systematic Review and Meta-analysis**



1 43 words





LOW VISION

Summary: CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

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## Computer vision-based laser communication system for robust optical beam tracking and alignment



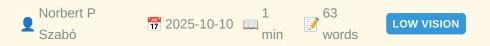
**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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## **Quantifying Effects Of Lifestyle Changes On Progression To Advanced Age-Related Macular Degeneration In High Genetic Risk Individuals**







LOW VISION

Summary: CONCLUSION: Unhealthy behaviors increased incidence of AAMD by 3 to 5fold among a highly genetically susceptible population, and 56-60% of AAMD incidence was attributed to modifiable factors: smoking, high BMI, high caloric intake and low intake of foods rich in lutein-zeaxanthin and omega-3 fatty ...

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## The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

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## **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40526544/?

## Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words



TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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https://pubmed.ncbi.nlm.nih.gov/40577301/?

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## Directional vibro-tactile hazard warnings for drivers with vision impairments



Alex R

Bowers

1

80

min

words





TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

## Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

#### **⊗** Read full article:

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## Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

#### 

https://pubmed.ncbi.nlm.nih.gov/40850311/?

## **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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https://pubmed.ncbi.nlm.nih.gov/40924900/?

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## Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

## The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

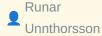
Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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## **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41007234/?

## **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition









Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

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## Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis









BRAILLE

Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

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## **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

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## A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing









BRAILLE

Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40874468/?

## **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition







BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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## A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









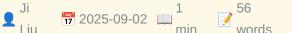
**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40889233/?

## Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**











**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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## Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye











Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

#### 

https://pubmed.ncbi.nlm.nih.gov/40937808/?

# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

#### 

https://pubmed.ncbi.nlm.nih.gov/41013315/?

## **Development and Assessment of a Novel Audiosensory** Performance Method for Improving the Oral Health of Visually **Impaired Children**







**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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## Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**







TDCS TACS TRNS

## Read full article:

https://pubmed.ncbi.nlm.nih.gov/41067686/?

## Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)

Xiaoxuan
Tian

Tia

Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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## Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?



1 2025-10-10 min words



## 

https://pubmed.ncbi.nlm.nih.gov/41069944/?

## Transcranial Direct Current Stimulation as a Therapeutic **Approach for Anxiety and Related Markers: Comprehensive Systematic Review**

Rosa Maria Martins de

1 50 TDCS TACS TRNS words

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

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## The role of the medial prefrontal cortex in risk and time preferences: A tDCS study

Fan 1 70 Li 2025-10-10 min words

TDCS TACS TRNS

**Summary:** Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

#### Read full article:

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## Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







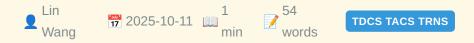
TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### 

https://pubmed.ncbi.nlm.nih.gov/41074127/?

Effects of transcranial direct current stimulation on foot sensorimotor function and postural control in healthy young adults: A systematic review and meta-analysis based on randomized controlled trials



**Summary:** CONCLUSION: In conclusion, the current evidence suggested that tDCS may enhance ankle joint proprioception in healthy young adults, while no significant improvements were observed in foot muscle strength or static and dynamic postural control. Further research is warranted to determine the optimal s...

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r1ebioUg42SIGRyVKSoW4m6X-ecQ00&fc=None&ff=20251012004155&v=2.18.0.post9+e462414

## "Shadow government": how transcription factors regulate plant cell wall formation

Natalya
Syrchina

1 2025-10-11 min 66 TDCS TACS TRNS

Summary: The plant cell wall is a dynamic, structurally complex supramolecular compartment essential for the development, defense, and adaptation of plants to their environment. While the biosynthesis and transcriptional regulation of secondary cell walls (SCWs) have been extensively studied and are relative...

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## Lcn2 from neutrophil extracellular traps induces astrogliosis and post-stroke emotional disorders

Zhengrun

1 63 min words



**TDCS TACS TRNS** 

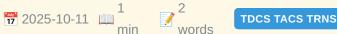
**Summary:** Patients with an ischemic stroke are often predisposed to emotional disorders. However, the mechanisms underlying post-stroke emotional disorders (PSEDs) remain unclear. Recent research highlights the role of neuroinflammation, driven primarily by infiltration of circulating immune cells within the ...

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https://pubmed.ncbi.nlm.nih.gov/41075784/?

## Response to Vogelmann et al: Contextualizing Home-Based tDCS Safety: The Remotely Supervised Model







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## Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study









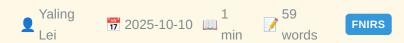


Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41066487/?

# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41069950/?

## Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study









Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

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## Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding



1 63 min words







Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070190/?

Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

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https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol









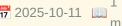
Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

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https://pubmed.ncbi.nlm.nih.gov/41073118/?

## **Effect of Intelligence Quotient Discrepancy on Attention and Executive Function in Children with Attention Deficit Hyperactivity Disorder: An fNIRS Study**









Summary: Intelligence quotient discrepancy (IQD) is associated with neurodevelopmental disorders, but its impact on attention and executive function (EF) deficits in children with attention deficit hyperactivity disorder (ADHD) is unknown. This study aimed to examine the effect of IQD by functional near-infra...

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https://pubmed.ncbi.nlm.nih.gov/41076036/?

## Developmental changes in phonological awareness in Chinese-English bilingual children: an fNIRS longitudinal study



Tai-Li
Chou
Tai-Li
To
words



Summary: Learning to read triggers a cascade of changes in children's minds and brains, changes that lead to the formation of the "reading brain". Importantly, the developmental trajectory of these changes differs across languages. The development of phonological literacy skills comes first for learners of a...

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## Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**







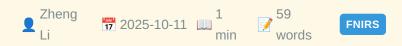


Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41076093/?

# Machine learning assessment of cognitive reserve using functional near-infrared spectroscopy in older adults with cognitive frailty



**Summary:** Cognitive reserve mitigates aging-related cognitive decline and frailty, yet current assessments lack neurobiological specificity. We aimed to develop a noninvasive, functional near infrared spectroscopy (fNIRS)-based machine learning model to classify cognitive reserve levels in older adults with c...

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## Does increasing canopy liana density decrease the tropical forest carbon sink?



**Summary:** The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

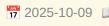
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## Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces







**Summary:** [This corrects the article DOI: 10.1371/journal.pone.0311075.].

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## Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding









Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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## Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

Jinsong 1 29
Wu min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

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## A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



1 2025-10-10 min 66 words

BRAIN COMPUTER INTERFACE

Summary: Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

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## **EEG-CLIP:** A transformer-based framework for EEG-guided image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

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Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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## Novel analysis method to determine the neural activation function of the inner hair cell



1 79 min words





BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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## Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]





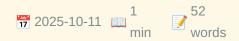


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## **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







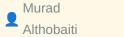
BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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## Sensitivity Analysis of the Balloon Model Parameters in **Functional Near-Infrared Spectroscopy Simulation**



1 2025-10-11 min words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: The fNIRS hemodynamic response is highly sensitive to the Balloon model's  $\alpha$  and  $\tau$  parameters. These findings highlight the importance of accounting for physiological variability in fNIRS analysis and provide a robust framework for generating synthetic data to test signal processing algo...

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## Music-evoked nostalgia and charitable giving: A crosscultural study in the United States and Mexico.





PSYCHOMUSICOLOGY

Summary: Nostalgia, a past-oriented emotion characterized by complex affective responses, is a pervasive and fundamental human experience. Prior research has demonstrated that nostalgia serves various socioemotional functions, such as promoting a sense of belonging, enhancing one's perception of meaning in I...

**Read full article:** 

http://doi.org/10.1037/pmu0000302

## Early contingency information enhances human punishment sensitivity when punishment is frequent but not rare.

2025-07-10 min 155

BEHAVIORAL NEUROSCIENCE

**Summary:** Individuals differ in sensitivity to the adverse consequences of their actions. We have shown that these differences can be linked to differences in correctly learning causal relationships between actions and their negative consequences. To further assess this, here we used a conditioned punishment ...

http://doi.org/10.1037/bne0000627

## Deep brain stimulation of nucleus basalis of meynert: Effect of stimulation mode and duration on learning in rat model of dementia.

2025-06-09 min 273 words BEHAVIORAL NEUROSCIENCE

**Summary:** Deep brain stimulation (DBS) of the nucleus basalis of Meynert (NBM) has been preliminarily investigated as a potential treatment for dementia. The degeneration of NBM cholinergic neurons is a pathological feature of many forms of dementia. Although NBM stimulation has been demonstrated to improve I...

http://doi.org/10.1037/bne0000625

## Influence of context on extinguished appetitive conditioning in male and female rats.

1 230 min words



BEHAVIORAL NEUROSCIENCE

Summary: Extinction is fundamental to adaptive behavior in that it allows organisms to alter previously conditioned behaviors based on the prevailing environmental contingencies. Extinguished responses, however, will renew when the conditioned stimulus is presented outside the extinction context. There has b...

http://doi.org/10.1037/bne0000626

## Gonadectomy maintains goal-directed responding in female rats and accelerates habit formation in male rats.

1 2025-04-07 min 271 words





BEHAVIORAL NEUROSCIENCE

Summary: We have previously demonstrated that gonadally intact female rats become habitual following around 120 response-outcome (R-Os) exposures during operant training. This rapid development of habit does not occur in gonadally intact male rats, which remain goal-directed up to at least 320 R-Os. The pres...

Read full article:

http://doi.org/10.1037/bne0000622

## **Monthly Updates [April]**







FMHY

Summary: <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our <a href="https://github.com/fmhy/FMHYedit/commits/">https://github.com/fmhy/FMHYedit/commits/</a> main" rel="noreferrer" target=" blank">Commits Page</a> on ...



https://fmhy.net/posts/april-2025

## The Internet Archive needs your help.









Summary: A coalition of major record labels has filed a lawsuit against the Internet Archive—demanding <strong>\$700 million</strong> for our work preserving and providing access to historical 78rpm records. These fragile, obsolete discs hold some of the earliest recordings of a vanishing American culture....



https://fmhy.net/posts/support-ia

### **Monthly Updates [May]**



**Summary:** <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our <a href="https://github.com/fmhy/FMHYedit/commits/main" rel="noreferrer" target="\_blank">Commits Page</a> on ...

https://fmhy.net/posts/may-2025

## **Monthly Updates [June]**



**Summary:** <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our <a href="https://github.com/fmhy/FMHYedit/commits/main" rel="noreferrer" target=" blank">Commits Page</a> on ...

https://fmhy.net/posts/june-2025

### **Monthly Updates [July]**



**Summary:** <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our <a href="https://github.com/fmhy/FMHYedit/commits/main" rel="noreferrer" target=" blank">Commits Page</a> on ...

FMHY

https://fmhy.net/posts/july-2025

## **Monthly Updates [August]**



**Summary:** <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our <a href="https://github.com/fmhy/FMHYedit/commits/main" rel="noreferrer" target=" blank">Commits Page</a> on ...

**⊗** Read full article:

https://fmhy.net/posts/aug-2025

## **Monthly Updates [Sept]**





FMHY

Summary: <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our <a href="https://github.com/fmhy/FMHYedit/commits/">https://github.com/fmhy/FMHYedit/commits/</a> main" rel="noreferrer" target=" blank">Commits Page</a> on ...



https://fmhy.net/posts/sept-2025

## Fight Chat Control 🔒







**FMHY** 

**Summary:** <h3 id="the-eu-still-wants-to-scan-your-private-messages-and-photos" tabindex="-1">The EU (still) wants to scan your private messages and photos. <a class="header-anchor" href="#the-eu-still-wants-to-scan-your-private-messages-andphotos"></a></h3> The &quot;Chat Control&quot; proposal would mand...



https://fmhy.net/posts/FCC

## **IEEE Transactions on Biomedical Engineering Information for Authors**



**Read full article:** 

http://ieeexplore.ieee.org/document/11173872

## IEEE Engineering in Medicine and Biology Society Publication Information



http://ieeexplore.ieee.org/document/11174019

#### **Front Cover**



**⊗** Read full article:

## A Survey of Few-Shot Learning for Biomedical Time Series

1 2024-11-06 min 176

REVIEWS BIOMEDICAL ENGINEERING

**Summary:** Advancements in wearable sensor technologies and the digitization of medical records have contributed to the unprecedented ubiquity of biomedical time series data. Data-driven models have tremendous potential to assist clinical diagnosis and improve patient care by improving long-term monitoring cap...

http://ieeexplore.ieee.org/document/10745649

## Foundation Model for Advancing Healthcare: Challenges, Opportunities and Future Directions

1 2024-11-12 min 214 REVIEWS BIOMEDICAL ENGINEERING words

**Summary:** Foundation model, trained on a diverse range of data and adaptable to a myriad of tasks, is advancing healthcare. It fosters the development of healthcare artificial intelligence (AI) models tailored to the intricacies of the medical field, bridging the gap between limited AI models and the varied n...

