

Daily Briefing - October 31, 2025

Your Daily Tech & Programming Digest

Friday, October 31, 2025

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ARTICLES WORDS MIN READ SOURCES

Today's Top Stories

Test-retest reproducibility of structural and proxy estimates of brain connectivity at rest





NEUROIMAGE

Summary: Publication date: 15 November 2025Source: NeuroImage, Volume 322Author(s): Aldana Lizarraga, Arianna Sala, Kathrin Koch, Igor Yakushev



https://www.sciencedirect.com/science/article/pii/S1053811925005610?dgcid=rss_sd_all

Neurocognitive mechanisms of age-related decline in global motion perception





NEUROIMAGE

Summary: Publication date: 15 November 2025Source: NeuroImage, Volume 322Author(s): Yaxi Hong, Ting Liu, Dan Luo, Ziliang Zhu, Shizhen Yan, Hua Jin



https://www.sciencedirect.com/science/article/pii/S1053811925005592?dgcid=rss_sd_all

Disrupted temporal structure of the M/EEG meta-states sequencing in Alzheimer's disease



NEUROIMAGE

Summary: Publication date: 15 November 2025Source: NeuroImage, Volume 322Author(s): Marina Sandonís-Fernández, Pablo Núñez, Miguel A. Tola-Arribas, Mónica Cano, Hideyuki Hoshi, Yoshihito Shigihara, Jesús Poza, Carlos Gómez</ p>



https://www.sciencedirect.com/science/article/pii/S1053811925005580?dgcid=rss_sd_all

Paired-pulse TMS of premotor cortex produces non-linear suppressive effects on neural activity in the targeted network - a TMS-fMRI study

Summary: Publication date: 15 November 2025Source: NeuroImage, Volume 322Author(s): Laerke Gebser Krohne, Sofus Nygaard, Maud Eline Ottenheijm, Marie Louise Liu, Axel Thielscher, Hartwig Roman Siebner, Kristoffer Hougaard Madsen

⊗ Read full article:

https://www.sciencedirect.com/science/article/pii/S1053811925005361?dgcid=rss_sd_all

Stimulus-specific recruitment of human amygdala neurons predicts episodic memory encoding success

Xiao, J., Daume, J., Salimpour, Y., Kurilenko, N., Mosher, C., Anderson, W. S., Valiante, T. A., Mamelak, A. N., Rutishauser, U.







Summary: Controlling whether a given experience is encoded into long-term memory and thus later remembered is a crucial component of our memory system whose failure is often at the root of memory disorders. One brain area that takes part in controlling which experiences are remembered is the amygdala, but th...

Read full article:

https://www.biorxiv.org/content/10.1101/2025.10.29.685162v1?rss=1

Disrupting action control with transcranial ultrasound neuromodulation: a step forward for Tourette syndrome

Atkinson-Clement, C., Houlgreave, M., Gialopsou, A., Smith, C. M., Farr, I., Dvorakova, A., Kennaway, J., Jackson, S. R.

1 291 min words

BIORXIV NEUROSCIENCE

Summary: Background: While Tourette syndrome (TS) is characterised by the presence of tics, premonitory urges are involved in both triggering them and as a lever to control them. The right insular cortex is known to play a key role in these processes, yet its precise functional contribution remains unclear. ...

https://www.biorxiv.org/content/10.1101/2025.10.29.685348v1?rss=1

This Week in The Journal

1 0 min words

JOURNAL NEUROSCIENCE THIS WEEK

⊗ Read full article:

http://www.jneurosci.org/cgi/content/short/45/40/etwij45402025?rss=1

From retinotopic to ordinal coding: Dissecting the cortical stages of visual word recognition

Aakash AgrawalStanislas DehaeneaCognitive Neuroimaging Unit, Commissariat à l'énergie atomique

et aux énergies alternatives, INSERM, Université Paris-Saclay, NeuroSpin Center, Gif-sur-Yvette 91191, FrancebCollège de France, Université Paris-Sciences-Lettres, Paris 75005, France



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 43, October 2025.

SignificanceFluent reading requires that the brain encodes the order of letters within a word, yet without regard for where they appear on the retina. Information must be transformed from a retinotopic code in...

https://www.pnas.org/doi/abs/10.1073/pnas.2507291122?af=R

Descattering and image restoration with a transformer-based neural network in deep tissue imaging

Xiangcong XuRenlong ZhangChenggui LuoChi ZhangYanping LiDanying LinBin YuLiwei LiuXiaoyu WengYiping WangLingjie KongJia LiJunle QuaState Key Laboratory of Radio Frequency

Heterogeneous Integration, Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, ChinabState Key Laboratory of Precision Measurement Technology and Instruments, Department of Precision Instrument, Tsinghua University, Beijing 100084, China



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 43, October 2025.

SignificanceThe significant contributions of this work are threefold. First, it leverages deep learning to extend in vivo imaging depth of two-photon excitation fluorescence microscopy, far beyond the depths a...

⊗ Read full article:

https://www.pnas.org/doi/abs/10.1073/pnas.2503576122?af=R

Neuron synchronization analyzed through spatial-temporal attention



FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: Neuronal synchronization refers to the temporal coordination of activity across populations of neurons, a process that underlies coherent information processing, supports the encoding of diverse sensory stimuli, and facilitates adaptive behavior in dynamic environments. Previous studies of synchroni...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1655462

Modeling cognition through adaptive neural synchronization: a multimodal framework using EEG, fMRI, and reinforcement learning



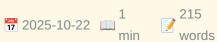
FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: IntroductionUnderstanding the cognitive process of thinking as a neural phenomenon remains a central challenge in neuroscience and computational modeling. This study addresses this challenge by presenting a biologically grounded framework that simulates adaptive decision making across cognitive stat...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1616472

Sudden restructuring of memory representations in recurrent neural networks with repeated stimulus presentations







FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: While acquisition curves in human learning averaged at the group level display smooth, gradual changes in performance, individual learning curves across cognitive domains reveal sudden, discontinuous jumps in performance. Similar thresholding effects are a hallmark of a range of nonlinear systems wh...



https://www.frontiersin.org/articles/10.3389/fncom.2025.1601641

Optimizing real-time phase detection in diverse rhythmic biological signals for phase-specific neurostimulation



2025-10-23





JOURNAL NEURAL ENGINEERING

Summary: Objective. Closed-loop, phase-specific neurostimulation is a powerful method to modulate ongoing brain activity for clinical and research applications. Phase-specific stimulation relies on estimating the phase of an ongoing oscillation in real time and issuing a control command at a target phase. Ph...

http://iopscience.iop.org/article/10.1088/1741-2552/ae10e1

Multitarget neurostimulation of the deep brain: clinical opportunities, challenges, and emerging technologies

Michael J Del Sesto, Serban Negoita, Maria Bruzzone Giraldez, Zachary LaJoie, Khaleda Akhter Sathi, Joshua K Wong, Alik S Widge, Michael S Okun and Adam Khalifa







JOURNAL NEURAL ENGINEERING

Summary: Recent computational, pre-clinical, and clinical studies have demonstrated the potential for using neuromodulation through simultaneous targeting of multiple deep brain regions. This approach has already been used for therapeutic and systems neuroscience applications. However, the broad clinical ado...



http://iopscience.iop.org/article/10.1088/1741-2552/ae08ea

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 .

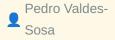
1 72 2024-07-02 min words OOSTENVELD ROBERT

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: Increasing access to data while retaining scientific utility

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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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study



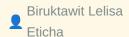


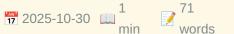




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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia



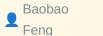




Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

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Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective











Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

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Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





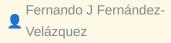


Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**









Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41165747/?

Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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Incidental ocular surface squamous neoplasia in pterygia: a systematic review and meta-analysis

1 47 min words

LOW VISION

Summary: CONCLUSIONS: This meta-analysis, based on low- to very low-certainty evidence, identified a 1.32% pooled prevalence of incidental OSSN in clinically diagnosed pterygia, highlighting the potential influence of UV exposure and equatorial proximity. The overlap in demographic and lesion characteristics...

https://pubmed.ncbi.nlm.nih.gov/41167795/?

The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**

Hulusi Kafaligonul 1 70 min words

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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Headaches due to Low and High Intracranial Pressure

1 63 min words

LOW VISION

Summary: This article provides a comprehensive overview of high-pressure and lowpressure headaches, focusing on their pathophysiology, clinical presentation, diagnosis, and management. High-pressure headaches, often linked to idiopathic intracranial hypertension, primarily affect young women and can lead to...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41167858/?

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



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



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/?

Explosion-powered eversible tactile displays







BRAILLE

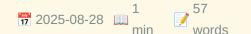
Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually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

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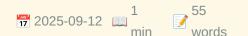
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Beyond access: rethinking assistive technology for individuals with visual impairments in Türkiye









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.

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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Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study











Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

https://pubmed.ncbi.nlm.nih.gov/41127342/?

Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

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Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial

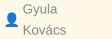


Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability





TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**







TDCS TACS TRNS

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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A Comprehensive Review of Trigeminal Autonomic Cephalalgias







TDCS TACS TRNS

Summary: Trigeminal autonomic cephalalgias (TACs) are a distinct group of primary headache disorders characterized by unilateral pain and autonomic symptoms such as tearing, nasal congestion, and ptosis. This article provides an in-depth review of the different TAC subtypes, including cluster headache, short...

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**









Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

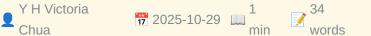
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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**









Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

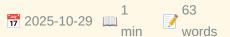
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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI











Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**







Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

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Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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The Impact of Sports Experience on Map Symbol Representation in Orienteering Athletes and Its Neural **Correlates: Evidence from Eye-Tracking and fNIRS**



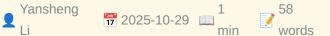
Summary: CONCLUSION: High-level orienteering athletes exhibit domain-specific cognitive advantages in map symbol representation tasks. Long-term orienteering map reading training facilitates synergistic interactions between visual and neural information processing.

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Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**



BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

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Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems

Yueming

2025-10-29 min BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

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RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview







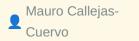
BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

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Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

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Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

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Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts







BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

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An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

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Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

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Acute Effects of Portable Dry-EEG Neurofeedback on **Classical Chinese Learning: A Three-Arm Repeated-Measures** Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

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The effect of perceived auditory feedback on speech Brain-**Computer Interface decoding performance**







BRAIN COMPUTER INTERFACE

Summary: OBJECTIVE: Brain-Computer Interfaces (BCI) provide alternative means of communication for individuals with severe motor impairment. Implantable speech BCIs have shown great potential, particularly in individuals who could still produce some speechrelated movements and/or sounds. As perception of au...

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Summary: Comments

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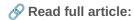
Registration is now full for the 2024 ERP Boot Camp



1 106 words

ERP BOOT CAMP

Summary: The demand for the 2024 ERP Boot Camp 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



2 525 min words



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. https://doi.org/10.1111/psyp. 14570">https://doi.org/10.1111/psyp.14570 [<a h...

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

New software package: ERPLAB Studio

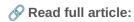






ERP BOOT CAMP

Summary: We are excited to announce the release of a new EEG/ERP analysis package, ERPLAB Studio</ a>. We think it's a huge improvement over the classic EEGLAB user interface. See our cheesy ...



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

Recording and slides now available for ERPLAB Studio webinar







ERP BOOT CAMP

Summary: We held a webinar to demonstration ERPLAB Studio on 28 June 2024.Click here to access a recording.Click here 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.

Psychophysiology//doi.org/10.1111/psyp.70038">https://doi.org/ 10.1111/psyp.70038 [<a href="https://doi.org/10.1101/2024.03.20...



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

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



1 138 min words



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











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

Education: Additional Resources









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

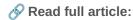






BRAIN

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/

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

 ● ieeebrain
 17
 2025-03-03
 1
 36
 BRAIN

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...

Read full article:

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

VibTac: A High-Resolution High-Bandwidth Tactile Sensing Finger for Multi-Modal Perception in Robotic Manipulation

1 169 min words

TRANSACTIONS HAPTICS

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 min words





TRANSACTIONS HAPTICS

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

Correlation between cerebral small vessel disease and latelife depression: Insights from neuroimaging studies

BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Yucun Chen, Qianqian Kong, Ziyue Wang, Jiacheng Li, Yiming Luo, Yi Zhang, Zhiyuan Yu, Hao Huang, Xiang Luo

Read full article:

https://www.sciencedirect.com/science/article/pii/S0006899325005645?dgcid=rss sd all

An interpretable Bayesian framework for Alzheimer's disease prediction with uncertainty quantification



NEUROSCIENCE JOURNAL

Summary: Publication date: 28 November 2025Source: Neuroscience, Volume 589Author(s): Ratnadeep Das, Atri Chatterjee, Sitikantha Roy



Read full article:

https://www.sciencedirect.com/science/article/pii/S0306452225010139?dgcid=rss sd all

Affective dimensions of emotional memory shape corticospinal excitability in the upper and lower limbs in young males

1 22 words

NEUROSCIENCE JOURNAL

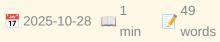
Summary: Publication date: 28 November 2025Source: Neuroscience, Volume 589Author(s): Yume Mashiki, Naotsugu Kaneko, Daiki Yamasaki, Tatsuya Kato, Keiichi Ishikawa, Ryogo Takahashi, Kimitaka Nakazawa

https://www.sciencedirect.com/science/article/pii/S0306452225010267?dgcid=rss_sd_all

Falling asleep follows a predictable bifurcation dynamic







NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 28 October 2025; www.nature.com/articles/s41593-025-02091-1">doi:10.1038/s41593-025-02091-1</ p>Li et al. propose a conceptual framework to study the phenomenon of falling asleep based on electroencephalogram data. They show that a tippin...

https://www.nature.com/articles/s41593-025-02091-1

Evidence from 7 Tesla fMRI of intrinsic network supporting allostasis in the human brain

1 59 NATURE NEUROSCIENCE words

Summary: Nature Neuroscience, Published online: 28 October 2025; www.nature.com/articles/s41593-025-02089-9">doi:10.1038/s41593-025-02089-9 p>Functional connectivity analyses using ultra-high precision 7 Tesla functional MRI identified a unified system for allostasis and interoceptio...

https://www.nature.com/articles/s41593-025-02089-9

Correction: Pre-training, personalization, and self-calibration: all a neural network-based myoelectric decoder needs



1 0 min words

FRONTIERS NEUROROBOTICS

Read full article:

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1675642

End-to-end robot intelligent obstacle avoidance method based on deep reinforcement learning with spatiotemporal transformer architecture

Weizhong
Zhang

Weizhong

Zhang

Weizhong

Min

Min

Min

Mords

FRONTIERS NEUROROBOTICS

Summary: To enhance the obstacle avoidance performance and autonomous decisionmaking capabilities of robots in complex dynamic environments, this paper proposes an end-to-end intelligent obstacle avoidance method that integrates deep reinforcement learning, spatiotemporal attention mechanisms, and a Transfo...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1646336

Editorial: Neurocinematics: how the brain perceives audiovisuals

José María Delgado-

1 0 min words

FRONTIERS NEUROSCIENCE

https://www.frontiersin.org/articles/10.3389/fnins.2025.1719407

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...

https://pubmed.ncbi.nlm.nih.gov/38873838/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1BUB2BG5RbxOblmhBbiJWEhGG43qlVrvGNHOTqBKva9wWrltM&fc=None&ff=20251031031949&v=2.18.0.post22+67771e2

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



1 72 min words

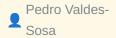
OOSTENVELD ROBERT

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/?