**Read full article:** 

## **Data- and Physics-Driven Deep Learning Based Reconstruction for Fast MRI: Fundamentals and** Methodologies

1 151 min words

REVIEWS BIOMEDICAL ENGINEERING

Summary: Magnetic Resonance Imaging (MRI) is a pivotal clinical diagnostic tool, yet its extended scanning times often compromise patient comfort and image quality, especially in volumetric, temporal and quantitative scans. This review elucidates recent advances in MRI acceleration via data and physics-drive...

**⊗** Read full article:

http://ieeexplore.ieee.org/document/10729663

## **Artificial General Intelligence for Medical Imaging Analysis**

1 159 min words





REVIEWS BIOMEDICAL ENGINEERING

Summary: Large-scale Artificial General Intelligence (AGI) models, including Large Language Models (LLMs) such as ChatGPT/GPT-4, have achieved unprecedented success in a variety of general domain tasks. Yet, when applied directly to specialized domains like medical imaging, which require in-depth expertise, ...

Read full article:

## **Exhaled Breath Analysis: From Laboratory Test to Wearable** Sensing

1 182 min words

REVIEWS BIOMEDICAL ENGINEERING

Summary: Breath analysis and monitoring have emerged as pivotal components in both clinical research and daily health management, particularly in addressing the global health challenges posed by respiratory and metabolic disorders. The advancement of breath analysis strategies necessitates a multidisciplinar...

http://ieeexplore.ieee.org/document/10720187

## **Earable Multimodal Sensing and Stimulation: A Prospective Toward Unobtrusive Closed-Loop Biofeedback**

1 2004-11-29 min 200 words



REVIEWS BIOMEDICAL ENGINEERING

Summary: The human ear has emerged as a bidirectional gateway to the brain's and body's signals. Recent advances in around-the-ear and in-ear sensors have enabled the assessment of biomarkers and physiomarkers derived from brain and cardiac activity using ear-electroencephalography (ear-EEG), photoplethysmog...

Read full article:

## Editorial: Harnessing Reviews to Advance Biomedical Engineering's New Horizons



**⊗** Read full article:

http://ieeexplore.ieee.org/document/10856220

# Activin A protects against lipopolysaccharide/TNF-α induced damage of dopaminergic neurons both in vivo and in vitro by regulating mitochondrial fusion



**Summary:** Publication date: 10 November 2025<b>Source:</b><br/>Neuroscience, Volume 587Author(s): Yue Zhang, Shuxiang Tian, Mingguang Niu, Han Yang, Lulu Liu, Yuyang Kang, Yanyan Yin

https://www.sciencedirect.com/science/article/pii/S030645222500973X?dgcid=rss\_sd\_all

## C9orf72 related poly-Glycine-Alanine promotes tau phosphorylation and cell death via ERK1/2 interaction in cellular models



NEUROSCIENCE JOURNAL

Summary: Publication date: 10 November 2025<b>Source:</b> Neuroscience, Volume 587Author(s): Jiahan Zhuang, Zixuan Zhang, Hongfu Jin, Ji Qi, Yuanyuan Chen, Lin Ding, Chenglai Fu, Weiwei Cheng

https://www.sciencedirect.com/science/article/pii/S0306452225009832?dgcid=rss\_sd\_all

## Assessment of elephant claustrum by combined histological analysis and high-resolution micro-CT



NEUROSCIENCE JOURNAL

**Summary:** Publication date: 10 November 2025<b>Source:</b> Neuroscience, Volume 587Author(s): Chao Fang, Anne Schnurpfeil, Lennart Eigen, Olivia Heise, Tabea Pottek, Johannes Alkofer, Thomas Hildebrandt, Tim Salditt, Robert K. Naumann, Michael Brecht

https://www.sciencedirect.com/science/article/pii/S0306452225009741?dqcid=rss sd all

## Effect of <em>Origanum majorana</em> tea on oxidative stress biomarkers in Parkinson's disease: a randomized placebo-controlled pilot study



NEUROSCIENCE JOURNAL

Summary: Publication date: 10 November 2025<b>Source:</b> Neuroscience, Volume 587Author(s): Chbili Chahra, Mrad Sawssen, Hassine Anis, Naija Salma, Nouira Manel, Ben Amor Sana, Ben Fredj Maha

https://www.sciencedirect.com/science/article/pii/S0306452225009777?dgcid=rss\_sd\_all

## The Smarce1 subunit of the BAF complex performs distinct, stage-specific functions during zebrafish retinal development



**NEUROSCIENCE JOURNAL** 

**Summary:** Publication date: 10 November 2025<b>Source:</b> Neuroscience, Volume 587Author(s): Laura Ramírez, Denhí Schnabel, Flavio R. Zolessi, Hilda Lomelí

**Read full article:** 

https://www.sciencedirect.com/science/article/pii/S0306452225009753?dgcid=rss sd all

## Brain infiltrating T cells mediate microglial dysregulation and neuronal loss following SAH

Moro, F., Mazzone, E., Pascente, R., Bataclan, M., Monticelli, S., Pischiutta, F., Trolese, M. C., Vasco, C., Geginat, J., Di Feliciantonio, M., Ortolano, F., Zoerle, T., Zanier, E. R.

1 158
min words

BIORXIV NEUROSCIENCE

Summary: The contribution of T cells to neuroinflammation after aneurysmal subarachnoid hemorrhage (SAH) remains poorly understood. Using a murine pre-chiasmatic injection model of SAH we demonstrate that T cell infiltration into the brain modulates microglial activation and promotes neuronal death. Targeted...

https://www.biorxiv.org/content/10.1101/2025.10.10.681332v1?rss=1

## Convergent Control of NREM Sleep and Anesthesia by **Prefrontal Layer 5 Extratelencephalic Neurons**

Wasilczuk, A. Z., Takekawa, D., Cichon, J., Zhang, X., Blackwood, E., Parra-Munevar, J., Kim, M.-H., Spain, W., Krom, A., Kelz, M. B., Dembrow, N., Proekt, A.

1 2025-10-11 min 148

BIORXIV NEUROSCIENCE





Summary: The cortical mechanisms governing the transition from consciousness to unconsciousness remain poorly understood. While most cortical neurons are suppressed during NREM sleep and anesthesia, we identify a distinct population of prefrontal cortical (PFC) neurons that are preferentially active in both ...

https://www.biorxiv.org/content/10.1101/2025.10.10.681639v1?rss=1

## Towards the implementation of Indigenous data governance in neurogenomics research

Louise C. ParrBrownlie

1 2025-09-29 min 88

NATURE NEUROSCIENCE
words

Summary: Nature Neuroscience, Published online: 29 September 2025; <a href="https://www.nature.com/articles/s41593-025-02070-6">doi:10.1038/ s41593-025-02070-6</a>The promise of genomics-focused neuroscience to improve health outcomes for Indigenous Peoples depends on ensuring more equitable data relat...

https://www.nature.com/articles/s41593-025-02070-6

## Facial expressions in mice reveal latent cognitive variables and their neural correlates

Zachary F. 1 43
Mainen min words

NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 30 September 2025; <a href="https://www.nature.com/articles/s41593-025-02071-5">doi:10.1038/ s41593-025-02071-5</a>The face reveals more than just emotion. Cazettes, Reato and colleagues show that subtle facial movements reveal hidden cognitive states, re...

https://www.nature.com/articles/s41593-025-02071-5

## Brain tumors induce widespread disruption of calvarial bone and alteration of skull marrow immune landscape







Summary: Nature Neuroscience, Published online: 03 October 2025; <a href="https://"><a href="https://"></a> www.nature.com/articles/s41593-025-02064-4">doi:10.1038/s41593-025-02064-4</a></ p>Glioblastoma—the deadliest form of brain cancer—alters the calvarial bone and its marrow components, pushing it toward producing more myeloid ...



https://www.nature.com/articles/s41593-025-02064-4

## Leveraging neuroinformatics to understand cognitive phenotypes in elite athletes through systems neuroscience









FRONTIERS NEUROINFORMATICS

Summary: IntroductionUnderstanding the cognitive phenotypes of elite athletes offers a unique perspective on the intricate interplay between neurological traits and highperformance behaviors. This study aligns with advancing neuroinformatics by proposing a novel framework designed to capture and analyze the...



https://www.frontiersin.org/articles/10.3389/fninf.2025.1557879

## Improving EEG classification of alcoholic and control subjects using DWT-CNN-BiGRU with various noise filtering techniques



Swati
Jain

1 188
words

FRONTIERS NEUROINFORMATICS

Summary: Electroencephalogram (EEG) signal analysis plays a vital role in diagnosing and monitoring alcoholism, where accurate classification of individuals into alcoholic and control groups is essential. However, the inherent noise and complexity of EEG signals pose significant challenges. This study invest...

#### 

https://www.frontiersin.org/articles/10.3389/fninf.2025.1618050

## Large language models can extract metadata for annotation of human neuroimaging publications





FRONTIERS NEUROINFORMATICS

Summary: We show that recent (mid-to-late 2024) commercial large language models (LLMs) are capable of good quality metadata extraction and annotation with very little work on the part of investigators for several exemplar real-world annotation tasks in the neuroimaging literature. We investigated the GPT-4o...

#### Read full article:

https://www.frontiersin.org/articles/10.3389/fninf.2025.1609077

## A correlation-based tool for quantifying membrane periodic skeleton associated periodicity

Hanne B. Rasmussen

1 156 min words

FRONTIERS NEUROINFORMATICS

Summary: IntroductionThe advent of super-resolution microscopy revealed the membraneassociated periodic skeleton (MPS), a specialized neuronal cytoskeletal structure composed of actin rings spaced 190 nm apart by two spectrin dimers. While numerous ion channels, cell adhesion molecules, and signaling protei...

https://www.frontiersin.org/articles/10.3389/fninf.2025.1628538

## Dynamic graph neural networks for UAV-based group activity recognition in structured team sports

Hui 278
Liu 7 2025-09-08 min words

FRONTIERS NEUROROBOTICS

Summary: IntroductionUnderstanding group actions in real-world settings is essential for the advancement of applications in surveillance, robotics, and autonomous systems. Group activity recognition, particularly in sports scenarios, presents unique challenges due to dynamic interactions, occlusions, and var...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1631998

## The impact of CSF-filled cavities on scalp EEG and its **implications**

Maria Carla
Piastra

1
2024-06-14

min

64

words

OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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## Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research



1 72 min words

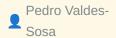
OOSTENVELD ROBERT

Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

#### 

https://pubmed.ncbi.nlm.nih.gov/38956071/?

### One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

#### Read full article:

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## Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity









OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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https://pubmed.ncbi.nlm.nih.gov/39229492/?

## The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J
Gorgolewski

1 2024-09-23 min 82
words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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## **Human cortical high-gamma power scales with movement** rate in healthy participants and stroke survivors

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

#### 

https://pubmed.ncbi.nlm.nih.gov/39786979/?

## NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**

Luca 1 70
Pollonini 2025-01-27 min words

OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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https://pubmed.ncbi.nlm.nih.gov/39870674/?

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## Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>



Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Oostenveld robert

**Summary:** For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40568426/?

## Cycling on the Freeway: The perilous state of open-source neuroscience software

Tim M
Tierney

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

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## Optimal configuration of on-scalp OPMs with fixed channel counts



1 69 min words



OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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https://pubmed.ncbi.nlm.nih.gov/40800964/?

## WaveNet-SF: A hybrid network for retinal disease detection based on wavelet transform in spatial-frequency domain

**1** 71 Hong Hong min words

Summary: Retinal diseases are a leading cause of vision impairment and blindness, with timely diagnosis being critical for effective treatment. Optical Coherence Tomography (OCT) has become a standard imaging modality for retinal disease diagnosis, but OCT images often suffer from issues such as speckle nois...

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https://pubmed.ncbi.nlm.nih.gov/41066999/?

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## Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics









LOW VISION

Summary: Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41067065/?

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## Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation







LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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https://pubmed.ncbi.nlm.nih.gov/41067900/?

 $utm\_source=BucketBot\&utm\_medium=rss\&utm\_campaign=None\&utm\_content=1xePBFBNvSlegfqCbvp4$ 5N3V9WgCNCS63Z1PLmhwJSPGd18QMT&fc=None&ff=20251012002259&v=2.18.0.post9+e462414

# Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

#### **⊗** Read full article:

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## Multi-interactive feature embedding learning for medical image segmentation



**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

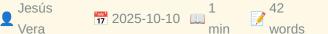
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## Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







LOW VISION

Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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# Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



**Summary:** CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

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## Ocular Hypertension and Glaucoma After Pars Plana Vitrectomy: A Systematic Review and Meta-analysis



**Summary:** CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

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## Computer vision-based laser communication system for robust optical beam tracking and alignment

Shuai 1 71 Li words Low VISION

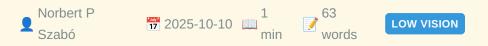
**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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## The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

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## **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

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## Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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## Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

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## Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

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## Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

#### 

https://pubmed.ncbi.nlm.nih.gov/40850311/?

## **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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## Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

## The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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## **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

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## **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition











Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

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## Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis











Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

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### **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

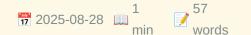
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## A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing











Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

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## **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition



Min 1 64
Zhang min words



BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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## A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

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## Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**











**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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## Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye











Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

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# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

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# Development and Assessment of a Novel Audiosensory Performance Method for Improving the Oral Health of Visually Impaired Children



**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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## Case report: Twice-daily 15mA transcranial alternating current stimulation for adolescent major depressive disorder with suicidal ideation







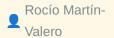
Summary: CONCLUSION: These preliminary findings suggest the potential of accelerated high-frequency tACS as a potential crisis intervention for adolescent MDD-SI, while highlighting the need for controlled clinical trials to establish efficacy and optimize stimulation parameters.

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# Efficacy of transcranial direct current stimulation combined with gait training in patients with Parkinson's Disease: Systematic review and meta-analysis







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### Non-invasive brain stimulation to improve visual perception after stroke: a systematic review and meta-analysis

Juan Francisco Arenillas-

1 35 min words

Summary: CONCLUSIONS: There is low-certainty evidence in favor of NIBS versus sham stimulation and very low-certainty evidence in favor of NIBS combined with other therapies versus other therapies alone for improving visual perception in stroke patients.

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### Transcranial Direct Current Stimulation and Pneumatic **Compression in Soccer: Does the Number of Recovery Sessions Matter?**









TDCS TACS TRNS

Summary: CONCLUSIONS: The unique findings of this study suggest that a greater number of transcranial direct current stimulation sessions combined with pneumatic compression may enhance the recovery process in elite professional soccer players.

### 

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### Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**







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# Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)









Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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### Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?









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# **Transcranial Direct Current Stimulation as a Therapeutic Approach for Anxiety and Related Markers: Comprehensive Systematic Review**







TDCS TACS TRNS

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

### Read full article:

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# The role of the medial prefrontal cortex in risk and time preferences: A tDCS study

Fan 1 70

TDCS TACS TRNS

Summary: Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

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# Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial



1 75 min words



TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### Read full article:

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## Prefrontal transcranial direct current stimulation enhances the analgesic effects of attention bias modification: a randomized controlled trial









**Summary:** This study aimed to investigate whether high-definition transcranial direct current stimulation (HD-tDCS) augmented the effect of attentional bias modification (ABM) on pain perception and to explore the potential neuroimaging mechanism by functional infrared spectroscopy (fNIRS). This randomized, s...

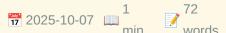
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### The effects of age and delay task duration on attentional boost effect: evidence from behavior and fNIRS











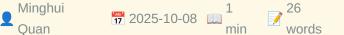
**Summary:** CONCLUSIONS: Age influenced the formation of ABE in the encoding phase. Young-old adults showed greater activation in the right frontal lobe and occipital lobe to maintain ABE, which supported the Compensation-related Utilization of Neural Circuits Hypothesis. Young-old adults' ABE disappeared as de...

### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41053904/?

# The effects of combined exercise on working memory in children with attention-deficit/hyperactivity disorder: a randomized controlled trial







Summary: CONCLUSIONS: Twenty sessions of combined exercise during the summer vacation significantly improved 0-back task performance, mediated by the R DLPFC, and nominally improved 1-back task performance.

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# Functional near-infrared spectroscopy as a diagnostic aid for stable schizophrenia











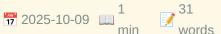
**Summary:** CONCLUSION: Our findings suggest that fNIRS may serve as a valuable clinical measure of cognition assessment, and IV of bilateral temporal lobes and B value of channel 48 can be used as candidate biomarkers to differentiate individuals with schizophrenia.

### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41058641/?

# Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study







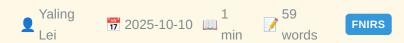


Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

### 

https://pubmed.ncbi.nlm.nih.gov/41066487/?

# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

### 

https://pubmed.ncbi.nlm.nih.gov/41069950/?

# Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study









Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding



1 63 min words





FNIRS

Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

### Read full article:

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Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

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https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol









Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

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https://pubmed.ncbi.nlm.nih.gov/41073118/?

# Al reshaping life sciences: intelligent transformation, application challenges, and future convergence in neuroscience, biology, and medicine



**Summary:** The rapid advancement of artificial intelligence (AI) is profoundly transforming research paradigms and clinical practices across neuroscience, biology, and medicine with unprecedented depth and breadth. Leveraging its robust data-processing capabilities, precise pattern recognition techniques, and ...

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+e462414

### Does increasing canopy liana density decrease the tropical forest carbon sink?

David M
DeFilippis

DeFilippis

David M
To 2025-10-09
To words

BRAIN COMPUTER INTERFACE

Summary: The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

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### Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces

PLOS One Staff 2025-10-09 min 6 BRAIN COMPUTER INTERFACE



Summary: [This corrects the article DOI: 10.1371/journal.pone.0311075.].

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### Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding

Peng 1 63
Wusp min words

BRAIN COMPUTER INTERFACE

Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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# Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study



BRAIN COMPUTER INTERFACE

**Summary:** CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

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utm\_source=BucketBot&utm\_medium=rss&utm\_campaign=None&utm\_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251012002239&v=2.18.0.post9 +e462414

# A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



**Summary:** Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

### **⊗** Read full article:

https://pubmed.ncbi.nlm.nih.gov/41072285/?
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+e462414

### **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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### Novel analysis method to determine the neural activation function of the inner hair cell

1 79 min words

BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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# Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]







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# **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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# Preferred music listening does not affect cognitive inhibition in young and older adults.

1 2023-10-12 min 227 PSYCHOMUSICOLOGY

**Summary:** Previous literature has found links between music listening and cognitive performance. Specifically, background music may play a role in modulating cognitive inhibition. However, determining what type of background music affects cognitive inhibition throughout the lifespan has not been studied. The ...

http://doi.org/10.1037/pmu0000300

# Absolute pitch: A literature review of underlying factors, with special regard to music pedagogy.

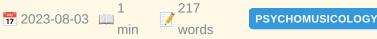
1 2023-07-10 min 202 PSYCHOMUSICOLOGY

**Summary:** Absolute pitch (AP) is a fairly rare and special phenomenon that has relevance for musicology, psychology, genetics, and neuroscience. AP possessors are able to identify the pitch of an isolated sound or to produce that sound without a reference point. The authors' aim is to review the literature on...

**Read full article:** 

http://doi.org/10.1037/pmu0000298

### Capturing coordination and intentionality in joint musical improvisation.



Summary: Humans collaborate with each other on a wide variety of tasks that are often largely improvised and unscripted. In this study, we investigated the dynamics of coordination in a joint musical improvisation task, what the effect of intentions is on coordination, and how musicians propagate these inten...

http://doi.org/10.1037/pmu0000299

# Continuous affect responses to a large diverse set of unfamiliar music: Bayesian time-series and cluster analyses.

1 2023-04-20 min 252 words





**PSYCHOMUSICOLOGY** 

Summary: Sixty-nine participants made continuous response judgments of perceived arousal and valence while listening to 30-s extracts of 100 unfamiliar pieces within a novel recommender system. Our purpose was to take advantage of the relatively large number of participants and pieces studied (compared with ...

http://doi.org/10.1037/pmu0000295

### <em>Psychomusicology</em>: A resounding closing cadence.

1 256 min words

PSYCHOMUSICOLOGY

Summary: From 2012 to 2023, the American Psychological Association served as publisher of <em>Psychomusicology: Music, Mind, and Brain</em>. Annabel Cohen and Mark Schmuckler were the successive editors-in-chiefs during this time. As the journal is ceasing publication, the two editors reflect on the developm...

http://doi.org/10.1037/pmu0000305

# How to deal with regression to the mean when selecting out conscious trials in order to analyze unconscious trials.

1 2024-09-09 min 261 words





CLINICAL NEUROSCIENCE

Summary: In implicit cognition research generally, one standard strategy is to measure the conscious status of knowledge on each trial (e.g., with confidence, structural knowledge attributions, visual clarity ratings) and then subselect the trials where the knowledge is measured to be unconscious. If the acc...

Read full article:

# Anomalous experiences are associated with high subconscious connectedness.

1 2025-04-17 min 264 CLINICAL NEUROSCIENCE

**Summary:** A series of three studies in the United States, collectively involving 2,216 research participants and including two nationwide Internet surveys, examined the relationship of anomalous experiences with the psychological trait of subconscious connectedness, as well as with several other psychological...

http://doi.org/10.1037/cns0000428

# When the unconscious contents are expressed in both Rorschach Performance Assessment System (R-PAS) and dreams: An experimental study.



**Summary:** The Rorschach cards may elicit components of personality functioning that escape consciousness but which may influence observable performance during the test. Similarly, the manifest content of dreams may contain unconscious experiential elements that contribute to the formation of the content that ...

### Ignorance is bliss: A meta-analysis of the fear-reducing effects of very brief exposure.

1 2025-07-31 min 268 words

CLINICAL NEUROSCIENCE

Summary: Neuroscientific research on the unconscious basis of fear has been translated into novel interventions designed to reduce fear without conscious awareness. To date, the most empirically supported nonconscious exposure intervention is <em>very brief exposure</em> (VBE), the continuous presentation of...

http://doi.org/10.1037/cns0000435

# Testing the theoretical position that subconscious phenomena are conscious but not self-conscious.

1 98 min words





CLINICAL NEUROSCIENCE

Summary: Building on Fechner's theory of subliminal perception (perception below the absolute threshold for self-conscious apperception) and Morton Prince's theory that subconscious experiences are conscious but not self-conscious, source-monitoring theory attributes the generic self-conscious inference <em>...

# Paradigm's relevance in empirical research biases: Hypnotizability, resilience, and self-control, an empty systematic review.

1 193 CLINICAL NEUROSCIENCE min words

Summary: There are different perspectives on the psychological constructs of resilience and hypnotizability, and both are related to aspects of mental health. Resilience has been associated with protective variables, whereas hypnotizability has been related to psychopathological variables. This systematic re...

http://doi.org/10.1037/cns0000384

### Mechanistic pathways of acceptance: An experimental study.

1 177 2023-08-17 min words



CLINICAL NEUROSCIENCE

Summary: Acceptance can improve psychological functioning. However, research has yielded inconsistent findings regarding the efficacy of acceptance, which may be related to instructions to accept different aspects of psychological functioning (e.g., thoughts vs. emotion). We compared the effects of self-regu...

Read full article:









FMHY

Summary: People always want to know what the point of life is. Why are they on earth? What are we doing here? Whats our purpose? <em>Whats the point?</em> For most of my life, I didn't really have any answer, but as I got older, I realized, things weren't about me. I took a step back, and recognize...

### 

https://fmhy.net/posts/WWH

### Microsoft only lets you opt out of AI photo scanning 3x a year





HACKER NEWS

Summary: <a href="https://news.ycombinator.com/item?id=45551504">Comments</a>

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https://hardware.slashdot.org/story/25/10/11/0238213/microsofts-onedrive-begins-testing-facerecognizing-ai-for-photos-for-some-preview-users







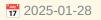


1 2025-01-28 min words REVIEWS BIOMEDICAL ENGINEERING



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### **Front Cover**







1 2025-01-28 min words REVIEWS BIOMEDICAL ENGINEERING

# **Electroencephalographic Functional Connectivity, Heartrate** Synchrony, and Eye Movements Reveal Distinct Components within Narrative Engagement and Immersion

1 220 min 220 words

COGNITIVE NEUROSCIENCE

Summary: Storytelling is a fundamental and universal human behavior, representing a vehicle for cultural information exchange throughout human history. In the present day, consumption of narrative audiovisual media is one of the most common recreational activities worldwide. Despite the importance and ubiqui...

**⊗** Read full article:

http://ieeexplore.ieee.org/document/11153361

### **Object Ownership Processing in Peripersonal Space: An Electroencephalographic Study**

1 251 min words





**COGNITIVE NEUROSCIENCE** 

Summary: A fundamental aspect of interacting with objects in the environment is the ability to distinguish between objects that can be directly acted upon in the peripersonal space (PPS) and those out of immediate reach in the extrapersonal space (EPS). Performing appropriate actions also requires integratin...

Read full article:

# **Neural Signatures of Recollection Are Sensitive to Memory Quality and Specific Event Features**



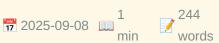
COGNITIVE NEUROSCIENCE

Summary: Episodic memories reflect a bound representation of multimodal features that can be recollected with varying levels of precision. Recent fMRI investigations have demonstrated that the precision and content of information retrieved from memory engage a network of posterior medial-temporal and parieta...

http://ieeexplore.ieee.org/document/11153355

# Transient and Sustained Neuromagnetic Representation of **Consonance and Dissonance in Harmonic Sequences**





COGNITIVE NEUROSCIENCE

Summary: The perception of musical consonance/dissonance (C/D) relies on basic properties of the auditory system, and prior investigations have shown that C/D sounds elicit strongly divergent neurophysiological activity in human auditory cortex. However, studies are missing that assess transient (P1, N1, P2)...