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One hundred years of EEG for brain and behaviour research







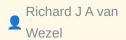
OOSTENVELD ROBERT

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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...

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

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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 ...

https://pubmed.ncbi.nlm.nih.gov/39308505/?

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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/?

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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...

https://pubmed.ncbi.nlm.nih.gov/39870674/?

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Pseudonymisation of neuroimages and data protection: Increasing access to data while retaining scientific utility



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/?

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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, ...

https://pubmed.ncbi.nlm.nih.gov/40800958/?

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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...

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

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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study









Read full article:

https://pubmed.ncbi.nlm.nih.gov/41162487/?

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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia









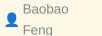
LOW VISION

Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41162537/?

Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

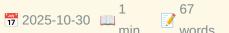
⊗ Read full article:

https://pubmed.ncbi.nlm.nih.gov/41164754/?

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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective











Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41164900/?

Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





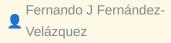


Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

https://pubmed.ncbi.nlm.nih.gov/41165404/?

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**









Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

https://pubmed.ncbi.nlm.nih.gov/41165747/?

Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

https://pubmed.ncbi.nlm.nih.gov/41166360/?

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Incidental ocular surface squamous neoplasia in pterygia: a systematic review and meta-analysis

1 47 min words

LOW VISION

Summary: CONCLUSIONS: This meta-analysis, based on low- to very low-certainty evidence, identified a 1.32% pooled prevalence of incidental OSSN in clinically diagnosed pterygia, highlighting the potential influence of UV exposure and equatorial proximity. The overlap in demographic and lesion characteristics...

https://pubmed.ncbi.nlm.nih.gov/41167795/?

The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**

Hulusi Kafaligonul 1 70 min words

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

https://pubmed.ncbi.nlm.nih.gov/41167815/?

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Headaches due to Low and High Intracranial Pressure

1 63 min words

LOW VISION

Summary: This article provides a comprehensive overview of high-pressure and lowpressure headaches, focusing on their pathophysiology, clinical presentation, diagnosis, and management. High-pressure headaches, often linked to idiopathic intracranial hypertension, primarily affect young women and can lead to...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41167858/?

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:

https://pubmed.ncbi.nlm.nih.gov/40434896/?

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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...

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:

https://pubmed.ncbi.nlm.nih.gov/40746091/?

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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...

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Explosion-powered eversible tactile displays







BRAILLE

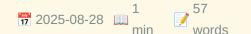
Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually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

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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**









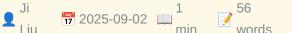
Summary: It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear.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

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











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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Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study









Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

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Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

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Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial

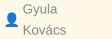


Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability





TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**







TDCS TACS TRNS

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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A Comprehensive Review of Trigeminal Autonomic Cephalalgias







TDCS TACS TRNS

Summary: Trigeminal autonomic cephalalgias (TACs) are a distinct group of primary headache disorders characterized by unilateral pain and autonomic symptoms such as tearing, nasal congestion, and ptosis. This article provides an in-depth review of the different TAC subtypes, including cluster headache, short...

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**









Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



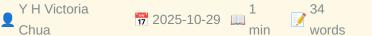
Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**









Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI











Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**







Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

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Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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The Impact of Sports Experience on Map Symbol Representation in Orienteering Athletes and Its Neural **Correlates: Evidence from Eye-Tracking and fNIRS**



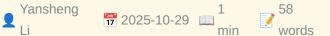
Summary: CONCLUSION: High-level orienteering athletes exhibit domain-specific cognitive advantages in map symbol representation tasks. Long-term orienteering map reading training facilitates synergistic interactions between visual and neural information processing.

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Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**



BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

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Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems

Yueming

2025-10-29 min 65

BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

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RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview



1 71 min words

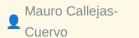
BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

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Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







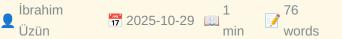
BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

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Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

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Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts









BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

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An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

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Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

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Acute Effects of Portable Dry-EEG Neurofeedback on **Classical Chinese Learning: A Three-Arm Repeated-Measures** Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

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The effect of perceived auditory feedback on speech Brain-**Computer Interface decoding performance**



BRAIN COMPUTER INTERFACE

Summary: OBJECTIVE: Brain-Computer Interfaces (BCI) provide alternative means of communication for individuals with severe motor impairment. Implantable speech BCIs have shown great potential, particularly in individuals who could still produce some speechrelated movements and/or sounds. As perception of au...

https://pubmed.ncbi.nlm.nih.gov/41167038/?

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The Internet Archive needs your help.





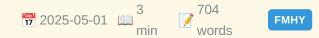


Summary: A coalition of major record labels has filed a lawsuit against the Internet Archive—demanding \$700 million for our work preserving and providing access to historical 78rpm records. These fragile, obsolete discs hold some of the earliest recordings of a vanishing American culture....



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 Commits Page 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 Commits Page on ...

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

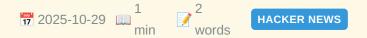
Can you break our pickle sandbox? Blog + exploit challenge inside



Summary: <!-- SC_OFF --><div class="md">I've been working on a different approach to pickle security with a friend.
br /> We wrote up a blog post about it and built a challenge to test if it actually holds up. The basic idea: we intercept and block the dangerous operations at the interpreter level during ...

https://www.reddit.com/r/Python/comments/1ok548a/can_you_break_our_pickle_sandbox_blog_exploit/

Israel demanded Google and Amazon use secret 'wink' to sidestep legal orders



Summary: Comments

Read full article:

https://www.theguardian.com/us-news/2025/oct/29/google-amazon-israel-contract-secret-code

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> We recently posted a preprint criticizing the idea of Type S and M errors (https://osf.io/2phzb_v1). From our abstract: "While these concepts have been pr...

http://daniellakens.blogspot.com/2025/09/type-s-and-m-errors-as-rhetorical-tool.html

Why we should stop using statistical techniques that have not been adequately vetted by experts in psychology

noreply@blogger.com (Daniel

27 5516 min words

TWENTY PERCENT STATISTICIAN

Summary: In a recent post on Bluesky, where Richard Morey reflects on a paper he published with Clintin Davis-Stober that points out concerns with the p-curve method (Morey & Davis-Stober, 2025), he writes: <p cla...

http://daniellakens.blogspot.com/2025/10/why-we-should-stop-using-statistical.html

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:

http://ieeexplore.ieee.org/document/11045422

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



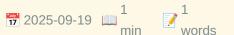
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Table of Contents



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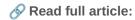








TRANSACTIONS HAPTICS



http://ieeexplore.ieee.org/document/11174042

A Survey of Few-Shot Learning for Biomedical Time Series







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**

1 214 min words

REVIEWS BIOMEDICAL ENGINEERING

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...

http://ieeexplore.ieee.org/document/10750441

Call for 2025 Society Awards Nominations

Deidre

2025-02-03 min 15 words

EMBS

Summary: The post Call for 2025 Society Awards Nominations appeared first on IEEE EMBS.

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

Bridging Biotech: Regional shifts and patterns

Summary: The post Bridging Biotech: Regional shifts and patterns appeared first on IEEE EMBS.

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 Welcoming Dr. Ana Kyani as the New Women in Biomedical Engineering Chair for IEEE EMBS appeared first on IEEE EMBS.

Read full article:

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

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







EMBS

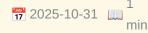
Summary: The post Ivan Lee, Appointed Editor-in-Chief of EMBC Proceedings</ a> appeared first on IEEE EMBS.



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

Effect of an auditory static distractor on the perception of an auditory moving target







ARXIV QBIO NC

Summary: arXiv:2510.25119v2 Announce Type: replace Abstract: It is known that listeners lose the ability to discriminate the direction of motion of a revolving sound (clockwise vs. counterclockwise) beyond a critical velocity ("the upper limit"), primarily due to degraded front-back discrimination. Little i...



https://arxiv.org/abs/2510.25119

Cortical modulation by exogenous electric fields is consistent with electric dipoles

1 min 21 words

NEUROSCIENCE JOURNAL

Summary: Publication date: 28 November 2025Source:
Neuroscience, Volume 589Author(s): Joana Covelo, Jaume Colom, Julia Weinert,
Mattia D'Andola, Alain Destexhe, Maria V. Sanchez-Vives

https://www.sciencedirect.com/science/article/pii/S0306452225010115?dgcid=rss_sd_all

Sex differences in sleep fragmentation in 5xFAD mice

1 min

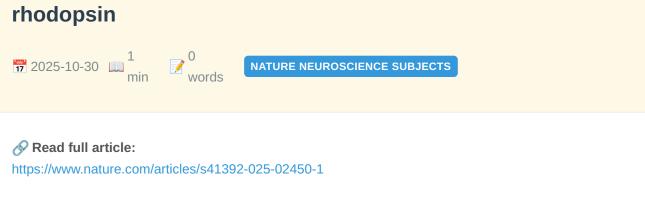


NEUROSCIENCE JOURNAL

Summary: Publication date: 28 November 2025Source:
Neuroscience, Volume 589Author(s): Kaitlyn J. Kim, Angel-Rose L. Villegas,
Amanda R. Kelley, Edwin M. Labut, Tory M. Hagen, Kathy R. Magnusson, Heidi Kloefkornp>

https://www.sciencedirect.com/science/article/pii/S0306452225010279?dgcid=rss_sd_all

Ambient light alleviates retinal neurodegeneration in mice by powering mitochondria via the engineered optoenergetic rhodopsin







Generation of synthetic TSPO PET maps from structural MRI images

Marco L. 1 250 Loggia min words

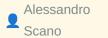


FRONTIERS NEUROINFORMATICS

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

The trade-off between maximizing reconstruction and physiological interpretation of muscle synergies with autoencoders







FRONTIERS HUMAN NEUROSCIENCE

Summary: IntroductionIn neuroscience, the muscle synergy method is a widely known computational approach for studying motor control from electromyographic (EMG) recordings. Standard algorithms for synergy extraction rely on a linearity assumption for synergy combination. However, the interactions between mus...

Read full article:

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1699799

Engineered spermidine-secreting Saccharomyces boulardii enhances olfactory memory in Drosophila melanogaster

X. Johné
Liu

1
250
words

FRONTIERS NEUROSCIENCE

Summary: IntroductionThe polyamines putrescine, spermidine, and spermine are ubiquitous metabolites synthesized in all cells. The intracellular levels of polyamines, especially spermidine, decrease in aging. Oral spermidine supplementation has been reported to alleviate aspects of aging-related disease in an...

https://www.frontiersin.org/articles/10.3389/fnins.2025.1628160

Multiphoton microscopy imaging of fibrous meningiomas based on the combination of multichannel mode and lambda mode

Na 1 197 Fang min words



FRONTIERS NEUROSCIENCE

Summary: Fibrous meningiomas, known for their dense and tough texture, present unique challenges in diagnosis and surgical treatment. This study explores the potential of multiphoton microscopy (MPM) for visualizing the microstructures of fibrous meningiomas by combining multichannel and lambda modes. Using ...

Read full article:

https://www.frontiersin.org/articles/10.3389/fnins.2025.1680408

Exploring gut microbiota alterations in Parkinson's disease: insights from a 16S amplicon sequencing Eastern European pilot study







Summary: IntroductionParkinson's disease (PD) is a neurodegenerative disorder increasingly associated with alterations in gut microbiota through the gut-brain axis (GBA). Despite growing global interest, studies examining microbiota composition in Eastern European populations remain limited. Methods We profile...

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https://www.frontiersin.org/articles/10.3389/fnins.2025.1654995

Transcriptomic analysis of identical twins with different onset ages of adrenoleukodystrophy









FRONTIERS NEUROSCIENCE

Summary: IntroductionAdrenoleukodystrophy (ALD) is a rare X-linked neurogenetic disease caused by mutations in the ATP-binding cassette subfamily D member 1 (ABCD1) gene. Currently, the molecular mechanisms underlying the onset and severity of ALD remain unclear. Therefore, the aim of this study is to identi...

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Exploring the 31P chemical shift behavior of high-energy phosphates at 7 T in patients with glioma







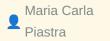
FRONTIERS NEUROSCIENCE

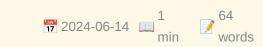
Summary: IntroductionThe characterization of tumor microenvironment in vivo can be supported by 31P MRSI, a non-invasive technique that enables the determination of intracellular pH and magnesium ion concentration, among other parameters. However, it remains unclear from recent studies whether imaging biomar...



https://www.frontiersin.org/articles/10.3389/fnins.2025.1638322

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







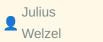
OOSTENVELD ROBERT

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



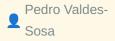
1 72 2024-07-02 min words OOSTENVELD ROBERT

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: Increasing access to data while retaining scientific utility

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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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study



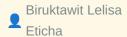






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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia



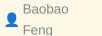




Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

https://pubmed.ncbi.nlm.nih.gov/41162537/?

Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

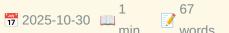
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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective











Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

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Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





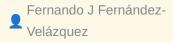


Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**









Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41165747/?

Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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Incidental ocular surface squamous neoplasia in pterygia: a systematic review and meta-analysis

1 47 min words

LOW VISION

Summary: CONCLUSIONS: This meta-analysis, based on low- to very low-certainty evidence, identified a 1.32% pooled prevalence of incidental OSSN in clinically diagnosed pterygia, highlighting the potential influence of UV exposure and equatorial proximity. The overlap in demographic and lesion characteristics...

https://pubmed.ncbi.nlm.nih.gov/41167795/?

The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**

Hulusi Kafaligonul 1 70 min words

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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Headaches due to Low and High Intracranial Pressure

1 63 min words

LOW VISION

Summary: This article provides a comprehensive overview of high-pressure and lowpressure headaches, focusing on their pathophysiology, clinical presentation, diagnosis, and management. High-pressure headaches, often linked to idiopathic intracranial hypertension, primarily affect young women and can lead to...

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Explosion-powered eversible tactile displays







BRAILLE

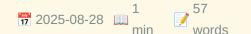
Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually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

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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...