# An Emergentist Account of Language in the Brain—Seeking **Neural Synergies Behind Human Uniqueness**

1 176 min words

COGNITIVE NEUROSCIENCE

Summary: Cognitive neuroscience has become increasingly open to views of human cognitive faculties as emergent properties—as higher-level products of synergies between brain structures handling qualitatively different functions. This new perspective mitigates claims that cognitive abilities are tied to local...

http://ieeexplore.ieee.org/document/11153357

# Impact of Transcutaneous Vagus Nerve Stimulation on Eventrelated Potentials during a Response Inhibition Task

1 157 min words





COGNITIVE NEUROSCIENCE

Summary: As an emerging neuromodulation technique, transcutaneous auricular vagus nerve stimulation (taVNS) has shown promise in enhancing cognitive abilities. The present study used a combination of the go/no-go task and the stop-signal task experimental paradigm to examine the cognitive effects of taVNS on...

### **Confidence and Insight into Working Memory Are Shaped by Attention and Recent Performance**

1 215 min words

COGNITIVE NEUROSCIENCE

Summary: Working memory is capacity-limited, and our ability to access information from working memory is variable, but selective attention to working memory contents can improve performance. People are able to make introspective judgments regarding the quality of their memories, and these judgments are link...

http://ieeexplore.ieee.org/document/11153356

# **Perceptual Decoupling Underlies Internal Shielding Benefit** during Switches between External and Internal Attention: **Evidence from Early Sensory Event-related Potential** Components

1 251 min words





COGNITIVE NEUROSCIENCE

Summary: People need to often switch attention between external and internal sources of information, that is, external and internal attention, respectively. There has been a recent surge of research interest in this type of attentional flexibility, which has revealed that it is characterized by an asymmetric...

Read full article:

# **Lexical and Information Structure Functions of Prosody and** Their Relevance for Spoken Communication: Evidence from **Psychometric and Electroencephalographic Data**







COGNITIVE NEUROSCIENCE

Summary: Prosody not only distinguishes "lexical" meaning but also plays a key role in information packaging by highlighting the most relevant constituent of the discourse, namely, "focus" information. The present study investigated the role of lexical and focus functions of prosody in the coherent interpret...



**⊗** Read full article:

http://ieeexplore.ieee.org/document/11153358

# Galectin-3 in Alzheimer's disease: pathological roles, biomarker potential, and therapeutic implications



**BRAIN RESEARCH** 

Summary: Publication date: 15 November 2025<b>Source:</b> Brain Research, Volume 1867Author(s): A Akash, Mustak Ahamed, Pratyush Porel, Khadga Raj Aran



**Read full article:** 

https://www.sciencedirect.com/science/article/pii/S0006899325005128?dqcid=rss\_sd\_all

# VAE deep learning model with domain adaptation, transfer learning and harmonization for diagnostic classification from multi-site neuroimaging data

D. 276
Rangaprakash min words

FRONTIERS NEUROINFORMATICS

Summary: In large public multi-site fMRI datasets, the sample characteristics, data acquisition methods, and MRI scanner models vary across sites and datasets. This nonneural variability obscures neural differences between groups and leads to poor machine learning based diagnostic classification of neurodev...

**⊗** Read full article:

https://www.frontiersin.org/articles/10.3389/fninf.2025.1553035

### Software and pipelines for registration and analyses of rodent brain image data in reference atlas space

1 2025-09-24 min 207

FRONTIERS NEUROINFORMATICS

Summary: Advancements in methodologies for efficient large-scale acquisition of highresolution serial microscopy image data have opened new possibilities for experimental studies of cellular and subcellular features across whole brains in animal models. There is a high demand for open-source software and wo...

Read full article:

https://www.frontiersin.org/articles/10.3389/fninf.2025.1629388

### A summary of the current circumstances of migraineurs in China: a review of the GBD2019 database







FRONTIERS HUMAN NEUROSCIENCE

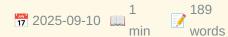
**Summary:** Migraine is a common, chronic and recurrent neurovascular disorder ranked by the WHO as one of the 20 most disabling conditions worldwide. Frequent and severe headaches can significantly impair patients' quality of life, learning capacity, and physical and mental health. On the basis of the Global B...



https://www.frontiersin.org/articles/10.3389/fnhum.2025.1626607

# Toward accurate single image sand dust removal by utilizing uncertainty-aware neural network







FRONTIERS NEUROROBOTICS

**Summary:** Although deep learning methods have made significant strides in single image sand dust removal, the heterogeneous uncertainty induced by dusty environments poses a considerable challenge. In response, our research presents a novel framework known as the Hierarchical Interactive Uncertainty-aware Net...



https://www.frontiersin.org/articles/10.3389/fnbot.2025.1575995

# Multimodal MRI-based radiomics in an ASD rat model: investigating brain structural changes and the neuroprotective effects of selenium

Yang 1 223
Zhang min words

FRONTIERS NEUROSCIENCE

Summary: IntroductionThis study developed and validated a multimodal MRI-based radiomics model to assess brain changes in a rat model of autism spectrum disorder (ASD) following selenium intervention. Methods ASD was induced in Sprague-Dawley rats via prenatal valproic acid administration, with sodium selenite...

**⊗** Read full article:

https://www.frontiersin.org/articles/10.3389/fnins.2025.1651220

### EEG synchronization signatures for decoding attentional states during continuous force control

1 280 min words



FRONTIERS NEUROSCIENCE

Summary: IntroductionMind wandering, the shift of attention from an ongoing task to taskunrelated thoughts, is a pervasive cognitive phenomenon often accompanied by detrimental consequences for task performance. While extensively studied in visual and auditory paradigms, attentional fluctuations during visu...

Read full article:

https://www.frontiersin.org/articles/10.3389/fnins.2025.1654827

Ultrafine brain intrinsic connectivity networks template via very-high-order independent component analysis of largescale resting-state functional magnetic resonance imaging data



**Summary:** Spatial group independent component analysis (sgr-ICA) is widely used in resting-state fMRI to identify intrinsic connectivity networks (ICNs). While lower-order decompositions reveal large-scale networks, higher-order models provide finer granularity but have been limited by small sample sizes. In ...

#### 

https://www.frontiersin.org/articles/10.3389/fnins.2025.1672129

In silico prediction of the impact of genomic variations in the small conductance calcium activated potassium channel SK3 structure and function



**Summary:** The small-conductance calcium-activated potassium channel SK3, encoded by the KCNN3 gene, plays a critical role in regulating dopaminergic neuron (DN) firing patterns by modulating after hyperpolarization currents. SK3 dysfunction has been implicated in neuropsychiatric and neurodegenerative disorde...

#### **Read full article:**

https://www.frontiersin.org/articles/10.3389/fnins.2025.1631536

# The impact of CSF-filled cavities on scalp EEG and its **implications**

Maria Carla
Piastra

1
2024-06-14

min

64

words

OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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# Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research



1 72 min words

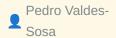
OOSTENVELD ROBERT

Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

#### 

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# One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

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# Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity









OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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https://pubmed.ncbi.nlm.nih.gov/39229492/?

# The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J
Gorgolewski

Sorgolewski

Gorgolewski

Sorgolewski

Sorgolewski

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Sorgolewski

Sorgolewski

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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# **Human cortical high-gamma power scales with movement** rate in healthy participants and stroke survivors

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

#### 

https://pubmed.ncbi.nlm.nih.gov/39786979/?

# NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**

Luca 1 70
Pollonini 2025-01-27 min words

OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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# Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>



Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Oostenveld robert



**Summary:** For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/40568426/?

# Cycling on the Freeway: The perilous state of open-source neuroscience software

Tim M
Tierney

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

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# Optimal configuration of on-scalp OPMs with fixed channel counts









OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

#### 

https://pubmed.ncbi.nlm.nih.gov/40800964/?

# WaveNet-SF: A hybrid network for retinal disease detection based on wavelet transform in spatial-frequency domain

**1** 71 Hong Hong min words

Summary: Retinal diseases are a leading cause of vision impairment and blindness, with timely diagnosis being critical for effective treatment. Optical Coherence Tomography (OCT) has become a standard imaging modality for retinal disease diagnosis, but OCT images often suffer from issues such as speckle nois...

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# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics



1 71 min words





LOW VISION

Summary: Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

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# Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation









LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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# Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

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# Multi-interactive feature embedding learning for medical image segmentation



**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

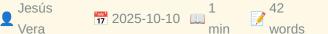
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# Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







LOW VISION

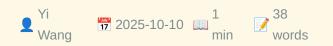
Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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# Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



Summary: CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

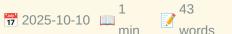
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# Ocular Hypertension and Glaucoma After Pars Plana **Vitrectomy: A Systematic Review and Meta-analysis**









Summary: CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

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# Computer vision-based laser communication system for robust optical beam tracking and alignment

Shuai 1 71 Low vis

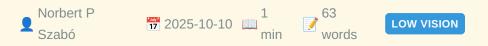
**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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# The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

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# **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

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# Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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# Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

# Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

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# Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

## 

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# **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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# Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

#### 

https://pubmed.ncbi.nlm.nih.gov/40945511/?

# The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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# **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41007234/?

# **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition







Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

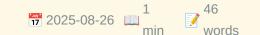
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# Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis









Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

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# **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

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# A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing









BRAILLE

Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

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# **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition







BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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# A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

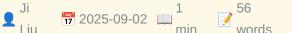
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# Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**











BRAILLE

**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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# Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye





1 55 min words







Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

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https://pubmed.ncbi.nlm.nih.gov/40937808/?

# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

#### 

https://pubmed.ncbi.nlm.nih.gov/41013315/?

# Development and Assessment of a Novel Audiosensory Performance Method for Improving the Oral Health of Visually Impaired Children



**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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# Case report: Twice-daily 15mA transcranial alternating current stimulation for adolescent major depressive disorder with suicidal ideation







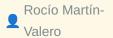
Summary: CONCLUSION: These preliminary findings suggest the potential of accelerated high-frequency tACS as a potential crisis intervention for adolescent MDD-SI, while highlighting the need for controlled clinical trials to establish efficacy and optimize stimulation parameters.

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# Efficacy of transcranial direct current stimulation combined with gait training in patients with Parkinson's Disease: Systematic review and meta-analysis







# Read full article:

https://pubmed.ncbi.nlm.nih.gov/41065007/?

# Non-invasive brain stimulation to improve visual perception after stroke: a systematic review and meta-analysis

Juan Francisco Arenillas-

1 35 min words

Summary: CONCLUSIONS: There is low-certainty evidence in favor of NIBS versus sham stimulation and very low-certainty evidence in favor of NIBS combined with other therapies versus other therapies alone for improving visual perception in stroke patients.

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# Transcranial Direct Current Stimulation and Pneumatic **Compression in Soccer: Does the Number of Recovery Sessions Matter?**



TDCS TACS TRNS

Summary: CONCLUSIONS: The unique findings of this study suggest that a greater number of transcranial direct current stimulation sessions combined with pneumatic compression may enhance the recovery process in elite professional soccer players.

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# Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**





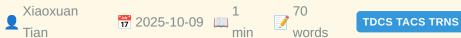


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# Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)









Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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# Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?







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# **Transcranial Direct Current Stimulation as a Therapeutic Approach for Anxiety and Related Markers: Comprehensive Systematic Review**







TDCS TACS TRNS

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

#### Read full article:

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# The role of the medial prefrontal cortex in risk and time preferences: A tDCS study

Fan 1 70

TDCS TACS TRNS



Summary: Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

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# Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41074127/?

# Prefrontal transcranial direct current stimulation enhances the analgesic effects of attention bias modification: a randomized controlled trial









**Summary:** This study aimed to investigate whether high-definition transcranial direct current stimulation (HD-tDCS) augmented the effect of attentional bias modification (ABM) on pain perception and to explore the potential neuroimaging mechanism by functional infrared spectroscopy (fNIRS). This randomized, s...

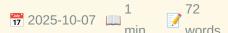
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# The effects of age and delay task duration on attentional boost effect: evidence from behavior and fNIRS











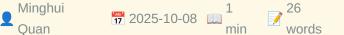
**Summary:** CONCLUSIONS: Age influenced the formation of ABE in the encoding phase. Young-old adults showed greater activation in the right frontal lobe and occipital lobe to maintain ABE, which supported the Compensation-related Utilization of Neural Circuits Hypothesis. Young-old adults' ABE disappeared as de...

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# The effects of combined exercise on working memory in children with attention-deficit/hyperactivity disorder: a randomized controlled trial







Summary: CONCLUSIONS: Twenty sessions of combined exercise during the summer vacation significantly improved 0-back task performance, mediated by the R DLPFC, and nominally improved 1-back task performance.

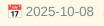
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# Functional near-infrared spectroscopy as a diagnostic aid for stable schizophrenia











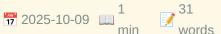
**Summary:** CONCLUSION: Our findings suggest that fNIRS may serve as a valuable clinical measure of cognition assessment, and IV of bilateral temporal lobes and B value of channel 48 can be used as candidate biomarkers to differentiate individuals with schizophrenia.

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41058641/?

# Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study







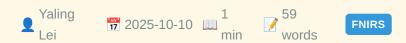


Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

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https://pubmed.ncbi.nlm.nih.gov/41066487/?

# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41069950/?

# Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study

1 57 min words

Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

#### **⊗** Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070188/?

utm\_source=BucketBot&utm\_medium=rss&utm\_campaign=None&utm\_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251011233411&v=2.18.0.post9+e462414

# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding

1 63 min words

FNIRS

Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070190/?

Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

#### 

https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol





**Summary:** INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41073118/?

# Al reshaping life sciences: intelligent transformation, application challenges, and future convergence in neuroscience, biology, and medicine



**Summary:** The rapid advancement of artificial intelligence (AI) is profoundly transforming research paradigms and clinical practices across neuroscience, biology, and medicine with unprecedented depth and breadth. Leveraging its robust data-processing capabilities, precise pattern recognition techniques, and ...

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+e462414

## Does increasing canopy liana density decrease the tropical forest carbon sink?

David M
DeFilippis

DeFilippis

David M
To 2025-10-09
To words

BRAIN COMPUTER INTERFACE

Summary: The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

#### 

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## Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces

PLOS One Staff 2025-10-09 min words BRAIN COMPUTER INTERFACE



Summary: [This corrects the article DOI: 10.1371/journal.pone.0311075.].

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https://pubmed.ncbi.nlm.nih.gov/41066375/?

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## Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding

Peng 1 63
Wusp min words

BRAIN COMPUTER INTERFACE

Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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## Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

1 29 min 29 words

BRAIN COMPUTER INTERFACE

**Summary:** CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

#### 

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# A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



**Summary:** Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

#### **⊗** Read full article:

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+e462414

## **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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## Novel analysis method to determine the neural activation function of the inner hair cell



1 79 min words

BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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## Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]





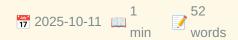


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## **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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## Examining the associations between nonbelieved memories and memory distrust, self-esteem, and rumination.

1 175 CLINICAL NEUROSCIENCE words

**Summary:** When beliefs in autobiographical memories are reduced while recollections remain relatively intact, a phenomenon termed nonbelieved memories (NBMs) unfolds. The current preregistered study (<em>N</em> = 104) used a 3-week longitudinal design to investigate the relationships between the frequency of ...

http://doi.org/10.1037/cns0000344

## Relationship between thought suppression and dissociation and the mediating effect of rumination and unusual sleep experiences.



**Summary:** Dissociation is a phenomenon present in a wide variety of psychiatric disorders as well as in the general population. The objective of this study was to examine the relation between trait thought suppression (TS) and development of dissociative phenomena in the nonclinical population, with emphasis ...

**Read full article:** 

http://doi.org/10.1037/cns0000366

### Mental pain, boredom, and diffuse nociception.

1 237 min words



CLINICAL NEUROSCIENCE

**Summary:** In this article, I propose a novel theory to explain the possible physiological origins of the relatively mild mental pain that is often labeled as boredom and possibly loneliness or a negative mood, depending on one's situation. My admittedly speculative hypothesis is that most people in modern soc...



http://doi.org/10.1037/cns0000405

## Cognitive deficits in Spanish-speaking Mexican children with developmental dyslexia.





**NEUROPSYCHOLOGY** 

Summary: Objective: Developmental dyslexia (DD) has been related to deficits in multiple cognitive skills. Phonological processing deficits are the most frequently reported in opaque orthographies, but there are few studies of transparent orthographies, such as Spanish. The aim of this study was to comprehen...

http://doi.org/10.1037/neu0001035

## Explicit and implicit representation of reward value in cocaine use disorder (CUD): A mouse kinematic study on intertemporal decision-making.

1 2025-08-28 min 204 words

NEUROPSYCHOLOGY

Summary: Objective: Cocaine use disorder (CUD) is a chronic condition with implications on cognitive functions such as decision-making and impulse control. Intertemporal choice paradigms, measuring temporal discounting, offer insight into decision-making of addictive behaviors. When coupled with mouse kinema...

**⊗** Read full article:

http://doi.org/10.1037/neu0001025

## Anhedonia is associated with impaired memory for positive emotional stimuli in individuals with schizophrenia.

1 271 min words



**NEUROPSYCHOLOGY** 

Summary: Objective: Individuals with psychotic disorders routinely display anhedonia when rated on clinical interviews that rely on retrospective reports of pleasure; however, hedonic response is intact on laboratory paradigms measuring self-reported in-the-moment (i.e., consummatory) pleasure. It is current...

http://doi.org/10.1037/neu0001011

### **Best practices for using Python & uv inside Docker**

**Summary:** <!-- SC\_OFF --><div class="md">Getting <code>uv</code> right inside Docker is a bit tricky and even their <a href="https://docs.astral.sh/uv/guides/integration/docker/">official recommendations</a> are not optimal. It is better to use a <a href="https://ashishb.net/programming/using-python..."

**⊗** Read full article:

https://www.reddit.com/r/Python/comments/1o3p4bf/best\_practices\_for\_using\_python\_uv\_inside\_docker/

## I made a game that is teaching you Python! :) After more than three years, I finally released it!



**Summary:** <!-- SC\_OFF --><div class="md">It's called The Farmer Was Replaced Program and optimize a drone to automate a farm and watch it do the work for you. Collect resources to unlock better technology and become the most efficient farmer in the world. Improve your problem solving and coding skil...

**Read full article:** 

https://www.reddit.com/r/Python/comments/1o3voso/i\_made\_a\_game\_that\_is\_teaching\_you\_python\_after/

#### **Heroin Addicts Often Seem Normal**



Summary: <a href="https://news.ycombinator.com/item?id=45553296">Comments</a>

https://justismills.substack.com/p/heroin-addicts-often-seem-normal

## **Heroin Addicts Often Seem Normal**



**Summary:** Article URL: <a href="https://justismills.substack.com/p/heroin-addicts-often-seem-normal">https://justismills.substack.com/p/heroin-addicts-often-seem-normal</a> Comments URL: <a href="https://news.ycombinator.com/item?id=45553296">https://news.ycombinator.com/item?id=45553296</a> ...

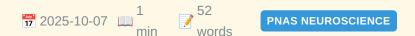
**⊗** Read full article:

https://justismills.substack.com/p/heroin-addicts-often-seem-normal

### When noncanonical olfaction is optimal

Caitlin LienkaemperMeg A. YoungerGabriel Koch OckeraDepartment of Mathematics and Statistics, Boston University, Boston, MA 02215bCenter for Systems Neuroscience, Boston University, Boston,

■ MA 02215cDepartment of Biology, Boston University, Boston, MA 02215dDepartment of Bioengineering, Center for Neurophotonics, Boston University, Boston, MA 02215eCenter for Neurophotonics, Boston University, Boston, MA 02215



**Summary:** Proceedings of the National Academy of Sciences, Volume 122, Issue 41, October 2025. <br/>
SignificanceThe canonical model of early olfaction is that each olfactory sensory neuron (OSN) expresses one type of olfactory receptor, and neurons with the same receptor project to the same downstream glomer...

**⊗** Read full article:

https://www.pnas.org/doi/abs/10.1073/pnas.2508439122?af=R

# Biologically grounded neocortex computational primitives implemented on neuromorphic hardware improve vision transformer performance

Asim IqbalHassan MahmoodGreg J. StuartGord FishellSuraj HonnuraiahaTibbling Technologies, Seattle, WA 98052-5727bJohn Curtin School of Medical Research, Eccles Institute of Neuroscience, Australian National University, Canberra, ACT 2601, AustraliacDepartment of Physiology, Monash

■ University, Melbourne, VIC 3800, AustraliadHarvard Medical School, Blavatnik Institute, Department of Neurobiology, Boston, MA 02115eStanley Center for Psychiatric Research, Broad Institute of MIT and Harvard, Cambridge, MA 02142fInstitute of Neuroinformatics, ETH Zurich and University of Zurich, Zurich CH-8057, Switzerland



**Summary:** Proceedings of the National Academy of Sciences, Volume 122, Issue 41, October 2025. <br/>
SignificanceWe implement a biologically grounded cortical circuit motif in neuromorphic hardware and AI architectures to show how experimentally informed neocortical computations, realized through cell-type-sp...

https://www.pnas.org/doi/abs/10.1073/pnas.2504164122?af=R

## CRISP: a correlation-filtered recursive feature elimination and integration of SMOTE pipeline for gait-based Parkinson's disease screening



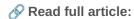
Syed Omer 1 255

Gilani min 255



FRONTIERS COMPUTATIONAL NEUROSCIENCE

**Summary:** IntroductionParkinson's disease (PD) is the fastest-growing neurodegenerative disorder, with subtle gait changes such as reduced vertical ground-reaction forces (VGRF) often preceding motor symptoms. These gait abnormalities, measurable via wearable VGRF sensors, offer a non-invasive means for early...



https://www.frontiersin.org/articles/10.3389/fncom.2025.1660963

## The articulatory basis of phonological error patterns in childhood speech sound disorders



1 2025-10-10 min 237 words



FRONTIERS HUMAN NEUROSCIENCE

**Summary:** Speech acquisition involves complex coordination of articulatory structures, primarily the jaw, lips, and tongue. Typically developing children acquire speech sounds in a hierarchical sequence governed by progressive neuromotor maturation. However, disruptions in speech motor control can lead to sys...



https://www.frontiersin.org/articles/10.3389/fnhum.2025.1635096

## Efficacy of snap-needle patch therapy in pediatric epilepsy: a case study

WeiLan
Oin

1
374
words

FRONTIERS HUMAN NEUROSCIENCE

**Summary:** BackgroundsEpilepsy is a prevalent neurological disorder in early childhood, often characterized by genetic predisposition and diverse clinical manifestations. Benign epilepsy of childhood with central temporal spikes (BECTS) is the most common form of self-limited focal epilepsy (SeLFE) syndrome in...

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1618266

## Modeling dyslexia in neurotypical adults by combining neuroimaging and neuromodulation techniques: a hypothesis paper

1 263 min words



FRONTIERS HUMAN NEUROSCIENCE

**Summary:** Dyslexia is a prevalent developmental disorder marked by deficits in literacy skills. Given that the core deficits of dyslexia are uniquely human, animal models have not been as useful in dyslexia research as they have been in other areas of research. While significant progress has been made through...

Read full article:

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1651332

Neural network reconstruction and motor function recovery in traumatic brain injury rat models via a 3D collagen/heparan/bFGF/NGF scaffold combined with mesenchymal stem cells COMBINED SCAFFOLD-MSC THERAPY FOR TBI REPAIR







JOURNAL NEURAL ENGINEERING

**Summary:** Objective. To address the limited innate regenerative capacity of neural tissues following traumatic brain injury (TBI) by developing a novel therapeutic intervention. Approach. We engineered a composite scaffold using 3D bioprinting to integrate mesenchymal stem cells (MSCs) with collagen-heparan m...

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http://iopscience.iop.org/article/10.1088/1741-2552/ae09fd

## Source-free domain adaptation for SSVEP-based braincomputer interfaces

Osman Berke Guney, Deniz Kucukahmetler and Huseyin Ozkan

1 2025-10-08 min

216 words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Steady-state visually evoked potential-based Brain-computer interface (BCI) spellers assist individuals experiencing speech difficulties by enabling them to communicate at a fast rate. However, achieving a high information transfer rate (ITR) in most prominent methods requires an extensiv...

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http://iopscience.iop.org/article/10.1088/1741-2552/ae0c3d

## The impact of CSF-filled cavities on scalp EEG and its **implications**







OOSTENVELD ROBERT

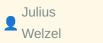
Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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## Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research



1 72 2024-07-02 min words OOSTENVELD ROBERT

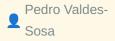
Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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## One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

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## Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity

Richard J A van

1 65 min words

OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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## The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J Gorgolewski 1 82 min words

**OOSTENVELD ROBERT** 

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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## Human cortical high-gamma power scales with movement rate in healthy participants and stroke survivors

Fanny Quandt

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

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## NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**



1 70 min words





OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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## Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>

Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Summary: For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

#### **⊗** Read full article:

https://pubmed.ncbi.nlm.nih.gov/40568426/?

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## Cycling on the Freeway: The perilous state of open-source neuroscience software

1 74 min words

OOSTENVELD ROBERT

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

#### Read full article:

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## Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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## WaveNet-SF: A hybrid network for retinal disease detection based on wavelet transform in spatial-frequency domain

**1** 71 Hong Hong min words

**LOW VISION** 

Summary: Retinal diseases are a leading cause of vision impairment and blindness, with timely diagnosis being critical for effective treatment. Optical Coherence Tomography (OCT) has become a standard imaging modality for retinal disease diagnosis, but OCT images often suffer from issues such as speckle nois...

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https://pubmed.ncbi.nlm.nih.gov/41066999/?

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# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics



**Summary:** Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

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## Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation









LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

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https://pubmed.ncbi.nlm.nih.gov/41067900/?