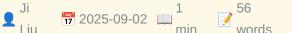
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Wireless Electrotactile System with Hydrogel-Based **Electrodes for Conformal Tactile Interaction**









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











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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Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study











Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

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Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

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Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial



Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability







TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



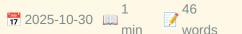
Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







TDCS TACS TRNS

Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**







TDCS TACS TRNS

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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A Comprehensive Review of Trigeminal Autonomic Cephalalgias







TDCS TACS TRNS

Summary: Trigeminal autonomic cephalalgias (TACs) are a distinct group of primary headache disorders characterized by unilateral pain and autonomic symptoms such as tearing, nasal congestion, and ptosis. This article provides an in-depth review of the different TAC subtypes, including cluster headache, short...

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**









Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**



Y H Victoria

Chua

1
2025-10-29
min

34
words

Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI



1 63 min words

FNIRS

Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**







Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

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Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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The Impact of Sports Experience on Map Symbol Representation in Orienteering Athletes and Its Neural **Correlates: Evidence from Eye-Tracking and fNIRS**



Summary: CONCLUSION: High-level orienteering athletes exhibit domain-specific cognitive advantages in map symbol representation tasks. Long-term orienteering map reading training facilitates synergistic interactions between visual and neural information processing.

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Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**



BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

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Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems

Yueming

2025-10-29 min 65

BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

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RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview







BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

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Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







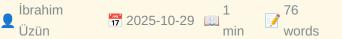
BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

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Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

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Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts







BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

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An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

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Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

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Acute Effects of Portable Dry-EEG Neurofeedback on **Classical Chinese Learning: A Three-Arm Repeated-Measures** Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

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The effect of perceived auditory feedback on speech Brain-**Computer Interface decoding performance**



N F 1 67
Ramsey min words

BRAIN COMPUTER INTERFACE

Summary: OBJECTIVE: Brain-Computer Interfaces (BCI) provide alternative means of communication for individuals with severe motor impairment. Implantable speech BCIs have shown great potential, particularly in individuals who could still produce some speechrelated movements and/or sounds. As perception of au...

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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 (...

Autonomous sensory meridian response (ASMR): A PRISMAguided systematic review.

2023-11-02 min 156 CLINICAL NEUROSCIENCE

Summary: The present PRISMA-guided article systematically reviews the current state of research on the autonomous sensory meridian response (ASMR). A systematic literature search was conducted in Pubmed, SCOPUS, and Web of Science (last search: March 2022) selecting all studies that conducted quantitative sc...

http://doi.org/10.1037/cns0000368

Social bodies: Preliminary evidence that awareness of embodied emotions is associated with recognition of emotions in the bodily cues of others.



Summary: We experience and express emotions via our bodies, and we are also able to infer the emotional states of others by observing their movements and postures. The ability to extract affective bodily cues in social contexts may be achieved via internal simulation, which is closely associated with experie...

Attention and body awareness: The role of inhibition and the management of cognitive resources in the perception of spontaneous sensations.



CLINICAL NEUROSCIENCE

Summary: When the body is attended to and viewed, it appears that only a subset of bodily sensations enters awareness. Some of these sensations can be felt on the skin even though no stimulation triggers their perception: They are commonly referred to as spontaneous sensations (SPS). It is hypothesized that ...

⊗ Read full article:

http://doi.org/10.1037/cns0000355

Investigating how individual differences in selective attention relate to schizotypy and altered states of consciousness.

1 251 min words



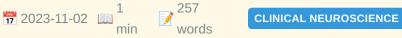


CLINICAL NEUROSCIENCE

Summary: Measures of altered states of consciousness (ASC) are useful for understanding anomalies within conscious experiences. Within psychedelic clinical trials, ASC have been associated with long-term positive treatment outcomes for numerous types of mental illnesses. Schizotypal Personality Scale (STA), ...

Read full article:

Sensory-processing sensitivity as a confounder in the positive relationship between mindful awareness and psychological distress: A theoretical review.



Summary: Mindfulness meditation is credited as a positive driver of promoting psychological well-being and reducing stress, anxiety, and depression symptoms. However, dispositional mindfulness has been somewhat correlated with psychological distress, as awareness has been positively correlated with psycholog...

⊗ Read full article:

http://doi.org/10.1037/cns0000380

A shared perceptual inference for cross-modally induced illusions of self-attribution.





CLINICAL NEUROSCIENCE

Summary: The representation of our own body is malleable. Evidence indicates that multisensory stimulation can trigger an illusory sense of ownership over a fake hand, a partner's face, or a virtual body. Despite our understanding of the processes supporting the construction of bodily self, we know less abou...

Read full article:

Unmuting lucid dreams: Speech decoding and vocalization in real time.

1 2023-03-13 min 260 words

CLINICAL NEUROSCIENCE

Summary: Since the 1970s, scientists have been searching for ways to communicate with people in lucid dreams (LDs), during which it is possible to maintain consciousness. Previously, dreamers could hear sounds from reality and respond with some simple signals, but they could not speak back. In this study, fa...

http://doi.org/10.1037/cns0000353

Creating a world in the head: The conscious apprehension of neural content originating from internal sources.

1 145 min words



CLINICAL NEUROSCIENCE

Summary: Klein et al. (2023) argued that the evolutionary transition from respondent to agent during the Cambrian explosion would be a promising vantage point from which to gain insight into the evolution of organic sentience. They focused on how increased competition for resources—in consequence of the prol...

Read full article:

Not all minds think alike: Examining the impact of time and task on visual and verbal thought.

1 2024-10-14 min 259 CLINICAL NEUROSCIENCE

Summary: Research suggests that individuals have different phenomenological experiences across various tasks. However, little is known about how these experiences vary by task or over time. This study examined participants' experiences of task-unrelated thoughts (i.e., TUTs), visual, and verbal thoughts acro...

http://doi.org/10.1037/cns0000406

Looking back, looking forward.

1 2025-10-30 min words CLINICAL NEUROSCIENCE

Summary: Looking back at the editor's two 3-year terms as editor of Psychology of Consciousness, they feel that they and the journal's associate editors have satisfied their two editorial aspirations: (a) providing authors with fair and constructive reviews and (b) providing readers with high-qualit...

Read full article:

Monolinguals outperform bilinguals in language but not executive function in aging and cognitive impairment.

1 2025-07-03 min 267 NEUROPSYCHOLOGY

Summary: Objective: People with subjective cognitive decline (SCD) self-report declining cognitive function, although objective cognitive performance remains normal. SCD is a risk factor for mild cognitive impairment (MCI) and dementia. Previous research has found differences in cognitive performance in bili...

⊗ Read full article:

http://doi.org/10.1037/neu0001028

End-stage kidney disease patients exhibited slower responses to rapidly presented visual stimuli when compared with healthy controls.



Summary: Objective: Using a go/no-go test, we showed that end-stage kidney disease (ESKD) patients have a slower average reaction time (RT) compared with their respective controls. This study aimed to investigate whether the RT of ESKD patients worsened throughout the test and whether RTs were influenced by ...

Validation of immersive virtual reality line and baguette bisection tasks for the assessment of unilateral spatial neglect.

1 258 min words

NEUROPSYCHOLOGY

Summary: Objective: Unilateral spatial neglect (USN) assessment is commonly based on paper-and-pencil tests, including the line bisection task. However, this task lacks sensitivity and does not reflect the symptomatic heterogeneity of USN patients, such as difficulties in extrapersonal space or encountered i...

http://doi.org/10.1037/neu0001024

The Reading the Mind in the Eyes Test for adults: A refined version in Spanish.

1 193 min words

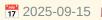


NEUROPSYCHOLOGY

Summary: Objective: The Reading of the Mind in the Eyes Test (RMET) is widely used to assess theory of mind, but its validity has recently been questioned. This study aimed to present a refined Spanish version of the test and examine its psychometric properties. Method: A total of 1,185 participants from Col...

Read full article:

Updating the Mattis Dementia Rating Scale to DSM-5</ em>-TR/ICD-11: A new item-division based on the current neurocognitive domains.





NEUROPSYCHOLOGY

Summary: Objective: The Mattis Dementia Rating Scale (DRS), a widely used cognitive assessment tool, has been revised to align with contemporary diagnostic criteria and cognitive domain classifications such as those outlined in Diagnostic Statistical Manual for Mental Disorders, fifth edition-text r...



⊗ Read full article:

http://doi.org/10.1037/neu0001029

Inhibitory control underpins the relationship between cognitive and psychological inflexibility after a moderate to severe traumatic brain injury.





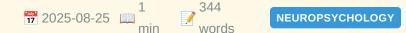


NEUROPSYCHOLOGY

Summary: Objective: Cognitive flexibility is proposed as being one "building block" of psychological inflexibility/flexibility, yet empirical studies examining these associations are scarce. This study aims to examine the relationship between these constructs in those with a moderate to severe traumatic brai...



Comparison of multidomain assessment outcomes between older and middle-aged adults following concussion.



Summary: Objective: This article's objective was to compare demographic/medical history and multidomain clinical assessment outcomes between older and middle-aged adults following concussion. Method: Seventy-six patients aged 50–80 years within 12 months of a concussion from a specialty clinic between Octobe...

http://doi.org/10.1037/neu0001032

Neural correlates of stigma: A systematic review.



Summary: Objective: Understanding neural mechanisms underlying the experience and enactment of stigma is needed to address the public health challenge posed by both experienced and enacted stigma. In this systematic review, we synthesized the literature on neural correlates of stigma from the perspective of ...

Read full article:

Back to the future in Neuropsychology.

1 146 NEUROPSYCHOLOGY words

Summary: The journal continues to be a leading journal in the field but cannot rest on its laurels; concrete actions will be needed to increase the quantity and quality of submissions. To accomplish this, Neuropsychology needs to build on specific areas of strength. Accordingly, a revised statement ...

http://doi.org/10.1037/neu0001044

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 Commits Page on ...

⊗ Read full article:

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 Commits Page on ...

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

(Free & Unlimited) Image Enhancer / Background Remover / OCR / Colorizer

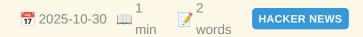


Summary: <!-- SC_OFF --><div class="md">URL <a href="https://github.com/d60/picwish Please read the readme.md for the usage details. <h1>What My Project Does</h1> This library allows you to use image enhancer, background remover, OCR, Colorizer a...

Read full article:

https://www.reddit.com/r/Python/comments/1ok5ng0/free_unlimited_image_enhancer_background_remover/

Phone numbers for use in TV shows, films and creative works



Summary: Comments

https://www.acma.gov.au/phone-numbers-use-tv-shows-films-and-creative-works

How the cochlea computes (2024)



Summary: Comments

https://www.dissonances.blog/p/the-ear-does-not-do-a-fourier-transform

How the cochlea computes (2024)

1 izhak 7 2025-10-30 min words

Summary: Article URL: https://www.dissonances.blog/p/the-ear-does-not-do-a-fourier-transform Comments URL: https://news.ycombinator.com/item?id=45762259</...

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Phone numbers for use in TV shows, films and creative works

nomilk 72025-10-30 min 13 words

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https://www.acma.gov.au/phone-numbers-use-tv-shows-films-and-creative-works

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?





TWENTY PERCENT STATISTICIAN

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

Read full article:

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

Advancing Cardiac Organoid Engineering Through Application of Biophysical Forces



REVIEWS BIOMEDICAL ENGINEERING

Summary: Cardiac organoids represent an important bioengineering opportunity in the development of models to study human heart pathophysiology. By incorporating multiple cardiac cell types in three-dimensional culture and developmentally-guided biochemical signaling, cardiac organoids recapitulate numerous f...

http://ieeexplore.ieee.org/document/10787078

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, ...

Earable Multimodal Sensing and Stimulation: A Prospective Toward Unobtrusive Closed-Loop Biofeedback

1 2024-11-29 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...

http://ieeexplore.ieee.org/document/10771694

Editorial: Harnessing Reviews to Advance Biomedical Engineering's New Horizons

2025-01-28 min REVIEWS BIOMEDICAL ENGINEERING



Read full article:

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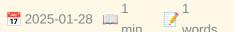




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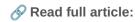
IEEE Engineering in Medicine and Biology Society





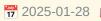


REVIEWS BIOMEDICAL ENGINEERING



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Front Cover







2025-01-28 min REVIEWS BIOMEDICAL ENGINEERING

http://ieeexplore.ieee.org/document/10856260

Electroencephalographic Functional Connectivity, Heartrate Synchrony, and Eye Movements Reveal Distinct Components within Narrative Engagement and Immersion





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...

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...

http://ieeexplore.ieee.org/document/11153352

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...

Read full article:

Transient and Sustained Neuromagnetic Representation of **Consonance and Dissonance in Harmonic Sequences**

1 244 min words

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)...

http://ieeexplore.ieee.org/document/11153362

An Emergentist Account of Language in the Brain—Seeking **Neural Synergies Behind Human Uniqueness**





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...

Read full article:

Impact of Transcutaneous Vagus Nerve Stimulation on Eventrelated Potentials during a Response Inhibition Task

1 157 min words

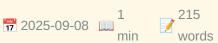
COGNITIVE NEUROSCIENCE

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...

http://ieeexplore.ieee.org/document/11153359

Confidence and Insight into Working Memory Are Shaped by **Attention and Recent Performance**





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...

Read full article:

Perceptual Decoupling Underlies Internal Shielding Benefit during Switches between External and Internal Attention: **Evidence from Early Sensory Event-related Potential** Components







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...



http://ieeexplore.ieee.org/document/11153351

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...



Musical Structure Influences the Perception of Sound Location

209 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 ...

http://ieeexplore.ieee.org/document/11153363

Matrix metalloproteinases and tissue inhibitors of metalloproteinases as the biomarkers of Alzheimer's disease: A meta-analysis

1 19 BRAIN RESEARCH words

Summary: Publication date: 15 December 2025Source: Brain Research, Volume 1869Author(s): Kwok Kei Mak, JeeEun Karin Nam, Yi-Fang Chuang, Liang-Kung Chen

https://www.sciencedirect.com/science/article/pii/S0006899325005177?dgcid=rss sd all

Exercise-induced plasma-derived extracellular vesicles increase adult hippocampal neurogenesis

BRAIN RESEARCH

Summary: Publication date: 15 December 2025Source: Brain Research, Volume 1869Author(s): Meghan G. Connolly, Alexander M. Fliflet, Prithika Ravi, Dan I. Rosu, Marni D. Boppart, Justin S. Rhodes

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Isoquercetin mitigates neuroinflammation and oxidative stress by targeting the NF-kB pathway

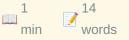


BRAIN RESEARCH

Summary: Publication date: 15 December 2025Source: Brain Research, Volume 1869Author(s): Dilpreet Kaur, Shamsher Singh

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Apprehending relational events: The visual world paradigm and the interplay of event perception and language



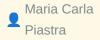
BRAIN RESEARCH

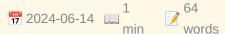
Summary: Publication date: 15 December 2025Source: Brain Research, Volume 1869Author(s): Alon Hafri, John C. Trueswell

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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 .