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## Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

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## Multi-interactive feature embedding learning for medical image segmentation



**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

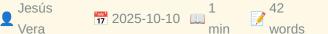
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## Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







LOW VISION

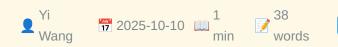
Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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# Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



**Summary:** CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection KPLA in resource-limited settin...

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## Ocular Hypertension and Glaucoma After Pars Plana Vitrectomy: A Systematic Review and Meta-analysis



**Summary:** CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

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## Computer vision-based laser communication system for robust optical beam tracking and alignment



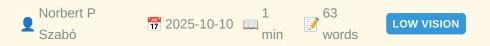
**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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## The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

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## **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

#### Read full article:

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## Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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## Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

#### 

https://pubmed.ncbi.nlm.nih.gov/40601880/?

## Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

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## Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

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## **Eye Drop Instillation Success and Hand Function in Adults** with Glaucoma: A Pilot Study

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

Summary: CONCLUSIONS: Despite hand function deficits, in this exploratory pilot study, adults with glaucoma demonstrated eye drop instillation success comparable to those without glaucoma, though with higher rates of bottle tip contact with the eye, skin, or eyelashes, suggesting an increased risk of potenti...

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## Functional evidence for early origin of tactile acuity in the vertebrate somatosensory system

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

Summary: Mammals and reptiles possess a sophisticated somatosensory system for precise tactile discrimination via mechanosensory end-organs, such as Meissner and Pacinian corpuscles and others. These structures detect sustained pressure, velocity, and vibrations, thereby facilitating nuanced environmental in...

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https://pubmed.ncbi.nlm.nih.gov/40945511/?

## The coarse mental map of the breast is anchored on the nipple

Charles M

Greenspon

1

86

words

TACTILE ACUITY

Summary: Touch plays a key role in our perception of our body and shapes our interactions with the world, from the objects we manipulate to the people we touch. While the tactile sensibility of the hand has been extensively characterized, much less is known about touch on other parts of the body. Despite the...

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## **Haptic Feedback Systems for Lower-Limb Prosthetic** Applications: A Review of System Design, User Experience, and Clinical Insights









TACTILE ACUITY

Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information on lim...

#### Read full article:

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## **Gradient Porous Flexible Pressure Sensors with the Relay** Effect for High-Accuracy Braille-to-Speech Recognition









Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility in the...

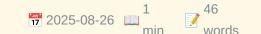
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## Individual and community level factors influencing modern contraceptive use among women of reproductive age in South Africa: a multilevel analysis









BRAILLE

Summary: CONCLUSION: Sensory disability status influenced women's contraceptive behaviour in South Africa. Current family planning interventions should target women with sensory disabilities by prioritising accessible communication methods (e.g., braille, sign language), disability awareness training for hea...

#### Read full article:

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### **Explosion-powered eversible tactile displays**







BRAILLE

Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually addressa...

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## A Biomimetic Fiber-Entangled Permeable Electronic Skin for Strain-Insensitive and High-Resolution Tactile Sensing



1 57 min words





BRAILLE

Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus mismat...

#### Read full article:

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## **High-Density Tactile Sensor Array for Sub-Millimeter Texture** Recognition







BRAILLE

Summary: High-density tactile sensor arrays that replicate human touch could restore texture perception in paralyzed individuals. However, conventional tactile sensor arrays face inherent trade-offs between spatial resolution, sensitivity, and crosstalk suppression due to microstructure size limitations and ...

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## A Diachronic Investigation of the Change in Form and Formational-Semantic Systematicity of the Chinese Sign **Language Lexicon**









**Summary:** It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear. In...

#### Read full article:

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## Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**



1 2025-09-02 min 56 words



BRAILLE

**Summary:** A wireless epidermal electrotactile interface is demonstrated through integration of skin-conformal electrodes and flexible circuitry, addressing existing limitations in haptic technology caused by mechanical mismatch and system-level integration challenges. This electrotactile system achieves low s...

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## Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye



1 55 min words





BRAILLE

Summary: CONCLUSION: Despite demonstrating adaptability, individuals with VI in Türkiye face significant structural barriers to equitable AT access. Informal learning limited public support, and a lack of locally adapted tools contribute to digital exclusion. A rightsbased approach-emphasizing inclusive fun...

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# High prevalence of bacterial STI, anal HPV, cytological abnormalities and anal lesions among MSM in Togo, 2021: a baseline analysis of the ANRS I MIE 12,400/DepIST-H cohort



**Summary:** CONCLUSIONS: These findings emphasize the high prevalence of STIs among MSM and confirm the unusual distribution of HPV types in West Africa, with HPV35 being highly prevalent. A national strategy regarding STI screening and HPV vaccination in this key population is needed.

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# Development and Assessment of a Novel Audiosensory Performance Method for Improving the Oral Health of Visually Impaired Children



**Summary:** This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally divided...

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# Case report: Twice-daily 15mA transcranial alternating current stimulation for adolescent major depressive disorder with suicidal ideation







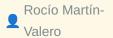
Summary: CONCLUSION: These preliminary findings suggest the potential of accelerated high-frequency tACS as a potential crisis intervention for adolescent MDD-SI, while highlighting the need for controlled clinical trials to establish efficacy and optimize stimulation parameters.

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# Efficacy of transcranial direct current stimulation combined with gait training in patients with Parkinson's Disease: Systematic review and meta-analysis







#### 

https://pubmed.ncbi.nlm.nih.gov/41065007/?

# Non-invasive brain stimulation to improve visual perception after stroke: a systematic review and meta-analysis

Juan Francisco Arenillas-

1 35 min words

Summary: CONCLUSIONS: There is low-certainty evidence in favor of NIBS versus sham stimulation and very low-certainty evidence in favor of NIBS combined with other therapies versus other therapies alone for improving visual perception in stroke patients.

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# Transcranial Direct Current Stimulation and Pneumatic **Compression in Soccer: Does the Number of Recovery Sessions Matter?**









TDCS TACS TRNS

Summary: CONCLUSIONS: The unique findings of this study suggest that a greater number of transcranial direct current stimulation sessions combined with pneumatic compression may enhance the recovery process in elite professional soccer players.

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# Reply to Simani et al. Home-Based tDCS: Safety **Considerations and Technical Monitoring**





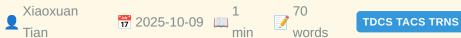


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# Comparative chloroplast genomics of Erigeron (Asteroideae, Asteraceae)









Summary: The genus Erigeron L. (Astereae, Asteroideae, Asteraceae), commonly known as fleabanes, comprises approximately 457 species with a near-cosmopolitan distribution. However, taxonomic discrepancies persist within the genus. In this study, the complete chloroplast (cp.) genomes of 16 Erigeron species w...

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# Can transcranial direct current stimulation aimed at reducing mind wandering alleviate depression?









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# **Transcranial Direct Current Stimulation as a Therapeutic Approach for Anxiety and Related Markers: Comprehensive Systematic Review**







TDCS TACS TRNS

Summary: CONCLUSIONS: The review highlights a lack of standardized protocols for using tDCS in treating anxiety. The methodological quality of most studies was critically low, per PRISMA guidelines. There was considerable variation in methodological approaches across the studies, indicating a need for standa...

#### Read full article:

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# The role of the medial prefrontal cortex in risk and time preferences: A tDCS study

Fan 1 70

TDCS TACS TRNS



Summary: Risk and time preferences are fundamental determinants of economic decision making. Although medial prefrontal cortex (mPFC) activity has been associated with valuation across these domains, causal evidence that focal mPFC perturbation alters both risky and intertemporal choices remains limited. In ...

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# Cerebellar transcranial direct current stimulation combined with virtual reality training for the balance of older adults: study protocol for a randomized controlled trial







TDCS TACS TRNS

Summary: BACKGROUND: Falls are a major public safety issue, and improving the posture control ability of elderly people is highly important for preventing falls. Transcranial direct current stimulation (tDCS) and virtual reality-based balance training (VRBT) have been proven to be effective in improving post...

#### Read full article:

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# Prefrontal transcranial direct current stimulation enhances the analgesic effects of attention bias modification: a randomized controlled trial









**Summary:** This study aimed to investigate whether high-definition transcranial direct current stimulation (HD-tDCS) augmented the effect of attentional bias modification (ABM) on pain perception and to explore the potential neuroimaging mechanism by functional infrared spectroscopy (fNIRS). This randomized, s...

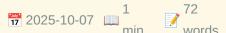
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# The effects of age and delay task duration on attentional boost effect: evidence from behavior and fNIRS











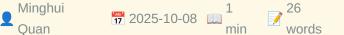
**Summary:** CONCLUSIONS: Age influenced the formation of ABE in the encoding phase. Young-old adults showed greater activation in the right frontal lobe and occipital lobe to maintain ABE, which supported the Compensation-related Utilization of Neural Circuits Hypothesis. Young-old adults' ABE disappeared as de...

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https://pubmed.ncbi.nlm.nih.gov/41053904/?

# The effects of combined exercise on working memory in children with attention-deficit/hyperactivity disorder: a randomized controlled trial







Summary: CONCLUSIONS: Twenty sessions of combined exercise during the summer vacation significantly improved 0-back task performance, mediated by the R DLPFC, and nominally improved 1-back task performance.

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# Functional near-infrared spectroscopy as a diagnostic aid for stable schizophrenia











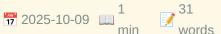
**Summary:** CONCLUSION: Our findings suggest that fNIRS may serve as a valuable clinical measure of cognition assessment, and IV of bilateral temporal lobes and B value of channel 48 can be used as candidate biomarkers to differentiate individuals with schizophrenia.

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https://pubmed.ncbi.nlm.nih.gov/41058641/?

# Cerebral cortical activation and muscle performance during blood flow restriction training after ischemic stroke: A randomised functional near-infrared spectroscopy study







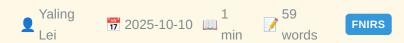


Summary: CONCLUSIONS AND IMPLICATIONS: By actively manipulating the M1 and PMC-SMA, LL-BFR and HL training yield comparable short-term improvements in central and peripheral performance after stroke. (Registry: Chinese Clinical Trial Registry; ChiCTR2400087378).

#### 

https://pubmed.ncbi.nlm.nih.gov/41066487/?

# Exploring the neural mechanisms of electroacupuncture for cognitive impairment in depression using functional near-infrared spectroscopy: a randomized controlled trial



**Summary:** CONCLUSION: Compared with pharmacotherapy alone, the combination of pharmacotherapy with electroacupuncture improved cognitive symptoms, mood, and executive function more effectively in patients with depression over a short period. In addition, this combination was associated with enhanced cortical ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41069950/?

# Task-specific cortical mechanisms of taVNS-paired taskoriented training for post-stroke upper extremity dysfunction under cognitive load: an fNIRS study









Summary: CONCLUSION: taVNS paired with TOT enhances autonomic homeostasis, increases corticospinal pathway excitability, activates cognition-motor related brain regions, and modulates functional connectivity networks through multi-pathway neuroregulatory mechanisms. This promotes the formation of task-specif...

#### **⊗** Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070188/?

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding



1 63 min words







Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

#### Read full article:

https://pubmed.ncbi.nlm.nih.gov/41070190/?

Prefrontal cortex activity during virtual obstacle avoidance and distracted walking: A methodological proof of concept using augmented reality and functional near-infrared spectroscopy



**Summary:** CONCLUSIONS: This combination of technologies elicited task-dependent modulation in PFC activity and gait behaviours in healthy adults, confirming the efficacy of AR-projected obstacles in a cognitive-motor dual-task paradigm. Based on these outcomes, it is likely that this experimental approach wil...

#### 

https://pubmed.ncbi.nlm.nih.gov/41071803/?

Effect of mahjong, a Chinese tiled-based game, combined with upper limb robot training on upper limb function and rehabilitation participation in Chinese stroke patients: a clinical trial protocol





Summary: INTRODUCTION: Stroke is the second leading cause of death and disability creating a huge economic burden annually. Robot-assisted training (RT) is a promising therapy in stroke rehabilitation, but for the elderly, traditional 'reaching objects'" tasks do not seem to create sufficient motivation, an ...

#### 

https://pubmed.ncbi.nlm.nih.gov/41073118/?

# Al reshaping life sciences: intelligent transformation, application challenges, and future convergence in neuroscience, biology, and medicine



**Summary:** The rapid advancement of artificial intelligence (AI) is profoundly transforming research paradigms and clinical practices across neuroscience, biology, and medicine with unprecedented depth and breadth. Leveraging its robust data-processing capabilities, precise pattern recognition techniques, and ...

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+e462414

# Does increasing canopy liana density decrease the tropical forest carbon sink?

David M
DeFilippis

DeFilippis

David M
To 2025-10-09
To words

BRAIN COMPUTER INTERFACE

Summary: The ongoing decline in the American tropical forest carbon sink has serious ramifications for atmospheric carbon levels and global climate change. Increasing liana abundance may explain the decaying carbon sink because lianas reduce canopy tree growth and survival, which limits forest carbon storage...

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https://pubmed.ncbi.nlm.nih.gov/41065125/?

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# Correction: Filter bank common spatial pattern and envelopebased features in multimodal EEG-fTCD brain-computer interfaces

PLOS One Staff 2025-10-09 min words BRAIN COMPUTER INTERFACE

Summary: [This corrects the article DOI: 10.1371/journal.pone.0311075.].