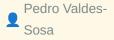
1 72 2024-07-02 min words OOSTENVELD ROBERT

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: Increasing access to data while retaining scientific utility



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...

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

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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study



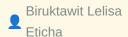






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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia



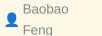




Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

https://pubmed.ncbi.nlm.nih.gov/41162537/?

Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective









Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41164900/?

Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





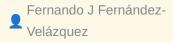


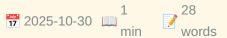
Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**







LOW VISION

Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

Read full article:

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Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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Incidental ocular surface squamous neoplasia in pterygia: a systematic review and meta-analysis

1 47 min words

LOW VISION

Summary: CONCLUSIONS: This meta-analysis, based on low- to very low-certainty evidence, identified a 1.32% pooled prevalence of incidental OSSN in clinically diagnosed pterygia, highlighting the potential influence of UV exposure and equatorial proximity. The overlap in demographic and lesion characteristics...

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The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**

Hulusi Kafaligonul 1 70 min words

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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Headaches due to Low and High Intracranial Pressure

1 63 min words

LOW VISION

Summary: This article provides a comprehensive overview of high-pressure and lowpressure headaches, focusing on their pathophysiology, clinical presentation, diagnosis, and management. High-pressure headaches, often linked to idiopathic intracranial hypertension, primarily affect young women and can lead to...

Read full article:

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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...

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

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...

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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...

BRAILLE

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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...

https://pubmed.ncbi.nlm.nih.gov/41041413/?

Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study









Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

https://pubmed.ncbi.nlm.nih.gov/41127342/?

Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

https://pubmed.ncbi.nlm.nih.gov/41156359/?

Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial



Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability





TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

https://pubmed.ncbi.nlm.nih.gov/41163224/?

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



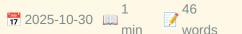
Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







TDCS TACS TRNS

Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**









TDCS TACS TRNS

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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A Comprehensive Review of Trigeminal Autonomic Cephalalgias







TDCS TACS TRNS

Summary: Trigeminal autonomic cephalalgias (TACs) are a distinct group of primary headache disorders characterized by unilateral pain and autonomic symptoms such as tearing, nasal congestion, and ptosis. This article provides an in-depth review of the different TAC subtypes, including cluster headache, short...

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**









Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

https://pubmed.ncbi.nlm.nih.gov/41154145/?

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



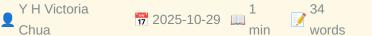
Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

https://pubmed.ncbi.nlm.nih.gov/41154201/?

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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**









Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

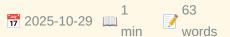
⊗ Read full article:

https://pubmed.ncbi.nlm.nih.gov/41154207/?

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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI











Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41157394/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251031014228&v=2.18.0.post22+67771e2

Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**



1 65 min words





Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

⊗ Read full article:

https://pubmed.ncbi.nlm.nih.gov/41157430/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251031014228&v=2.18.0.post22+67771e2

Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41158556/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251031014228&v=2.18.0.post22+67771e2

The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

https://pubmed.ncbi.nlm.nih.gov/41163056/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251031014228&v=2.18.0.post22+67771e2

The Impact of Sports Experience on Map Symbol Representation in Orienteering Athletes and Its Neural **Correlates: Evidence from Eye-Tracking and fNIRS**



Summary: CONCLUSION: High-level orienteering athletes exhibit domain-specific cognitive advantages in map symbol representation tasks. Long-term orienteering map reading training facilitates synergistic interactions between visual and neural information processing.

⊗ Read full article:

https://pubmed.ncbi.nlm.nih.gov/41167342/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251031014228&v=2.18.0.post22+67771e2

Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**



Yansheng 1 58

BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41155027/?

utm source=BucketBot&utm medium=rss&utm campaign=None&utm content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2 2+67771e2

Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems

Yueming

2025-10-29 min BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

https://pubmed.ncbi.nlm.nih.gov/41156422/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2 2+67771e2

RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview







BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

https://pubmed.ncbi.nlm.nih.gov/41157340/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2 2+67771e2

Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







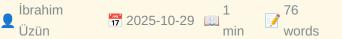
BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

https://pubmed.ncbi.nlm.nih.gov/41157441/? utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2 2+67771e2

Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

https://pubmed.ncbi.nlm.nih.gov/41159356/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUutbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2 2+67771e2

Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts







BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

https://pubmed.ncbi.nlm.nih.gov/41160441/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2 2+67771e2

An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

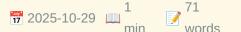
Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

2+67771e2

https://pubmed.ncbi.nlm.nih.gov/41160812/? utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2

Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

https://pubmed.ncbi.nlm.nih.gov/41160913/?

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Acute Effects of Portable Dry-EEG Neurofeedback on **Classical Chinese Learning: A Three-Arm Repeated-Measures** Study







BRAIN COMPUTER INTERFACE

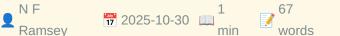
Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

https://pubmed.ncbi.nlm.nih.gov/41163348/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2 2+67771e2

The effect of perceived auditory feedback on speech Brain-**Computer Interface decoding performance**







BRAIN COMPUTER INTERFACE

Summary: OBJECTIVE: Brain-Computer Interfaces (BCI) provide alternative means of communication for individuals with severe motor impairment. Implantable speech BCIs have shown great potential, particularly in individuals who could still produce some speechrelated movements and/or sounds. As perception of au...

https://pubmed.ncbi.nlm.nih.gov/41167038/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251031014226&v=2.18.0.post2 2+67771e2

Psychometric properties of the Chinese version of Nightmare Distress Questionnaire in adolescents with psychiatric disorders.





DREAMING

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...

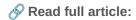


http://doi.org/10.1037/drm0000297

Assessing attitudes toward dream incubation: A new scale.

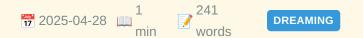


Summary: This study aims to develop the Dream Incubation Attitude Scale for assessing attitudes toward dream incubation. The Dream Incubation Attitude Scale underwent psychometric testing based on responses drawn from 109 Hong Kong participants. This resulted in a three-factor structure comprising self-effic...



http://doi.org/10.1037/drm0000306

Flying dreams stimulated by targeted movement and sound: Art and science in the dream hotel.

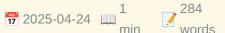


Summary: We present Dream Hotel Room 1, a sculptural artwork by Carsten Höller (with Adam Haar Horowitz) that uses dream engineering techniques to induce flying dreams. Dreams of flying are an exceptional experience; even years after their occurrence, people report these remain some of the most meaningful an...

Read full article:

http://doi.org/10.1037/drm0000308

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.**







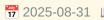
DREAMING

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 ...



http://doi.org/10.1037/drm0000307

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 https://github.com/fmhy/FMHYedit/commits/ main" rel="noreferrer" target=" blank">Commits Page on ...

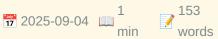


https://fmhy.net/posts/sept-2025

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. </h3> The "Chat Control" proposal would mand...



https://fmhy.net/posts/FCC



1 346 min words

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? Whats the point? 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...

Read full article:

https://fmhy.net/posts/WWH

[Python] Introducing Pyxe, a simple GUI for the PyInstaller module to compile your Python projects!

REDDIT PYTHON

Summary: <!-- SC OFF --><div class="md">I found that PyInstaller, a module in Python that compiles scripts into executables, was a little rough to learn at the beginning. It is basically just CLI only, and figured I would try and widen the audience group to people who would prefer a GUI version. *...

https://www.reddit.com/r/Python/comments/1okcm3a/python_introducing_pyxe_a_simple_gui_for_the/

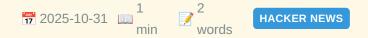
NPM flooded with malicious packages downloaded more than 86k times



Summary: Comments

https://arstechnica.com/security/2025/10/npm-flooded-with-malicious-packages-downloaded-more-than-86000-times/

A Look at Antml: The Anthropic Markup Language



Summary: Comments

⊗ Read full article:

https://karashiiro.leaflet.pub/3m4gf7geefs2l

Denmark reportedly withdraws Chat Control proposal following controversy

Summary: Article URL: https://therecord.media/demark-reportedly-withdraws-chat-control-proposal Comments URL: https://news.ycombinator.com/item?id=45765664...

https://therecord.media/demark-reportedly-withdraws-chat-control-proposal

A Look at Antml: The Anthropic Markup Language

ko_pivot 7 2025-10-31 min 13 HACKER NEWS

Summary: Article URL: https://karashiiro.leaflet.pub/3m4gf7geefs2l Comments URL: https://news.ycombinator.com/item?id=45768482">https://news.ycombinator.com/item?id=45768482 Points: 5 # Comments: 0

https://karashiiro.leaflet.pub/3m4gf7geefs2l

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 Open Science Framework (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 ...

Read full article:

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



1 108 min words



ERP BOOT CAMP

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. Click here 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: You can access the recording <a href="https://" video.ucdavis.edu/media/

Virtual+ERP+Boot+CampA+Decoding+for+Everyone%2C+July+25+2023/1 Imwj6bu0">l strong>.
br />You can access the final PDF of the slides <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



2 568 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. Psychophysiology. https:// doi.org/10.1111/psyp.14531 [<a href="https://www...

Read full article:

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

Education: Legal Issues



Adriel 1 61
Carridice min words

BRAIN

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...

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

Multimodal integration of plasma biomarkers, MRI, and genetic risk to predict cerebral amyloid burden in Alzheimer's disease





Summary: Publication date: 15 November 2025Source: NeuroImage, Volume 322Author(s): Yichen Wang, Hao-Jie Chen, Yuxin Cheng, YaoXin Xie, Yuyan Cheng, Shiyun Zhao, Yidong Jiang, Tianyu Bai, Yanxi Huo, Kexin Wang, Mingkai Zhang, Weijie Huang, Guozheng Feng, Ying Han, Ni Shu



https://www.sciencedirect.com/science/article/pii/S1053811925005531?dgcid=rss_sd_all

Linking brain entropy to molecular and cellular architecture in psychosis

1 min 15 words

NEUROIMAGE

Summary: Publication date: 15 November 2025Source: NeuroImage, Volume 322Author(s): Qiang Li, Jingyu Liu, Vince D. Calhoun

https://www.sciencedirect.com/science/article/pii/S1053811925005403?dgcid=rss_sd_all

Behavioural and neuronal insights into multisensory combination of unpracticed cues.





BIORXIV NEUROSCIENCE

Summary: Effective decision-making requires integrating multiple information sources, weighted by their reliability and context. While classic studies show near-optimal cue combination with well-learned signals and extensive feedback, everyday choices often rely on unfamiliar or cross-modal cues without such...

S Read full article:

https://www.biorxiv.org/content/10.1101/2025.10.29.685323v1?rss=1

A brain-wide, trial- and time-dependent deterministic drive for self-initiated action decisions

Elbaz, M. A., Butterer, K., Glaser, J., Miri,

1 124 min words

BIORXIV NEUROSCIENCE

Summary: Deciding when to act in the absence of external cues is essential for exploration, learning and survival. Yet how the brain makes such decisions remains controversial, with current models favoring either deterministic or stochastic underpinnings. We performed large-scale, single-unit recordings acro...

Read full article:

https://www.biorxiv.org/content/10.1101/2025.10.28.685235v1?rss=1

Author Correction: A single-vector intersectional AAV strategy for interrogating cellular diversity and brain function



1 22 min 222 words



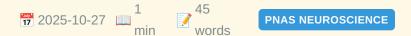
NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 27 October 2025; doi:10.1038/s41593-025-02129-4</ p>Author Correction: A single-vector intersectional AAV strategy for interrogating cellular diversity and brain function

https://www.nature.com/articles/s41593-025-02129-4

Shared cognitive biases influence numerical judgments in macaques and crows

Lena L. JannaschJulia GrübAndreas NiederaAnimal Physiology Unit, Institute of Neurobiology, Department of Biology, University of Tübingen, Tübingen 72076, Germany



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 44, November 2025.

SignificanceCognitive biases, often seen as uniquely human flaws, may instead reflect fundamental decision-making strategies shared across species. By demonstrating that macaque monkeys and carrion crows exhi...

https://www.pnas.org/doi/abs/10.1073/pnas.2512219122?af=R

Quantitative MRI of the hippocampus reveals microstructural trajectories of aging and Alzheimer's disease pathology

Alfie WearnChristine L. Tardifllana R. LeppertGiulia BaracchiniColleen HughesJennifer Tremblay-MercierJohn BreitnerJudes PoirierSylvia VilleneuveBoris C. BernhardtGary R. TurnerR. Nathan SprengaMontreal Neurological Institute, Department of Neurology and Neurosurgery, McGill University, Montreal, QC H3A 2B4, CanadabMcConnell Brain Imaging Centre, McGill University, Montreal, QC H3A 2B4, CanadacDouglas Mental Health University Institute, Verdun, QC H4H 1R3, CanadadDepartments of Psychiatry, McGill University, Montreal, QC H3A 1A1, CanadaeDepartment of Psychology, York University, Toronto, ON M3J 1P3, CanadafDepartment of Psychology, McGill University, Montreal, QC H3A 3E8, CanadaSylvia VilleneuveJudes PoirierJohn C.S. BreitnerSylvain CollinsMahsa DadarSimon DucharmeAlan EvansClaudine GauthierMaiya R. GeddesRick HogeYasser NetoTaylor SchmitzJean-Paul SoucyNathan SprengChristine TardifEtienne Vachon-PresseauChristian

BailletAndrée-Ann BarilPierre BellecVéronique BohbotDanilo BzdokMallar ChakravartyD. Louis Ituria-MedinaGerhard MulthaupLisa-Marie MünterAlexa Pichet BinetteNatasha RajahPedro Rosa-BoctiMaxime DescoteauxRobert LaforcePierre EtienneSerge GauthierVasavan NairJens PruessnerDaniel Auld







PNAS NEUROSCIENCE

Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 44, November 2025.
 SignificanceHippocampal atrophy, typically measured using volumetry, is a hallmark feature of both normal aging and Alzheimer's disease (AD). However, the earliest stages of atrophy manifest as microstructura...



https://www.pnas.org/doi/abs/10.1073/pnas.2502674122?af=R

Precise temporal dynamics of ripple events support order memory in human hippocampal-cortical circuits

Sarah SegerErdogan ErgitSruja AryaBrad LegaaDepartment of Neurological Surgery, University of Texas Southwestern Medical Center, Dallas, TX 75380



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 44, November 2025.