#### **⊗** Read full article:

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# Multimodal MBC-ATT: cross-modality attentional fusion of **EEG-fNIRS** for cognitive state decoding

Peng 1 63
Wusp min words

BRAIN COMPUTER INTERFACE

Summary: With the rapid development of brain-computer interface (BCI) technology, the effective integration of multimodal biological signals to improve classification accuracy has become a research hotspot. However, existing methods often fail to fully exploit crossmodality correlations in complex cognitive...

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https://pubmed.ncbi.nlm.nih.gov/41070190/?

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# Three-dimensional microsurgical anatomy of the basal aspect of the cerebrum: a fiber dissection study

1 29 min 29 words

BRAIN COMPUTER INTERFACE

**Summary:** CONCLUSIONS: The 3D microsurgical anatomy of the basal cerebrum provides valuable insights for planning precise and safe surgical approaches and offers anatomical evidence for further studies on brain function.

#### 

https://pubmed.ncbi.nlm.nih.gov/41072048/?

utm\_source=BucketBot&utm\_medium=rss&utm\_campaign=None&utm\_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251011225031&v=2.18.0.post9 +e462414

# A multi-level teacher assistant-based knowledge distillation framework with dynamic feedback for motor imagery EEG decoding



**Summary:** Deep learning has shown promise in motor imagery-based electroencephalogram (MI-EEG) decoding, a critical task in non-invasive brain-computer interfaces (BCIs). In response to the computational complexity of deep learning models to be deployed in practical BCI applications, knowledge distillation (K...

#### **⊗** Read full article:

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+e462414

# **EEG-CLIP: A transformer-based framework for EEG-guided** image generation

Daoqiang
Zhang

Daoqiang
Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

Tir 2025-10-10

**Summary:** Decoding visual perception from neural signals represents a fundamental step toward advanced brain-computer interfaces (BCIs), where functional magnetic resonance imaging (fMRI) has shown promising results despite practical constraints in deployment and costs. Electroencephalography (EEG), with its ...

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https://pubmed.ncbi.nlm.nih.gov/41072287/?

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# Novel analysis method to determine the neural activation function of the inner hair cell



1 79 min words





BRAIN COMPUTER INTERFACE

Summary: Sensorineural hearing loss (SNH) is one of the most common forms of hearing loss. A special form of SNH is hidden hearing loss (HHL) with subjective normal hearing. Current research results indicate that these patients demonstrate a reduced wave I in the averaged signal of brainstem audiometry (ABR)...

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# Retraction notice to "Decoding thoughts, encoding ethics: A narrative review of the BCI-AI revolution" [Brain Res. 1850 (2025) 149423]







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# **Abnormal Brain Connectivity Patterns in Children with Global Developmental Delay Accompanied by Cognitive Impairment:** A Resting-State EEG Study







BRAIN COMPUTER INTERFACE

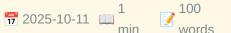
Summary: CONCLUSIONS: Children with GDD exhibit abnormal patterns of brain functional connectivity, characterized by global hypo-connectivity and local hyperconnectivity. Specific network metrics under these abnormal patterns are significantly correlated with cognitive impairment in GDD. This study also hig...

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# I made a Better Notepad alternative using PySide6







REDDIT PYTHON

Summary: <!-- SC OFF --><div class="md"><h1>What My Project Does</h1> ZenNotes is a minimalistic Notepad app with a sleek design inspired by the Fluent Design. It offers the familiar look of the Windows Notepad while having much more powerful features like Translate, TTS, etc. <h1>Target Audience</h1>...

#### 

https://www.reddit.com/r/Python/comments/1o3uy4y/ i\_made\_a\_better\_notepad\_alternative\_using\_pyside6/

# Show HN: rift – a tiling window manager for macOS



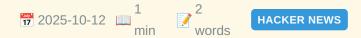




Summary: <a href="https://news.ycombinator.com/item?id=45553995">Comments</a>

https://github.com/acsandmann/rift

# **China's New Rare Earth and Magnet Restrictions Threaten US Defense Supply Chains**



Summary: <a href="https://news.ycombinator.com/item?id=45554369">Comments</a>

https://www.csis.org/analysis/chinas-new-rare-earth-and-magnet-restrictions-threaten-us-defense-supply-chains

# Paper2Video: Automatic Video Generation from Scientific Papers



**Summary:** Article URL: <a href="https://arxiv.org/abs/2510.05096">https://arxiv.org/abs/2510.05096">https://arxiv.org/abs/2510.05096</a> Comments URL: <a href="https://news.ycombinator.com/item?id=45553701">https://news.ycombinator.com/item?id=45553701</a> Points: 9 # Comments: 1

https://arxiv.org/abs/2510.05096

### Show HN: rift – a tiling window manager for macOS

atticus 12025-10-12 min 13 HACKER NEWS

**Summary:** Article URL: <a href="https://github.com/acsandmann/rift">https://github.com/acsandmann/rift">https://github.com/acsandmann/rift</a> Comments URL: <a href="https://news.ycombinator.com/item?id=45553995">https://news.ycombinator.com/item?id=45553995</a> Points: 18 # Comments: 6

**⊗** Read full article:

https://github.com/acsandmann/rift

# **China's New Rare Earth and Magnet Restrictions Threaten US Defense Supply Chains**

stopbulying 7 2025-10-12 min 13 words

**Summary:** Article URL: <a href="https://www.csis.org/analysis/chinas-new-rare-earth-and-magnet-restrictions-threaten-us-defense-supply-chains">https://www.csis.org/analysis/chinas-new-rare-earth-and-magnet-restrictions-threaten-us-defense-supply-chains</a> Comments URL: <a href="https://news.ycombin...">https://news.ycombin...

https://www.csis.org/analysis/chinas-new-rare-earth-and-magnet-restrictions-threaten-us-defense-supply-chains

### Type S and M errors as a "rhetorical tool"

noreply@blogger.com (Daniel

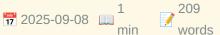
17 2025-09-28 min 3572 words

TWENTY PERCENT STATISTICIAN

**Summary:** <i>Update 30/09/2025: I have added a reply by Andrew Gelman below my original blog post.</i>&nbsp;We recently posted a preprint criticizing the idea of Type S and M errors (<a href="https://osf.io/2phzb\_v1">https://osf.io/2phzb\_v1</a>). From our abstract: "While these concepts have been pr...

http://daniellakens.blogspot.com/2025/09/type-s-and-m-errors-as-rhetorical-tool.html

# **Musical Structure Influences the Perception of Sound** Location





COGNITIVE NEUROSCIENCE

Summary: The perception of multilayered auditory stimuli, such as music or speech, relies on the integration of progressively more complex and abstract features as they are processed along the auditory pathway. To investigate whether higher-level musical structure modulates auditory perception or merely the ...

**⊗** Read full article:

http://ieeexplore.ieee.org/document/11153363

# Call for Applications: IEEE T-MRB Editor in Chief Search

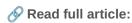








Summary: The post <a href="https://www.embs.org/uncategorized/call-for-applicationsieee-tmrb-editor-in-chief-search/">Call for Applications: IEEE T-MRB Editor in Chief Search</a> appeared first on <a href="https://www.embs.org">IEEE EMBS</a>.



https://www.embs.org/uncategorized/call-for-applications-ieee-tmrb-editor-in-chief-search/

# Call for Applications Editor-in-Chief: IEEE Open Journal of **Engineering in Medicine and Biology**











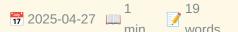
**Summary:** The post <a href="https://www.embs.org/ojemb/search-for-editor-in-chief/">https://www.embs.org/ojemb/search-for-editor-in-chief/ #new tab">Call for Applications Editor-in-Chief: IEEE Open Journal of Engineering in Medicine and Biology</a> appeared first on <a href="https://www.embs.org">IEEE EMBS</ a>.

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### **Notice to IEEE EMBS Members: Change to Field of Interest**









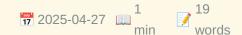
Summary: The post <a href="https://www.embs.org/blog-post/change-foi-for-ieeeembs/">Notice to IEEE EMBS Members: Change to Field of Interest</a> appeared first on <a href="https://www.embs.org">IEEE EMBS</a>.



https://www.embs.org/blog-post/change-foi-for-ieee-embs/

# **Notice to IEEE EMBS Members: Change to Field of Interest**











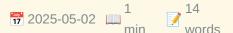
Summary: The post <a href="https://www.embs.org/blog-post/change-foi-for-ieeeembs/#new tab">Notice to IEEE EMBS Members: Change to Field of Interest</a> appeared first on <a href="https://www.embs.org">IEEE EMBS</a>.



https://www.embs.org/blog-post/change-foi-for-ieee-embs/#new\_tab

### **Open Call for AdCom Nominations**

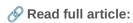






EMBS

Summary: The post <a href="https://www.embs.org/uncategorized/call-for-adcomnominations/">Open Call for AdCom Nominations</a> appeared first on <a href="https:// www.embs.org">IEEE EMBS</a>.



https://www.embs.org/uncategorized/call-for-adcom-nominations/

# IEEE EMBS Appoints Sunghoon "Ivan" Lee, Ph.D., as Editorin-Chief of EMBC Proceedings, the Leading Biomedical **Engineering Conference Publication**











Summary: (Piscataway, N.J., August 12, 2025) Sunghoon "Ivan" Lee, Ph.D., a Donna M. and Robert J. Manning Faculty Fellow and an Associate Professor of computer science, electrical and computer engineering, and… <a class="continue" href="https:// www.embs.org/press/embc-eic-sunghoon-ivan-lee/">Continu...



https://www.embs.org/press/embc-eic-sunghoon-ivan-lee/

# Transforming psychiatry with computational and brain-based methods



**S** Read full article:

https://www.nature.com/articles/s43588-025-00884-9

# **Trials for computational psychiatry**



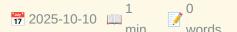
https://www.nature.com/articles/s43588-025-00879-6

# Temporal recurrence as a general mechanism to explain neural responses in the auditory system

**⊗** Read full article:

https://www.nature.com/articles/s42003-025-08858-3

# How neural rhythms can guide word recognition





NATURE NEUROSCIENCE SUBJECTS



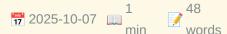
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https://www.nature.com/articles/s43588-025-00888-5

# The locus coeruleus maintains core body temperature and protects against hypothermia during dexmedetomidineinduced sedation

Berta Anuncibay SotoYing MaMathieu NolletSara WongGiulia MiraccaDaniel RastinejadRaguel YustosAlexei L. VyssotskiNicholas P. FranksWilliam WisdenaDepartment of Life Sciences, Imperial

■ College London, London SW7 2AZ, United KingdombUnited Kingdom Dementia Research Institute at Imperial College London, London W12 0BZ, United KingdomcInstitute of Neuroinformatics, University of Zurich and ETH Zurich, Zurich CH8057, Switzerland







PNAS NEUROSCIENCE

Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 41, October 2025. <br/> SignificanceDexmedetomidine (DEX), a widely used sedative in intensive care, induces an arousable state resembling non-rapid eye movement (NREM) sleep and lowers body temperature. For some patients, even sligh...



https://www.pnas.org/doi/abs/10.1073/pnas.2422878122?af=R

# **Epileptic brain imaging by source localization CLARA** supported by ictal-based semiology and VEEG in resourcelimited settings

1 279 min words Aleksandra Kawala-

FRONTIERS NEUROINFORMATICS

**Summary:** IntroductionAccurate localization of the epileptogenic zone is essential for surgical treatment of drug-resistant epilepsy. Standard presurgical evaluations rely on multimodal neuroimaging techniques, but these may be limited by availability and interpretive challenges. This study aimed to assess th...

Read full article:

https://www.frontiersin.org/articles/10.3389/fninf.2025.1661617

# Closed-loop coupling of both physiological spindle model and spinal pathways for sensorimotor control of human center-out reaching



Syn 1 243
Schmitt min words



FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: The development of new studies that consider different structures of the hierarchical sensorimotor control system is essential to enable a more holistic understanding about movement. The incorporation of more biological proprioceptive and neuronal circuit models to muscles can turn neuromusculoskele...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1575630

# Quantitative prediction of intracellular dynamics and synaptic currents in a small neural circuit



FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: Fitting models to experimental intracellular data is challenging. While detailed conductance-based models are difficult to train, phenomenological statistical models often fail to capture the rich intrinsic dynamics of circuits such as central pattern generators (CPGs). A recent trend has been to em...

Read full article:

https://www.frontiersin.org/articles/10.3389/fncom.2025.1515194

# Editorial: Neuro-detection: advancements in pattern detection and segmentation techniques in neuroscience







FRONTIERS COMPUTATIONAL NEUROSCIENCE

https://www.frontiersin.org/articles/10.3389/fncom.2025.1685174

# Editorial: AI and inverse methods for building digital twins in neuroscience









https://www.frontiersin.org/articles/10.3389/fncom.2025.1684335

# Effects of AC induced electric fields on neuronal firing sensitivity and activity patterns









FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: IntroductionUnderstanding how neurons respond to time-varying electric fields is essential for both basic neuroscience and the development of neuromodulation strategies. However, the mechanisms by which alternating-current induced electric fields (AC-IEF) influence neuronal sensitivity and firing re...