SignificanceSerial recall is a key behavior in episodic memory, utilizing processes such as item context binding and sequence generation. Sharp-wave ripples play a crucial role in episodic memory by facilitat...

https://www.pnas.org/doi/abs/10.1073/pnas.2422266122?af=R

Speech pattern disorders in verbally fluent individuals with autism spectrum disorder: a machine learning analysis



Summary: IntroductionDiagnosing Autism Spectrum Disorder (ASD) in verbally fluent individuals based on speech patterns in examiner-patient dialogues is challenging because speech-related symptoms are often subtle and heterogeneous. This study aimed to identify distinctive speech characteristics associated wi...

https://www.frontiersin.org/articles/10.3389/fninf.2025.1647194

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

UAV-based intelligent traffic surveillance using recurrent neural networks and Swin transformer for dynamic environments



Hui 1 2025-10-13 min 258

FRONTIERS NEUROROBOTICS

Summary: IntroductionUrban traffic congestion, environmental degradation, and road safety challenges necessitate intelligent aerial robotic systems capable of real-time adaptive decision-making. Unmanned Aerial Vehicles (UAVs), with their flexible deployment and high vantage point, offer a promising solution...

⊗ Read full article:

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1681341

UHGAN: a dual-phase GAN with Hough-transform constraints for accurate farmland road extraction



1 190 min words





FRONTIERS NEUROROBOTICS

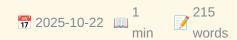
Summary: IntroductionTraditional methods for farmland road extraction, such as U-Net, often struggle with complex noise and geometric features, leading to discontinuous extraction and insufficient sensitivity. To address these limitations, this study proposes a novel dual-phase generative adversarial network...

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https://www.frontiersin.org/articles/10.3389/fnbot.2025.1691300

Co-cultured sensory neuron classification using extracellular electrophysiology and machine learning approaches for enhancing analgesic screening





JOURNAL NEURAL ENGINEERING

Summary: Objective. Chronic pain affects over 20% of the adult population in the United States, posing a substantial personal as well as economic burden and contributing to the ongoing opioid crisis. Effective, non-addictive chronic pain treatments are urgently needed. Traditional drug discovery methods have...



http://iopscience.iop.org/article/10.1088/1741-2552/ae0eef

Spec2VolCAMU-Net: a spectrogram-to-volume model for EEG-to-fMRI reconstruction based on Multi-directional Time-Frequency Convolutional Attention Encoder and Vision-Mamba U-Net

Dongyi He, Shiyang Li, Bin Jiang and He

1 245 min words

JOURNAL NEURAL ENGINEERING

Summary: Objective. High-resolution functional magnetic resonance imaging (fMRI) is essential for mapping human brain activity; however, it remains costly and logistically challenging. If comparable volumes could be generated directly from widely available scalp electroencephalography (EEG), advanced neuroim...

http://iopscience.iop.org/article/10.1088/1741-2552/ae15bf

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 .

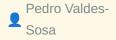
1 72 2024-07-02 min words OOSTENVELD ROBERT

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: Increasing access to data while retaining scientific utility

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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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study



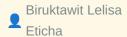






https://pubmed.ncbi.nlm.nih.gov/41162487/?

Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia





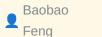




Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

https://pubmed.ncbi.nlm.nih.gov/41162537/?

Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective









Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

Read full article:

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Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





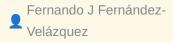


Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**









Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

https://pubmed.ncbi.nlm.nih.gov/41165747/?

Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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Incidental ocular surface squamous neoplasia in pterygia: a systematic review and meta-analysis

1 47 min words

LOW VISION

Summary: CONCLUSIONS: This meta-analysis, based on low- to very low-certainty evidence, identified a 1.32% pooled prevalence of incidental OSSN in clinically diagnosed pterygia, highlighting the potential influence of UV exposure and equatorial proximity. The overlap in demographic and lesion characteristics...

https://pubmed.ncbi.nlm.nih.gov/41167795/?

The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**

Hulusi Kafaligonul 1 70 min words

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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Headaches due to Low and High Intracranial Pressure

1 63 min words

LOW VISION

Summary: This article provides a comprehensive overview of high-pressure and lowpressure headaches, focusing on their pathophysiology, clinical presentation, diagnosis, and management. High-pressure headaches, often linked to idiopathic intracranial hypertension, primarily affect young women and can lead to...

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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
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...

https://pubmed.ncbi.nlm.nih.gov/40964349/?

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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/?

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:

https://pubmed.ncbi.nlm.nih.gov/40889233/?

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...

https://pubmed.ncbi.nlm.nih.gov/40891563/?

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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.

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...

https://pubmed.ncbi.nlm.nih.gov/41041413/?

Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study









Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

https://pubmed.ncbi.nlm.nih.gov/41127342/?

Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

⊗ Read full article:

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Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial

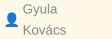


Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

https://pubmed.ncbi.nlm.nih.gov/41159517/?

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability







TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







TDCS TACS TRNS

Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**







TDCS TACS TRNS

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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A Comprehensive Review of Trigeminal Autonomic Cephalalgias







TDCS TACS TRNS

Summary: Trigeminal autonomic cephalalgias (TACs) are a distinct group of primary headache disorders characterized by unilateral pain and autonomic symptoms such as tearing, nasal congestion, and ptosis. This article provides an in-depth review of the different TAC subtypes, including cluster headache, short...

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**









Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**



Y H Victoria
Chua

1
2025-10-29
min
34
words

Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI



1 63 min words

FNIRS

Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**









Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

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Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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The Impact of Sports Experience on Map Symbol **Representation in Orienteering Athletes and Its Neural Correlates: Evidence from Eye-Tracking and fNIRS**



Summary: CONCLUSION: High-level orienteering athletes exhibit domain-specific cognitive advantages in map symbol representation tasks. Long-term orienteering map reading training facilitates synergistic interactions between visual and neural information processing.

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Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**



BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

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Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems

Yueming

2025-10-29 min BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

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RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview







BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

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Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







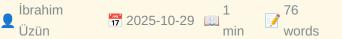
BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

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Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

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Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts







BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

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An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

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Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

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Acute Effects of Portable Dry-EEG Neurofeedback on **Classical Chinese Learning: A Three-Arm Repeated-Measures** Study







BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

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The effect of perceived auditory feedback on speech Brain-**Computer Interface decoding performance**

N F 1 67
Ramsey min words

BRAIN COMPUTER INTERFACE

Summary: OBJECTIVE: Brain-Computer Interfaces (BCI) provide alternative means of communication for individuals with severe motor impairment. Implantable speech BCIs have shown great potential, particularly in individuals who could still produce some speechrelated movements and/or sounds. As perception of au...

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Education: Social and Cultural Issues

2025-02-05 min 61 words

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...

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Call for Applications: IEEE T-MRB Editor in Chief Search









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Call for Applications Editor-in-Chief: IEEE Open Journal of **Engineering in Medicine and Biology**











Summary: The post 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 appeared first on IEEE EMBS</ a>.

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Notice to IEEE EMBS Members: Change to Field of Interest









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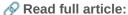
The traffic jam hypothesis: Unravelling cellular dysfunctions in Parkinsonism diseases





BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Megha Manne, Brijesh Taksande, Milind Umekar, Madhura Vinchurney



https://www.sciencedirect.com/science/article/pii/S0006899325005657?dgcid=rss_sd_all

Effect of the plasma lipidome, immune cells, inflammatory proteins, gut microbiota, and plasma metabolites on Alzheimer's Disease: A two-sample Mendelian randomized study and mediation analysis

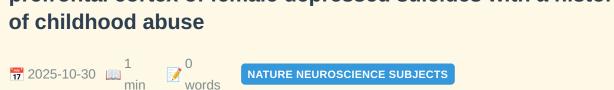


Summary: Publication date: 15 December 2025Source: Brain Research, Volume 1869Author(s): Zenghui Liu, Lu Kuang, Xiaohui Zhou, Jiaxing Zhao, Qijun Chen, Huayu Yin, Xuehui Liu, Dabin Liu, Shaoguo Wu, Limei Wu

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Pervasive neurovascular dysfunction in the ventromedial prefrontal cortex of female depressed suicides with a history of childhood abuse



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Multiscale intracranial EEG dynamics across sleep-wake states: toward memory-related processing



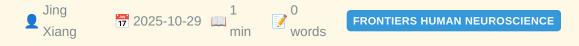
FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: Sleep is known to support memory consolidation through a complex interplay of neural dynamics across multiple timescales. Using intracranial EEG (iEEG) recordings from patients undergoing clinical monitoring, we characterize spectral activity, neuronal avalanche dynamics, and temporal correlations a...

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Editorial: Changes in the auditory brain following deafness, cochlear implantation, and auditory training, volume III



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Editorial: Visual perception in children and adolescents with visual impairments



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Electrophysiological and behavioural responses to consonant and dissonant piano chords as standardised affective stimuli

1 2222 min words

FRONTIERS HUMAN NEUROSCIENCE

Summary: Although the difference between consonance and dissonance has raised interest for decades in various fields of science, isolated chords are still underutilised as standardised affective stimuli in neuroscience. In the present study, we assessed whether consonant, dissonant, and neutral sounds evoked...

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Electroencephalography-based neural indicators of texture preference for cosmetic formulations



1 142 min words



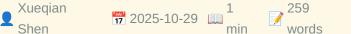
FRONTIERS NEUROSCIENCE

Summary: This study investigated the correlation between subjective preferences for different cosmetic formulations and brain activity measured using electroencephalography (EEG). EEG data were collected from 29 participants when they applied three positive and one negative cosmetic formulation to the inside...

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CPRSCA-ResNet: a novel ResNet-based model with Channel-Partitioned Resolution Spatial-Channel Attention for EEGbased seizure detection







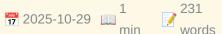
FRONTIERS NEUROSCIENCE

Summary: Epilepsy is a common chronic neurological disorder caused by abnormal discharges of brain neurons, characterized by transient disturbances in consciousness, motor function, behavior, or sensation. Recurrent seizures severely impair patients' cognitive and physiological functions and increase the ris...

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A multi-domain graph convolutional network-based prediction model for personalized motor imagery action









FRONTIERS NEUROSCIENCE

Summary: Motor imagery (MI)-based brain-computer interfaces (BCIs) offer a novel method to decode action imagination. Our previous study demonstrated that actions play a key role in causing individual differences. Cognitive EEG signals showed a positive correlation with MI, reflecting these differences and p...

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High-accuracy electrode implantation in deep brain structures using multi-camera neuronavigation in non-human primates

Ankur Gupta, Adrien Boissenin, Nikolaos Vardalakis, Mathieu Taillade, Hugues Orignac, Nathalie Biendon, Sandra Dovero, Tho Hai Nguyen, Amirouche Sadoun and Fabien B Wagner







JOURNAL NEURAL ENGINEERING

Summary: Objective. Precise electrophysiological recordings and stimulation of deep brain structures in large animal models such as non-human primates require highly accurate targeting methods that are currently lacking. Approach. To address this limitation, we have integrated advanced multi-camera neuronavi...



http://iopscience.iop.org/article/10.1088/1741-2552/ae135b

PyHFO 2.0: an open-source platform for deep learning based clinical high-frequency oscillations analysis

Yuanyi Ding, Yipeng Zhang, Chenda Duan, Atsuro Daida, Yun Zhang, Sotaro Kanai, Mingjian Lu, Shaun Hussain, Richard J Staba, Hiroki Nariai and Vwani Roychowdhury







JOURNAL NEURAL ENGINEERING

Summary: Objective. Accurate detection and classification of high-frequency oscillations (HFOs) in electroencephalography (EEG) recordings have become increasingly important for identifying epileptogenic zones in patients with drug-resistant epilepsy. However, few open-source platforms offer both state-of-th...



http://iopscience.iop.org/article/10.1088/1741-2552/ae10e0

A methodological framework for the efficient characterization of peripheral nerve stimulation parameters



2025-10-27



JOURNAL NEURAL ENGINEERING

Summary: Objective. Restoring movement and somatosensation with peripheral nerve stimulation (PNS) requires precise neural activation. Because pulse amplitude (PA) and pulse width (PW) recruit axons differently, intentionally modulating both could enable more advanced PNS. However, mapping the PA-PW space is...

http://iopscience.iop.org/article/10.1088/1741-2552/ae0d31

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

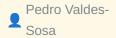
OOSTENVELD ROBERT

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







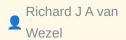
OOSTENVELD ROBERT

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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: Increasing access to data while retaining scientific utility

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...

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

Tim M
Tierney

Tie

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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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study









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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia









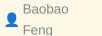
LOW VISION

Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41162537/?

Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective











Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41164900/?

Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





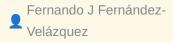


Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**







LOW VISION

Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

https://pubmed.ncbi.nlm.nih.gov/41165747/?

Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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Incidental ocular surface squamous neoplasia in pterygia: a systematic review and meta-analysis

1 47 min words

LOW VISION

Summary: CONCLUSIONS: This meta-analysis, based on low- to very low-certainty evidence, identified a 1.32% pooled prevalence of incidental OSSN in clinically diagnosed pterygia, highlighting the potential influence of UV exposure and equatorial proximity. The overlap in demographic and lesion characteristics...

https://pubmed.ncbi.nlm.nih.gov/41167795/?

The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**

Hulusi Kafaligonul 1 70 min words

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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Headaches due to Low and High Intracranial Pressure

1 63 min words

LOW VISION

Summary: This article provides a comprehensive overview of high-pressure and lowpressure headaches, focusing on their pathophysiology, clinical presentation, diagnosis, and management. High-pressure headaches, often linked to idiopathic intracranial hypertension, primarily affect young women and can lead to...

Read full article:

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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



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
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/?

Explosion-powered eversible tactile displays







BRAILLE

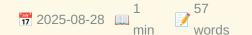
Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually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









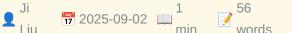
Summary: It has been argued in previous research that several competing pressures guide the directions of language evolution (economy vs. redundancy; arbitrariness vs. systematicity). For sign languages, however, the effects of competing pressures on their change of lexical systems remain largely unclear.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

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...

https://pubmed.ncbi.nlm.nih.gov/41041413/?

Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study









Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

https://pubmed.ncbi.nlm.nih.gov/41127342/?

Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

https://pubmed.ncbi.nlm.nih.gov/41156359/?

Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial



Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

https://pubmed.ncbi.nlm.nih.gov/41159517/?

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability







TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







TDCS TACS TRNS

Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The Hidden Benefits of Noise: Low-Frequency tRNS and **Dynamic Visual Noise Enhance Visual Processing**









TDCS TACS TRNS

Summary: Sensory and perceptual processing is inherently shaped by both internal and external noise sources. While noise is typically seen as disruptive, it can, under certain conditions, enhance the detection of weak sensory signals-a phenomenon known as stochastic resonance (SR). Research on SR has primari...

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A Comprehensive Review of Trigeminal Autonomic Cephalalgias







TDCS TACS TRNS

Summary: Trigeminal autonomic cephalalgias (TACs) are a distinct group of primary headache disorders characterized by unilateral pain and autonomic symptoms such as tearing, nasal congestion, and ptosis. This article provides an in-depth review of the different TAC subtypes, including cluster headache, short...

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



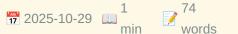
Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**









Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

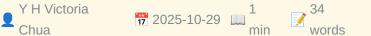
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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**









Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

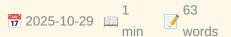
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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI











Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**







Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

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Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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The Impact of Sports Experience on Map Symbol Representation in Orienteering Athletes and Its Neural **Correlates: Evidence from Eye-Tracking and fNIRS**



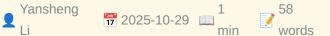
Summary: CONCLUSION: High-level orienteering athletes exhibit domain-specific cognitive advantages in map symbol representation tasks. Long-term orienteering map reading training facilitates synergistic interactions between visual and neural information processing.

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Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**



BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

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Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems

Yueming

2025-10-29 min BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

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RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview







BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

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Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

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Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

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Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts







BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

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An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

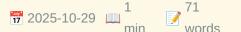
Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

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Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

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Acute Effects of Portable Dry-EEG Neurofeedback on **Classical Chinese Learning: A Three-Arm Repeated-Measures** Study







BRAIN COMPUTER INTERFACE

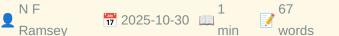
Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

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The effect of perceived auditory feedback on speech Brain-**Computer Interface decoding performance**







BRAIN COMPUTER INTERFACE

Summary: OBJECTIVE: Brain-Computer Interfaces (BCI) provide alternative means of communication for individuals with severe motor impairment. Implantable speech BCIs have shown great potential, particularly in individuals who could still produce some speechrelated movements and/or sounds. As perception of au...

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The sound of manufactured music: Reviewing the role of artificial stimuli in music cognition research.







PSYCHOMUSICOLOGY

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

Music-evoked nostalgia and charitable giving: A crosscultural study in the United States and Mexico.

1 192 min words

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...

http://doi.org/10.1037/pmu0000302

Preferred music listening does not affect cognitive inhibition in young and older adults.

1 2023-10-12 min 227 words



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.

PSYCHOMUSICOLOGY

1 2023-07-10 min 202

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...

http://doi.org/10.1037/pmu0000298

Capturing coordination and intentionality in joint musical improvisation.

1 2023-08-03 min 217 psychomusicology

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...

Read full article:

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 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

Psychomusicology: A resounding closing cadence.

1 2024-01-22 min 256 PSYCHOMUSICOLOGY

Summary: From 2012 to 2023, the American Psychological Association served as publisher of Psychomusicology: Music, Mind, and Brain. 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.

1 261 min 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...

http://doi.org/10.1037/cns0000399

The impact of unemployment on dream content.



DREAMING

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.

1 122 DREAMING words

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...

http://doi.org/10.1037/drm0000296

Anatomical connectivity-based parcellation of the human orbitofrontal cortex.

1 2025-07-10 min 2222 words

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...

Read full article:

http://doi.org/10.1037/bne0000628

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 https://github.com/fmhy/FMHYedit/commits/ main" rel="noreferrer" target=" blank">Commits Page on ...

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

Modifying a radiation meter for (radioactive) rock collecting





HACKER NEWS

Summary: Comments

https://maurycyz.com/projects/ludlum3/

Affinity Studio now free







HACKER NEWS

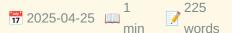
Summary: Comments



Read full article:

https://www.affinity.studio/get-affinity

Inverse Problem Approach to Aberration Correction for In Vivo Transcranial Imaging Based on a Sparse Representation of Contrast-Enhanced Ultrasound Data







TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: Transcranial ultrasound imaging is currently limited by attenuation and aberration induced by the skull. First used in contrast-enhanced ultrasound (CEUS), highly echoic microbubbles allowed for the development of novel imaging modalities such as ultrasound localization microscopy (ULM). ...



CLal: Collaborative Learning and Inference for Low-Resolution Physiological Signals: Validation in Clinical Event Detection and Prediction



TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: While machine learning (ML) techniques have been applied to detection and prediction tasks in clinical data, most methods rely on high-resolution data, which is not routinely available in most Intensive Care Units (ICUs), and perform poorly when faced with class imbalance. Here, we introduce and val...

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http://ieeexplore.ieee.org/document/10974669

A Pilot Study on Fabric-Based Pneumatic Soft Gloves for **Assisting Patients With Severe Brachial Plexus Injury**





TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: Robotic gloves show promise in hand assistance due to their wearability and home-based potential, yet empirical research remains limited. This pilot study presents a fabric-based pneumatic soft glove, aiming to identify its potential and challenges in clinical practice by evaluating its e...

Read full article:

Building and Sustaining Open-Source Medical Device Projects

1 106 min words

TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: The open-source development model has been successfully applied to consumer and enterprise software, and recently to consumer hardware. Medical devices may become a beneficiary of this trend, as open-source medical device development has the potential to reduce costs, democratize patient access, and...

http://ieeexplore.ieee.org/document/10971951

A Neighbor-Sensitive Multi-Modal Flexible Learning Framework for Improved Prostate Tumor Segmentation in **Anisotropic MR Images**

1 2025-04-21 min 247 words





TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Accurate segmentation of prostate tumors from multi-modal magnetic resonance (MR) images is crucial for the diagnosis and treatment of prostate cancer. However, the robustness of existing segmentation methods is limited, mainly because these methods 1) fail to flexibly assess subject-specific inform...

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TRANSACTIONS BIOMEDICAL ENGINEERING words

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1 1 min words



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Notice to IEEE EMBS Members: Change to Field of Interest



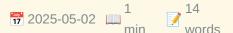
Summary: The post Notice to IEEE EMBS Members: Change to Field of Interest appeared first on IEEE EMBS.

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Open Call for AdCom Nominations







EMBS

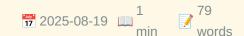
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https://www.embs.org/uncategorized/call-for-adcom-nominations/

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… Continu...



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

Scaffolding Creativity: How Divergent and Convergent LLM **Personas Shape Human Machine Creative Problem-Solving**

Alon Rosenbaum, Yigal David, Eran Kaufman, Gilad Ravid, Amit Ronen, Assaf Krebs

2025-10-31

1 161 ARXIV CS HC words

Summary: arXiv:2510.26490v1 Announce Type: new Abstract: Large language models (LLMs) are increasingly shaping creative work and problem-solving; however, prior research suggests that they may diminish unassisted creativity. To address this tension, a coach-like LLM environment was developed that embodies d...

https://arxiv.org/abs/2510.26490

Look at That Distractor: Dynamic Translation Gain under Low Perceptual Load in Virtual Reality

Ling-Long Zou, Qiang Tong, Er-Xia Luo, Sen-Zhe Xu, Song-Hai Zhang, Fang-Lue







Summary: arXiv:2510.26265v1 Announce Type: new Abstract: Redirected walking utilizes gain adjustments within perceptual thresholds to allow natural navigation in large scale virtual environments within confined physical environments. Previous research has found that when users are distracted by some scene e...

Avatar Appearance Beyond Pixels - User Ratings and Avatar Preferences within Health Applications

Navid Ashrafi, Philipp Graf, Manuela Marquardt, Francesco Vona, Julia Schorlemmer, Jan-Niklas Voigt-Antons





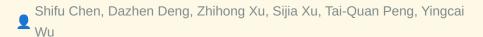
ARXIV CS HC

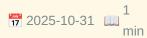
Summary: arXiv:2510.26251v1 Announce Type: new Abstract: The appearance of a virtual avatar significantly influences its perceived appropriateness and the user's experience, particularly in healthcare applications. This study analyzed interactions with six avatars of varying characteristics in a patient-rep...



https://arxiv.org/abs/2510.26251

Linking Heterogeneous Data with Coordinated Agent Flows for Social Media Analysis







ARXIV CS HC

Summary: arXiv:2510.26172v1 Announce Type: new Abstract: Social media platforms generate massive volumes of heterogeneous data, capturing user behaviors, textual content, temporal dynamics, and network structures. Analyzing such data is crucial for understanding phenomena such as opinion dynamics, community...



Interaction-Augmented Instruction: Modeling the Synergy of **Prompts and Interactions in Human-GenAl Collaboration**

Leixian Shen, Yifang Wang, Huamin Qu, Xing Xie, Haotian

1 153 words

ARXIV CS HC

Summary: arXiv:2510.26069v1 Announce Type: new Abstract: Text prompt is the most common way for human-generative AI (GenAI) communication. Though convenient, it is challenging to convey fine-grained and referential intent. One promising solution is to combine text prompts with precise GUI interactions, like...

https://arxiv.org/abs/2510.26069

FractalBrain: A Neuro-interactive Virtual Reality Experience using Electroencephalogram (EEG) for Mindfulness

Jamie Ngoc Dinh, You-Jin Kim, Myungin

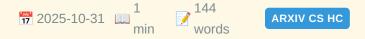
1 124 min words

ARXIV CS HC

Summary: arXiv:2510.26041v1 Announce Type: new Abstract: Mindfulness has been studied and practiced in enhancing psychological well-being while reducing neuroticism and psychopathological indicators. However, practicing mindfulness with continuous attention is challenging, especially for beginners. In the p...

Designing for Dignity while Driving: Interaction Needs of Blind and Low-Vision Passengers in Fully Automated Vehicles

Zhengtao Ma, Rafael Gomez, Togtokhtur Batbold, Zishuo Zhu, Yueteng Yu, Ronald Schroeter



Summary: arXiv:2510.26015v1 Announce Type: new Abstract: Fully automated vehicles (FAVs) hold promise for enhancing the mobility of blind and low-vision (BLV) individuals. To understand the situated interaction needs of BLV passengers, we conducted six on-road, and in-lab focus groups with 16 participants, ...

⊗ Read full article:

On the Go with AR: Attention to Virtual and Physical Targets while Varying Augmentation Density

You-Jin Kim, Radha Kumaran, Jingjing Luo, Tom Bullock, Barry Giesbrecht, Tobias H\"ollerer

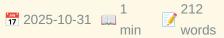
1 155 min words

Summary: arXiv:2510.25978v1 Announce Type: new Abstract: Augmented reality is projected to be a primary mode of information consumption on the go, seamlessly integrating virtual content into the physical world. However, the potential perceptual demands of viewing virtual annotations while navigating a physi...

https://arxiv.org/abs/2510.25978

Risks and Opportunities in Human-Machine Teaming in Operationalizing Machine Learning Target Variables







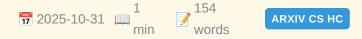
ARXIV CS HC

Summary: arXiv:2510.25974v1 Announce Type: new Abstract: Predictive modeling has the potential to enhance human decision-making. However, many predictive models fail in practice due to problematic problem formulation in cases where the prediction target is an abstract concept or construct and practitioners ...

Read full article:

The Impact of Navigation Aids on Search Performance and **Object Recall in Wide-Area Augmented Reality**

Radha Kumaran, You-Jin Kim, Anne E Milner, Tom Bullock, Barry Giesbrecht, Tobias



Summary: arXiv:2510.25957v1 Announce Type: new Abstract: Head-worn augmented reality (AR) is a hotly pursued and increasingly feasible contender paradigm for replacing or complementing smartphones and watches for continual information consumption. Here, we compare three different AR navigation aids (on-scre...



https://arxiv.org/abs/2510.25957

Low dimensional dynamics of a sparse balanced synaptic network of quadratic integrate-and-fire neurons







ARXIV QBIO NC

Summary: arXiv:2508.06253v2 Announce Type: replace Abstract: Kinetics of a balanced network of neurons with a sparse grid of synaptic links is well representable by the stochastic dynamics of a generic neuron subject to an effective shot noise. The rate of delta-pulses of the noise is determined self-consis...



Modeling Neural Activity with Conditionally Linear Dynamical Systems

Victor Geadah, Amin Nejatbakhsh, David Lipshutz, Jonathan W. Pillow, Alex H. Williams

1 137 arxiv qвіо NC min words

Summary: arXiv:2502.18347v2 Announce Type: replace Abstract: Neural population activity exhibits complex, nonlinear dynamics, varying in time, over trials, and across experimental conditions. Here, we develop Conditionally Linear Dynamical System (CLDS) models as a general-purpose method to characterize the...

https://arxiv.org/abs/2502.18347

Brain-IT: Image Reconstruction from fMRI via Brain-Interaction Transformer

Roman Beliy, Amit Zalcher, Jonathan Kogman, Navve Wasserman, Michal

2025-10-31



Summary: arXiv:2510.25976v1 Announce Type: cross Abstract: Reconstructing images seen by people from their fMRI brain recordings provides a non-invasive window into the human brain. Despite recent progress enabled by diffusion models, current methods often lack faithfulness to the actual seen images. We pre...

Integrated Information Theory: A Consciousness-First Approach to What Exists

Giulio Tononi, Melanie

1 145 min words

ARXIV QBIO NC

Summary: arXiv:2510.25998v1 Announce Type: new Abstract: This overview of integrated information theory (IIT) emphasizes IIT's "consciousness-first" approach to what exists. Consciousness demonstrates to each of us that something exists--experience--and reveals its essential properties--the axioms of phenom...

https://arxiv.org/abs/2510.25998

InputDSA: Demixing then Comparing Recurrent and Externally Driven Dynamics

Ann Huang, Mitchell Ostrow, Satpreet H. Singh, Leo Kozachkov, Ila Fiete, Kanaka Raian

1 276 min words



ARXIV QBIO NC

Summary: arXiv:2510.25943v1 Announce Type: new Abstract: In control problems and basic scientific modeling, it is important to compare observations with dynamical simulations. For example, comparing two neural systems can shed light on the nature of emergent computations in the brain and deep neural network...