# 

https://www.frontiersin.org/articles/10.3389/fncom.2025.1612314

# Intrinsic calcium resonance and its modulation: insights from computational modeling

Hanoch Kaphzan

1 254 min words

FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: Hippocampal neurons generate membrane potential resonance due to specific voltage-gated ion channels, known as resonating conductances, which play crucial physiological roles. However, it is not known whether this phenomenon of resonance is limited to membrane voltage or whether it propagates throug...

Read full article:

https://www.frontiersin.org/articles/10.3389/fncom.2025.1669841

# An interpretable generative multimodal neuroimaginggenomics framework for decoding Alzheimer's disease

Giorgio Dolci, Federica Cruciani, Md Abdur Rahaman, Anees Abrol, Jiayu Chen, Zening Fu, Ilaria

Boscolo Galazzo, Gloria Menegaz, Vince D Calhoun and for the Alzheimer's Disease Neuroimaging Initiative

1 244 min words





JOURNAL NEURAL ENGINEERING

Summary: Objective. Alzheimer's disease (AD) is the most prevalent form of dementia worldwide, encompassing a prodromal stage known as mild cognitive impairment (MCI), where patients may either progress to AD or remain stable. The objective of the work was to capture structural and functional modulations of ...

http://iopscience.iop.org/article/10.1088/1741-2552/ae087d

# Real-time detection of spoken speech from unlabeled ECoG signals: a pilot study with an ALS participant

Miguel Angrick, Shiyu Luo, Qinwan Rabbani, Shreya Joshi, Daniel N Candrea, Griffin W Milsap, Chad

R Gordon, Kathryn Rosenblatt, Lora Clawson, Nicholas Maragakis, Francesco V Tenore, Matthew S Fifer, Nick F Ramsey and Nathan E Crone

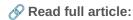






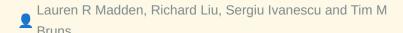
JOURNAL NEURAL ENGINEERING

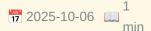
**Summary:** Objective. Brain–computer interfaces hold significant promise for restoring communication in individuals with partial or complete loss of the ability to speak due to paralysis from amyotrophic lateral sclerosis (ALS), brainstem stroke, and other neurological disorders. Many of the approaches to spee...



http://iopscience.iop.org/article/10.1088/1741-2552/ae0965

# Physiological activity within peripheral nerves influences neural output in response to electrical stimulation: an in vivo study







JOURNAL NEURAL ENGINEERING

**Summary:** Objective. Neuromodulation therapies are often applied to peripheral nerves. These nerves can have physiological activity that interacts with the activity evoked by electrical stimulation, potentially influencing targeted neural output and clinical outcomes. Our goal was to quantify changes in senso...



http://iopscience.iop.org/article/10.1088/1741-2552/ae09fe

# Disentangling indirect versus direct effects of somatosensory cortex microstimulation on neurons in primary motor and ventral premotor cortex

Brandon Ruszala, Kevin A Mazurek and Marc H

1 300 min words

JOURNAL NEURAL ENGINEERING

**Summary:** Objective. Intracortical microstimulation in the primary somatosensory cortex (S1-ICMS) is being developed to provide on-line feedback for bidirectional brain-machine interfaces. Because S1-ICMS can alter the discharge of the motor cortex neurons used to decode motor intent, successful application o...

Read full article:

http://iopscience.iop.org/article/10.1088/1741-2552/ae087e

# EEG workload estimation and classification: a systematic review

Jahid Hassan, Shamim Reza, Syed Udoy Ahmed, Nazmul Haque Anik and Md Obaydullah

1 300 min words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Electroencephalography (EEG) has evolved into an indispensable instrument for estimating cognitive workload in various domains. Machine Learning (ML) and deep learning (DL) techniques have been increasingly employed to develop accurate workload estimation and classification models based o...

http://iopscience.iop.org/article/10.1088/1741-2552/ad705e

# Identification of modulated whole-brain dynamical models from nonstationary electrophysiological data

Addison Schwamb, Zongxi Yu and ShiNung China

1 198 min words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Understanding the mechanisms underlying brain dynamics is a longheld goal in neuroscience. However, these dynamics are both individualized and nonstationary, making modeling challenging. Here, we present a data-driven approach to modeling nonstationary dynamics based on principles of neu...

### 

http://iopscience.iop.org/article/10.1088/1741-2552/ae0d32

# The impact of CSF-filled cavities on scalp EEG and its **implications**







OOSTENVELD ROBERT

Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG are the...

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# Motion-BIDS: an extension to the brain imaging data structure to organize motion data for reproducible research

Julius .

1 72 2024-07-02 min words OOSTENVELD ROBERT

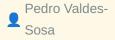
Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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## One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

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# Freezing of gait in Parkinson's disease is related to imbalanced stopping-related cortical activity

Richard J A van

1 65 min words

OOSTENVELD ROBERT

Summary: Freezing of gait, characterized by involuntary interruptions of walking, is a debilitating motor symptom of Parkinson's disease that restricts people's autonomy. Previous brain imaging studies investigating the mechanisms underlying freezing were restricted to scan people in supine positions and yie...

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# The past, present, and future of the brain imaging data structure (BIDS)

Krzysztof J Gorgolewski 1 82 min words

OOSTENVELD ROBERT

Summary: The Brain Imaging Data Structure (BIDS) is a community-driven standard for the organization of data and metadata from a growing range of neuroscience modalities. This paper is meant as a history of how the standard has developed and grown over time. We outline the principles behind the project, the ...

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## Human cortical high-gamma power scales with movement rate in healthy participants and stroke survivors

Fanny Quandt

1 65 min words

OOSTENVELD ROBERT

Summary: Motor cortical high-gamma oscillations (60-90 Hz) occur at movement onset and are spatially focused over the contralateral primary motor cortex. Although high-gamma oscillations are widely recognized for their significance in human motor control, their precise function on a cortical level remains el...

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# NIRS-BIDS: Brain Imaging Data Structure Extended to Near-**Infrared Spectroscopy**



1 70 min words





OOSTENVELD ROBERT

Summary: Functional near-infrared spectroscopy (fNIRS) is an increasingly popular neuroimaging technique that measures cortical hemodynamic activity in a non-invasive and portable fashion. Although the fNIRS community has been successful in disseminating open-source processing tools and a standard file forma...

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# Pseudonymisation of neuroimages and data protection: <em>Increasing access to data while retaining scientific utility</em>

Lyuba
Zehl

Zehl

Zo25-06-26 min

Zostenveld robert

Summary: For a number of years, facial features removal techniques such as 'defacing', 'skull stripping' and 'face masking/blurring', were considered adequate privacy preserving tools to openly share brain images. Scientifically, these measures were already a compromise between data protection requirements a...

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## Cycling on the Freeway: The perilous state of open-source neuroscience software

1 74 min words

OOSTENVELD ROBERT

Summary: Most scientists need software to perform their research (Barker et al., 2020; Carver et al., 2022; Hettrick, 2014; Hettrick et al., 2014; Switters & Osimo, 2019), and neuroscientists are no exception. Whether we work with reaction times, electrophysiological signals, or magnetic resonance imaging data, ...

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### Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure the fiel...

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# WaveNet-SF: A hybrid network for retinal disease detection based on wavelet transform in spatial-frequency domain

**1** 71 Hong Hong min words

**LOW VISION** 

Summary: Retinal diseases are a leading cause of vision impairment and blindness, with timely diagnosis being critical for effective treatment. Optical Coherence Tomography (OCT) has become a standard imaging modality for retinal disease diagnosis, but OCT images often suffer from issues such as speckle nois...

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# Influence of wearing a head-mounted display on the movement execution of basic elements on the balance beam in women's artistic gymnastics



**Summary:** Virtual reality in artistic gymnastics has hardly been researched yet, but could have positive effects on learning movements, particularly on the balance beam, whose width and height demand significant effort. This study aimed to identify suitable gymnastics elements for the execution with a head-mo...

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https://pubmed.ncbi.nlm.nih.gov/41067065/?

# Percutaneous endoscopic discectomy with lateral approach and dual-channel method for the treatment of highly free lumbar disc herniation









LOW VISION

Summary: CONCLUSION: For patients with highly free lumbar intervertebral disc protrusion, both of lateral approach dual-channel method and UBE endoscopic surgery are safe and effective. Endoscopic surgery with lateral approach and dual-channel method could be performed under local anesthesia, allowing for th...

### 

https://pubmed.ncbi.nlm.nih.gov/41067900/?

# Patient-reported vision impairment in low luminance relates to visual function in age-related macular degeneration: A MACUSTAR study report



**Summary:** Early stages of age-related macular degeneration (AMD) can lead to a number of visual function deficits, but the patient relevance of these deficits is largely unknown. We therefore investigated how bilateral visual function domains affected by age-related macular degeneration (AMD) are associated w...

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# Multi-interactive feature embedding learning for medical image segmentation



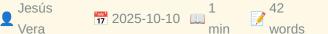
**Summary:** Medical image segmentation task can provide the lesion object semantic information, but ignores edge texture details from the lesion region. Conversely, the medical image reconstruction task furnishes the object detailed information to facilitate the semantic segmentation through self-supervised lea...

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# Acute intraocular pressure changes during isometric exercise in glaucoma patients: the influence of exercise and intensity







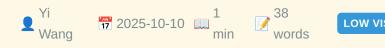
LOW VISION

Summary: CONCLUSION: These findings suggest that while isometric exercises can elevate IOP temporarily, they may still be incorporated into training regimens for POAG patients if intensity is carefully managed. Careful monitoring of IOP is essential to avoid exacerbating glaucoma conditions during isometric ...

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# Automated detection of pyogenic liver abscess and diagnosis of Klebsiella pneumoniae infection based on CECT images with deep learning: A multicenter study



**Summary:** CONCLUSIONS: The PLADA system provides an accurate, non-invasive method for KPLA diagnosis through a clinically interpretable two-stage AI framework. While limited by a retrospective, single-country dataset, this approach shows particular promise for early detection of KPLA in resource-limited settin...

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# Ocular Hypertension and Glaucoma After Pars Plana Vitrectomy: A Systematic Review and Meta-analysis



**Summary:** CONCLUSIONS: PPV is associated with clinically meaningful risk of OHT and glaucoma, especially in pseudophakic eyes. Despite limitations from nonrandomized data and heterogeneity, these findings highlight lens status as a key modifier of post-PPV risk and support tailored surgical planning and posto...

#### Read full article:

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# Computer vision-based laser communication system for robust optical beam tracking and alignment

Shuai 1 71 Low VISION min words

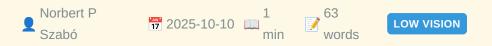
**Summary:** Free-space optical (FSO) communication is a promising technology for high-speed data transmission, but its effectiveness is highly dependent on precise beam alignment. In this work, we present a computer vision-assisted tracking system designed to maintain robust optical alignment in real time. By c...

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# Integrated petrophysical and seal characterization of the heterogeneous jurassic plover formation for CO<sub>2</sub> storage assessment in Northwest Australia



**Summary:** Geological storage of carbon dioxide is critical to mitigate emissions; however, subsurface heterogeneity poses a major challenge. This study investigates the Jurassic Plover Formation in the Browse Basin, Northwest Australia, a region underexplored for carbon storage potential. An integrated petrop...

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# The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

Summary: In the oral cavity, oral stereognosis and chemesthesis refer to the abilities to recognize shapes and detect noxious substances, respectively, through various receptors distributed on the tongue. The absence of standardized methods to assess oral somatosensory perception has led to a lack of consens...

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# **Measuring the Distribution of Tactile Acuity at the Index Finger and Thumb Fingertips**

Hiroyuki

1 75
min words

TACTILE ACUITY

Summary: In our day-to-day activities, we utilize not only the pads of our fingers but also the sides and hemispherical tips when manipulating objects. For teleoperation systems to replicate these real-life interactions, tactile sensation must be presented and distributed across the entire fingertip. Thus, u...

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# Optimizing Vibrotactile Feedback for Sensory Substitution in the Thigh: Spatial Acuity and Frequency Characteristics

Leah R

Bent

1
69
words

TACTILE ACUITY

**Summary:** Amputation of a lower limb not only affects mobility but also interferes with sensory feedback, leading to an elevated risk of falls among individuals living with amputation. Sensory substitution, achieved through tactile displays embedded in transfemoral prosthetic sockets, presents a promising non...

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# Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous field...

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# Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







Summary: BackgroundC-tactile (CT) afferents preferentially activate in response to slow caress-like touch, evoking a diffuse pleasant sensation and promoting autonomic regulation. According to Braak's classic model, the neurodegenerative process in Alzheimer's disease (AD) only affects somatosensory cortices...

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# Differences in tactile grid localization accuracy between people with back pain compared to individuals without pain









**Summary:** OBJECTIVES: The study aimed to investigate the grid localization test (GLT) between patients with lower back pain and those without back pain.

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