Read full article:

A narrative exploration of oxytocin and anxiety in autism spectrum disorder

1 min

BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Shreya Koche, Mayuri Gajghate, Madhura Dixit Vinchurney, Mayur Kale, Brijesh Taksande, Milind Umekar, Rashmi Trivedi

https://www.sciencedirect.com/science/article/pii/S0006899325005542?dgcid=rss_sd_all

Parkinson's disease and the gut-brain connection: unveiling pathways, mechanisms and promising therapies

1 min



BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Suhas Hajare, Yogesh A. Kulkarni

⊗ Read full article:

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K⁺ channels as key modulators of in vitro high-frequency oscillations associated with interictal epileptiform activity

min



NEUROSCIENCE JOURNAL

Summary: Publication date: 28 November 2025Source:
Neuroscience, Volume 589Author(s): Konstantinos Kalogeropoulos, Caterina
Psarropoulou

https://www.sciencedirect.com/science/article/pii/S0306452225010164?dgcid=rss_sd_all

Two-hit perinatal injuries cause gut microbial dysbiosis in offspring

1 min



NEUROSCIENCE JOURNAL

Summary: Publication date: 28 November 2025Source:
Neuroscience, Volume 589Author(s): Gilbert Aaron Lee, Yu-Wei Chang, Yu-Chen
S.H. Yang, Sung-Hui Tseng, Ching-Chiung Wang, Chia-Jung Lee, Jung-Su Chang, Shan-
Hong Wu, Mu-Ming Chien, Kang-Wei Chang, Hsi Chang

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Neural responses prior to licking onset in the striatal matrix compartment in mice

NEUROSCIENCE JOURNAL

Summary: Publication date: 28 November 2025Source: Neuroscience, Volume 589Author(s): Yuta Ishimaru, Tomohiko Yoshizawa, Taishi Kimoto, Tadashi Inui, Yasutaka Yawaka, Makoto Funahashi

Read full article:

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Standardised and systematic sampling of public engagement in brain health - Slovenian example



NEUROSCIENCE JOURNAL

Summary: Publication date: 28 November 2025Source: Neuroscience, Volume 589Author(s): I. Muc, L. Blinc, G. Vidmar, S. Kurdija, T. Vovk, M Bresjanac

Read full article:

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Erratum to "Neurotropism of alphaherpesviruses is most prominent in the mesiotemporal, piriform and prefrontal cortices in mice". [Neuroscience 584 (2025) 367-381]

NEUROSCIENCE JOURNAL

Summary: Publication date: 28 November 2025Source: Neuroscience, Volume 589Author(s): Viktoria Korff, Issam El-Debs, Sonja Bröer, Barbara G. Klupp, Jens P. Teifke, Thomas C. Mettenleiter, Julia Sehl-Ewert

https://www.sciencedirect.com/science/article/pii/S0306452225010292?dgcid=rss_sd_all

Brain insulin signaling restores deficits in striatal dopamine release in overweight male mice with preexisting low D2receptor expression

Bocarsly, M. E., Mehr, J. B., Swanson, E. S., Sriramoji-Virdi, S., Authement, M. E., Shashikiran, S., Goldbach, H., Matsui, A., Rimondini, R., Bock, R., Alvarez, V. A.



1 213 min words



BIORXIV NEUROSCIENCE

Summary: Obesity is characterized by insulin resistance, motivational impairments, and, in some cases, reduced availability of dopamine D2 receptors in the brain. However, whether the low D2 receptor levels represent a predisposing factor or a consequence of obesity, and how these processes are mechanistical...

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Tegmental atrophy in isolated REM sleep behaviour disorder: Ex vivo-informed in vivo imaging

Hirose, M., Yoshinaga, K., Mori, Y., Shima, A., Sawamoto, N., Wakasugi, N., Imai, H., Watanabe, M., Beck, G., Kajiyama, Y., Nishiike, U., Mochizuki, H., Kawabata, K., Hiraga, K., Nakamura, T., Katsuno,

 M., Watanabe, H., Hatano, T., Kamagata, K., Hattori, N., Nishida, A., Mukai, Y., Minakawa, E. N., Takahashi, Y., Takahashi, R., Hanakawa, T., Japan-Parkinson's Disease Progressive Markers Initiative (J-PPMI) cohort



Summary: Isolated rapid eye movement (REM) sleep behaviour disorder (iRBD) is an early-stage synucleinopathy characterized by brainstem pathology. In rodents, the pontine tegmentum contains an REM sleep centre, the sublaterodorsal nucleus (SLD), which expresses corticotropin-releasing hormone binding protein...

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Effect of Large Language Models on P300 Speller Performance with Cross-Subject Training

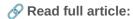
Parthasarathy, N., Soetedjo, J., Panchavati, S., Parthasarathy, N., Lee, D., Arnold, C., Pouratian, N., Speier, W.





BIORXIV NEUROSCIENCE

Summary: Amyotrophic lateral sclerosis (ALS), a progressive neuromuscular degenerative disease, rapidly impairs communication within years of onset. This loss of communication necessitates assistive technologies to restore interaction and independence. One such technology, the P300 speller brain-computer int...



https://www.biorxiv.org/content/10.1101/2025.10.28.685216v1?rss=1

Prelimbic cortex to ventral tegmental area projection regulates early social isolation stress-potentiated heroin seeking in mice







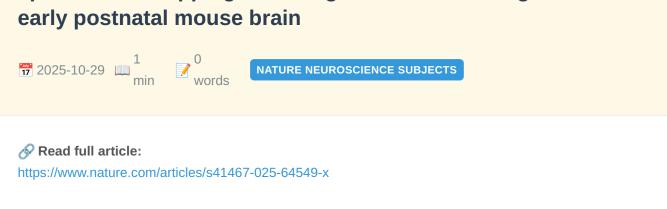
https://www.nature.com/articles/s41467-025-64585-7

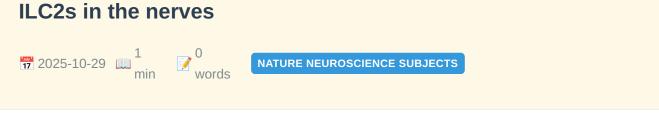
Aircrew rostering workload patterns and associated fatigue and sleepiness scores in short and medium haul flights in Brazil



https://www.nature.com/articles/s41598-025-21705-z

epDevAtlas: mapping GABAergic cells and microglia in the





https://www.nature.com/articles/s41590-025-02340-2

Longitudinal measures of monkey brain structure and activity through adolescence predict cognitive maturation







NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 27 October 2025; www.nature.com/articles/s41593-025-02076-0">doi:10.1038/s41593-025-02076-0</ p>Working memory improves during adolescent brain development. Zhu et al. tracked monkeys through adolescence, revealing that maturation of whit...



https://www.nature.com/articles/s41593-025-02076-0

Author Correction: Fine-mapping genomic loci refines bipolar disorder risk genes







NATURE NEUROSCIENCE

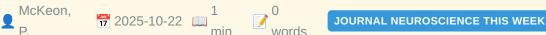
Summary: Nature Neuroscience, Published online: 27 October 2025; www.nature.com/articles/s41593-025-02133-8">doi:10.1038/s41593-025-02133-8</ p>Author Correction: Fine-mapping genomic loci refines bipolar disorder risk genes



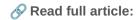
https://www.nature.com/articles/s41593-025-02133-8

This Week in The Journal









http://www.jneurosci.org/cgi/content/short/45/43/etwij45432025?rss=1

Super-resolution microscopy and deep learning methods: what can they bring to neuroscience: from neuron to 3D spine segmentation









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...

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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. Palanisamy 2025-10-01 min 254 words

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



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

Adaptive-expert-weight-based load balance scheme for dynamic routing of MoE

Peng
Cheng

Peng
min

1

197
words

FRONTIERS NEUROROBOTICS

Summary: Load imbalance is a major performance bottleneck in training mixture-ofexperts (MoE) models, as unbalanced expert loads can lead to routing collapse. Most existing approaches address this issue by introducing auxiliary loss functions to balance the load; however, the hyperparameters within these lo...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1590994

The time-varying brain: a comprehensive review of dynamic functional connectivity analysis in EEG and MEG

Stefania Coelli, Martina Corda and Anna Maria Bianchi

1 2025-10-30 min 261 words

JOURNAL NEURAL ENGINEERING

Summary: Objective. This paper presents an in-depth analysis of the recent literature on dynamic functional connectivity (dFC) analysis. This represents a paradigm shift in the analysis of neural data to overcome the inherent limitations of static assumptions about functional brain connectivity. By exploitin...

http://iopscience.iop.org/article/10.1088/1741-2552/ae1258

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

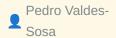
OOSTENVELD ROBERT

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







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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

Sorgolewski

Gorgolewski

Sorgolewski

Sorgolewski

Sorgolewski

Sorgolewski

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...

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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: Increasing access to data while retaining scientific utility



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...

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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...

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

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SCI-YOLO11: An improved defect detection algorithm for transmission line insulators based on YOLO11

Miaomiao Wang

1 2025-10-29 min 66 words

LOW VISION

Summary: The detection of insulator defects in transmission lines is of paramount importance for the safe operation of power systems. However, small object detection faces numerous challenges, such as significant difficulty, substantial interference from complex backgrounds, and inconsistent annotation quali...

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Vision-language model-based semantic-guided imaging biomarker for lung nodule malignancy prediction

1 2025-10-29 min 47 words

LOW VISION

Summary: CONCLUSION: By incorporating semantic features into the vision-language model, our approach surpasses the SOTA models in predicting lung cancer from CT scans collected from diverse clinical settings. It provides explainable outputs, aiding clinicians in comprehending the underlying meaning of model ...

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Effectiveness of mHealth-based vision screening on uptake of referral services among children of government schools in Rawalpindi, Pakistan: study protocol for a randomised controlled trial



Summary: INTRODUCTION: Vision screening in educational settings holds significant importance for early detection of visual impairment. A key challenge is the low uptake of referral services which significantly limits the effectiveness of screening. Mobile health (mHealth) is one intervention that is rapidly ...

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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study



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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia







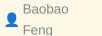


Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

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Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

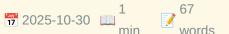
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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective











Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

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Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





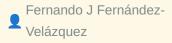


Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**









Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

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Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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



1 70 min words

TACTILE ACUITY

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
Kajimoto

75 TACTILE ACUITY words

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









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...

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

Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

2025-07-02

min

80

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...

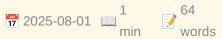
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Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







TACTILE ACUITY

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

Eric 1 2025-08-24 min 22 TACTILE ACUITY

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



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...

Read full article:

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

Sviatoslav N Bagriantsev

1 58 min 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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The coarse mental map of the breast is anchored on the nipple

Greenspon

1 86 min 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...

https://pubmed.ncbi.nlm.nih.gov/40964349/?

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





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...

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Explosion-powered eversible tactile displays











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...

https://pubmed.ncbi.nlm.nih.gov/40864730/?

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 ...

https://pubmed.ncbi.nlm.nih.gov/40871941/?

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...

https://pubmed.ncbi.nlm.nih.gov/41041413/?

Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study











Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

https://pubmed.ncbi.nlm.nih.gov/41127342/?

Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

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As time goes by: SMA neuromodulation and time perception while watching moving images with different editing styles. A tDCS study









TDCS TACS TRNS

Summary: Within the framework of a "neurofilmological" approach - which integrates film studies, cognitive psychology, and neuroscience - the present study explored how cinematographic editing influences the viewer's perception of time. Previous behavioral research has shown that editing density affects temp...

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Modulating cortical excitability through transcranial direct current stimulation combined with therapeutic exercise for craniofacial myofascial pain: Randomized controlled trial



Summary: CONCLUSION: tDCS combined with therapeutic exercise safely enhances cortical excitability, pain modulation, function and patient outcomes in TMD, supporting Multimodal rehabilitation. Further research should refine protocals and confirm long-term benefits across populations.

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Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial



Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability







TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The evaluation of cognitive workload associated with indocyanine green fluorescence angiography in colorectal surgery











Summary: CONCLUSIONS: ICGFA interpretation exhibits broadly similar CWL as other operative steps, in both simulated and in-theatre settings with important differences evident by test context.

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**









Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**



Y H Victoria 1 34
Chua min words

Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI



1 63 min words

FNIRS

Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**







Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

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Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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A Review on Low-Dimensional Nanoarchitectonics for **Neurochemical Sensing and Modulation in Responsive Neurological Outcomes**







BRAIN COMPUTER INTERFACE

Summary: Low-Dimensional Nanohybrids (LDNHs) have emerged as potent multifunctional platforms for neurosensing and neuromodulation, providing elevated spatialtemporal precision, versatility, and biocompatibility. This review examines the intersection of LDNHs with artificial intelligence, brain-computer int...

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Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**

Yansheng

1

2025-10-29

min

58

words

BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

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Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems



1 65 min words

BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

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RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview







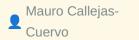
BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

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Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

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Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

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Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts







BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

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An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

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Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

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Acute Effects of Portable Dry-EEG Neurofeedback on Classical Chinese Learning: A Three-Arm Repeated-Measures Study



Peng 1 48 Words



BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

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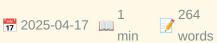
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Anomalous experiences are associated with high subconscious connectedness.







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.

1 249 min words

CLINICAL NEUROSCIENCE

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 ...

http://doi.org/10.1037/cns0000397

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 very brief exposure (VBE), the continuous presentation of...

Read full article:

http://doi.org/10.1037/cns0000435

Testing the theoretical position that subconscious phenomena are conscious but not self-conscious.



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 ...

http://doi.org/10.1037/cns0000414

Paradigm's relevance in empirical research biases: Hypnotizability, resilience, and self-control, an empty systematic review.

1 193 min words





CLINICAL NEUROSCIENCE

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...

Read full article:

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...

http://doi.org/10.1037/cns0000371

Early contingency information enhances human punishment sensitivity when punishment is frequent but not rare.

1 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 ...

Read full article:

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.

1 273 min 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...

Read full article:

http://doi.org/10.1037/bne0000626

Gonadectomy maintains goal-directed responding in female rats and accelerates habit formation in male rats.



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...



http://doi.org/10.1037/bne0000622

Monthly Updates [April]



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 Commits Page on ...



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

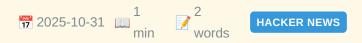
AMD Could Enter ARM Market with Sound Wave APU Built on TSMC 3nm Process



Summary: Comments

https://www.guru3d.com/story/amd-enters-arm-market-with-sound-wave-apu-built-on-tsmc-3nm-process/

No Code



Summary: Comments

https://github.com/lemonyte/no-code

AMD Could Enter ARM Market with Sound Wave APU Built on TSMC 3nm Process

walterbell 2025-10-31 min 13 HACKER NEWS

Summary: Article URL: https://www.guru3d.com/story/amd-enters-arm-market-with-sound-wave-apu-built-on-tsmc-3nm-process/
Comments URL: https://www.guru3d.com/story/amd-enters-arm-story/

https://www.guru3d.com/story/amd-enters-arm-market-with-sound-wave-apu-built-on-tsmc-3nm-process/

No Code



Summary: Article URL: https://github.com/lemonyte/no-code">https://github.com/lemonyte/no-code Comments URL: https://news.ycombinator.com/item?id=45768156">https://news.ycombinator.com/item?id=45768156 Points: 12 # Comments: 5

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https://github.com/lemonyte/no-code

Immunomechanobiology: Engineering the Activation and Function of Immune Cells With the Mechanical Signal of Fluid **Shear Stress**



1 103 REVIEWS BIOMEDICAL ENGINEERING words

Summary: Immunomechanobiology, the study of how physical forces influence the behavior and function of immune cells, is a rapidly growing area of research. It is becoming increasingly recognized that mechanical stimuli, such as fluid shear forces, are a critical determinant of immune cell regulation. In this...

http://ieeexplore.ieee.org/document/10764720

Review of microgravity's impact on cardiovascular and nervous systems in space exploration

1 0 min words





NATURE NEUROSCIENCE SUBJECTS

https://www.nature.com/articles/s41526-025-00534-4

Invariant HVC size in female canaries singing under testosterone: Unlocking function through neural differentiation, not growth

Shouwen MaCarolina Frankl-VilchesManfred GahraDepartment of Behavioural Neurobiology, Max Planck Institute for Biological Intelligence, Seewiesen 82319, Germany



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 43, October 2025.

SignificanceIn many songbird species, singing can be induced in otherwise nonsinging females or is expressed only during certain life stages. These transient behaviors have been attributed to testosterone-driv...



https://www.pnas.org/doi/abs/10.1073/pnas.2426847122?af=R

Advancing epileptic seizure recognition through bidirectional LSTM networks



FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: Seizure detection in a timely and accurate manner remains a primary challenge in clinical neurology, affecting diagnosis planning and patient management. Most of the traditional methods rely on feature extraction and traditional machine learning techniques, which are not efficient in capturing the d...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1668358

Decoding saccadic eye movements from brain signals using an endovascular neural interface

Suleman Rasheed, James Bennett, Peter E Yoo, Anthony N Burkitt and David B Grayden

1 2025-10-23 min 299 JOURNAL NEURAL ENGINEERING

Summary: Objective. An oculomotor brain–computer interface (BCI) records neural activity from brain regions involved in planning eye movements and translates this activity into control commands. While previous successful studies have relied on invasive implants in non-human primates or electrooculography art...

http://iopscience.iop.org/article/10.1088/1741-2552/ae0f52

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



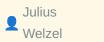
Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG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

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



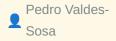
1 72 2024-07-02 min words OOSTENVELD ROBERT

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: Increasing access to data while retaining scientific utility

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...

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

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SCI-YOLO11: An improved defect detection algorithm for transmission line insulators based on YOLO11

Miaomiao Wang

1 66 min words



LOW VISION

Summary: The detection of insulator defects in transmission lines is of paramount importance for the safe operation of power systems. However, small object detection faces numerous challenges, such as significant difficulty, substantial interference from complex backgrounds, and inconsistent annotation quali...

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Vision-language model-based semantic-guided imaging biomarker for lung nodule malignancy prediction









LOW VISION

Summary: CONCLUSION: By incorporating semantic features into the vision-language model, our approach surpasses the SOTA models in predicting lung cancer from CT scans collected from diverse clinical settings. It provides explainable outputs, aiding clinicians in comprehending the underlying meaning of model ...

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Effectiveness of mHealth-based vision screening on uptake of referral services among children of government schools in Rawalpindi, Pakistan: study protocol for a randomised controlled trial



Summary: INTRODUCTION: Vision screening in educational settings holds significant importance for early detection of visual impairment. A key challenge is the low uptake of referral services which significantly limits the effectiveness of screening. Mobile health (mHealth) is one intervention that is rapidly ...

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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study



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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia





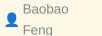


Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

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Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

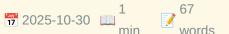
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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective











Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

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Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





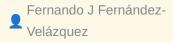


Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**







LOW VISION

Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

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Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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



1 70 min words





TACTILE ACUITY

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
Kajimoto

75 TACTILE ACUITY words

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...

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

Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

2025-07-02

min

80

words

TACTILE ACUITY

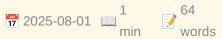
Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous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

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







TACTILE ACUITY

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

Eric 1 2025-08-24 min 222 TACTILE ACUITY

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



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 58 min 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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The coarse mental map of the breast is anchored on the nipple

Greenspon

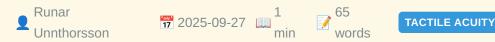
1 86 min words

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...

https://pubmed.ncbi.nlm.nih.gov/40964349/?

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



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...

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Explosion-powered eversible tactile displays



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...

https://pubmed.ncbi.nlm.nih.gov/40864730/?

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











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

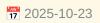


Summary: This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally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

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Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study









Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

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Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

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As time goes by: SMA neuromodulation and time perception while watching moving images with different editing styles. A tDCS study









TDCS TACS TRNS

Summary: Within the framework of a "neurofilmological" approach - which integrates film studies, cognitive psychology, and neuroscience - the present study explored how cinematographic editing influences the viewer's perception of time. Previous behavioral research has shown that editing density affects temp...

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Modulating cortical excitability through transcranial direct current stimulation combined with therapeutic exercise for craniofacial myofascial pain: Randomized controlled trial



Summary: CONCLUSION: tDCS combined with therapeutic exercise safely enhances cortical excitability, pain modulation, function and patient outcomes in TMD, supporting Multimodal rehabilitation. Further research should refine protocals and confirm long-term benefits across populations.

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Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial

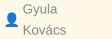


Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability







TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The evaluation of cognitive workload associated with indocyanine green fluorescence angiography in colorectal surgery



1 24 min words





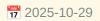
Summary: CONCLUSIONS: ICGFA interpretation exhibits broadly similar CWL as other operative steps, in both simulated and in-theatre settings with important differences evident by test context.

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

https://pubmed.ncbi.nlm.nih.gov/41154127/?

Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**











Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

https://pubmed.ncbi.nlm.nih.gov/41154145/?

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**



Y H Victoria
Chua

1
2025-10-29
min
words

Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI



1 63 min words

FNIRS

Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**







Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

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Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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A Review on Low-Dimensional Nanoarchitectonics for **Neurochemical Sensing and Modulation in Responsive Neurological Outcomes**







BRAIN COMPUTER INTERFACE

Summary: Low-Dimensional Nanohybrids (LDNHs) have emerged as potent multifunctional platforms for neurosensing and neuromodulation, providing elevated spatialtemporal precision, versatility, and biocompatibility. This review examines the intersection of LDNHs with artificial intelligence, brain-computer int...

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Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**

Yansheng

1

2025-10-29

min

58

words

BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

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Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems







BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

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RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview







BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

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Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

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Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

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Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts







BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

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An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

2+67771e2

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Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

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Acute Effects of Portable Dry-EEG Neurofeedback on Classical Chinese Learning: A Three-Arm Repeated-Measures Study

Peng 1 48 Words

BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

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PyCalc Pro v1.0 – My Python CLI Calculator for Math Nerds



1 143 words words

REDDIT PYTHON

Summary: <!-- SC OFF --><div class="md">PyCalc Pro v1.0 is a command-line Python calculator that handles advanced math (trig, logs, factorials), arithmetic & amp; geometric sequences, and number theory functions like prime checks, GCD, and LCM. It features a modular menu system for easy navigation. ...

Read full article:

https://www.reddit.com/r/Python/comments/10jz871/pycalc pro v10 my python cli calculator for math/

Rouille – Rust Programming, in French



Summary: Comments

https://github.com/bnjbvr/rouille

Epigenetics in neurodegeneration: Emerging biomarkers and translational insights



Summary: Publication date: 15 December 2025Source: Brain Research, Volume 1869Author(s): Hemraj Singh, Shaifali Gurjar, Rajeev Taliyan

https://www.sciencedirect.com/science/article/pii/S0006899325005682?dgcid=rss_sd_all

Integrated cortical and plasma proteomic analysis of Cntnap2 knockout mice and human models of autism spectrum disorder: Potential involvement of galectin-3-binding protein





Summary: Publication date: 28 November 2025Source: Neuroscience, Volume 589Author(s): Leandro Val Sayson, Hyun Jun Lee, Nicole Bon Campomayor, Sweetie Balataria, Mikyung Kim, Ara Cho, Eugene C. Yi, Chae Rim Lee, Bung-Nyun Kim, Jae Hoon Cheong, Hee Jin Kim

https://www.sciencedirect.com/science/article/pii/S0306452225009820?dgcid=rss sd all

Motor learning mechanisms are not modified by feedback manipulations in a real-world task









https://www.nature.com/articles/s41539-025-00373-8

Hippocampus supports multi-task reinforcement learning under partial observability



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Identifying new blood biomarkers of neuroplasticity associated with rehabilitation outcomes after stroke



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Functional specialisation of multisensory temporal integration in the mouse superior colliculus



https://www.nature.com/articles/s41467-025-64600-x

Childhood gut microbiome is linked to internalizing symptoms at school age via the functional connectome



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On the replicability of diffusion weighted MRI-based brainbehavior models



https://www.nature.com/articles/s42003-025-09048-x

Auditory and vibrotactile interactions in perception of timbre acoustic features



https://www.nature.com/articles/s41598-025-21908-4

Liver dysfunction triggers early Alzheimer's pathology in an adult rat model of chronic liver disease



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Test-retest reliability of intra-epidermal electrically evoked potentials in comparison with other modalities and across stimulation intensities



https://www.nature.com/articles/s41598-025-21815-8

Rutin ameliorates sevoflurane-induced neurotoxicity by inhibiting microglial synaptic phagocytosis through the complement pathway



https://www.nature.com/articles/s41598-025-21874-x

Prediction of neural activity in connectome-constrained recurrent networks



Summary: Nature Neuroscience, Published online: 27 October 2025; www.nature.com/articles/s41593-025-02080-4">doi:10.1038/s41593-025-02080-4</ p>The authors show that connectome datasets alone are generally not sufficient to predict neural activity. However, pairing connectivity informa...

https://www.nature.com/articles/s41593-025-02080-4

Edward Lowell Keller (1939–2025)



1 47 min words





NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 27 October 2025; www.nature.com/articles/s41593-025-02109-8">doi:10.1038/s41593-025-02109-8</ p>A pioneer in oculomotor neuroscience, Edward L. Keller identified key elements of the brainstem circuits that produce eye movements and provid...

https://www.nature.com/articles/s41593-025-02109-8

Attentional failures after sleep deprivation are locked to joint neurovascular, pupil and cerebrospinal fluid flow dynamics







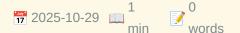
NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 29 October 2025; www.nature.com/articles/s41593-025-02098-8">doi:10.1038/s41593-025-02098-8</ p>Yang et al. show that moments of failed attention we experience after sleep deprivation reflect brief 'sleep-like' episodes in the brain, corr...

https://www.nature.com/articles/s41593-025-02098-8

This Week in The Journal









JOURNAL NEUROSCIENCE THIS WEEK

http://www.jneurosci.org/cgi/content/short/45/44/etwij45442025?rss=1

Social Reward Learning Deficits and Concordant Brain Alterations in Rats Overexpressing Disrupted-in-Schizophrenia 1 (DISC1)

Dören, J., Kupriyanova, Y., Schäble, S., Trossbach, S., McGuire, B., Vernon, A. C., Roden, M., Korth, C., Kalenscher, T.







JOURNAL NEUROSCIENCE CURRENT

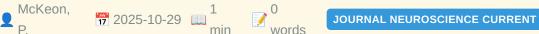
Summary: Social deficits are a hallmark of schizophrenia, often characterized by impairments in processing and integrating socially transmitted information. However, translational models that accurately capture these deficits remain scarce. The Disrupted-in-Schizophrenia 1 gene (<i>DISC1</i>), a key susce...



http://www.jneurosci.org/cgi/content/short/45/44/e1067252025?rss=1

This Week in The Journal











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Correction for Tapinova et al., Integrated Ising model with global inhibition for decision-making

1 15 PNAS NEUROSCIENCE words

Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 44, November 2025.

 />

https://www.pnas.org/doi/abs/10.1073/pnas.2528803122?af=R

Can neuromorphic computing help reduce Al's high energy cost?



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 44, November 2025.

 />

https://www.pnas.org/doi/abs/10.1073/pnas.2528654122?af=R

A functional clock in only two dorsal clock neurons is sufficient to restore the basal circadian activity pattern of Drosophila melanogaster

Nils ReinhardEnrico BertoliniTakuya KuwaharaManabu SekiguchiDirk RiegerWeihua LiPaul H. TaghertTaishi YoshiiCharlotte Helfrich-FörsteraNeurobiology and Genetics, Theodor-Boveri-Institute, Biocentre, Julius-Maximilians-University of Würzburg, Würzburg 97074, GermanybGraduate School of Natural Science and Technology, Okayama University, Okayama 700-8530, JapancDepartment of Neuroscience, Washington University School of Medicine, St. Louis, MO 63105dGraduate School of Environmental, Life, Natural Science and Technology, Okayama University, Okayama 700-8530, Japan



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 44, November 2025.

SignificanceCircadian clocks orchestrate animal behavior and physiology to anticipate and adapt to recurring events. During development, circadian clock networks increase in complexity to meet the increasing ...

https://www.pnas.org/doi/abs/10.1073/pnas.2506164122?af=R

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

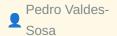
OOSTENVELD ROBERT

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: Increasing access to data while retaining scientific utility

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...

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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...

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

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SCI-YOLO11: An improved defect detection algorithm for transmission line insulators based on YOLO11

Miaomiao Wang

1 2025-10-29 min 66 words

LOW VISION

Summary: The detection of insulator defects in transmission lines is of paramount importance for the safe operation of power systems. However, small object detection faces numerous challenges, such as significant difficulty, substantial interference from complex backgrounds, and inconsistent annotation quali...

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Vision-language model-based semantic-guided imaging biomarker for lung nodule malignancy prediction

1 2025-10-29 min 47 words

LOW VISION

Summary: CONCLUSION: By incorporating semantic features into the vision-language model, our approach surpasses the SOTA models in predicting lung cancer from CT scans collected from diverse clinical settings. It provides explainable outputs, aiding clinicians in comprehending the underlying meaning of model ...

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Effectiveness of mHealth-based vision screening on uptake of referral services among children of government schools in Rawalpindi, Pakistan: study protocol for a randomised controlled trial



Summary: INTRODUCTION: Vision screening in educational settings holds significant importance for early detection of visual impairment. A key challenge is the low uptake of referral services which significantly limits the effectiveness of screening. Mobile health (mHealth) is one intervention that is rapidly ...

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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study



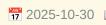
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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia





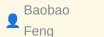


Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

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Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

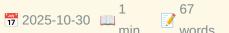
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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective









LOW VISION

Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

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Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





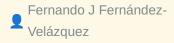


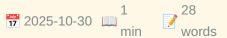
Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**









Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

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Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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



1 70 min words

TACTILE ACUITY

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
Kajimoto

75 TACTILE ACUITY words

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...

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

Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

2025-07-02

min

80

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



1 64 min words





TACTILE ACUITY

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

Eric 1 2025-08-24 min 22 TACTILE ACUITY

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



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...

https://pubmed.ncbi.nlm.nih.gov/40924900/?

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

Sviatoslav N Bagriantsev

1 58 min 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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The coarse mental map of the breast is anchored on the nipple

Greenspon

1 86 min 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...

https://pubmed.ncbi.nlm.nih.gov/40964349/?

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



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...

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Explosion-powered eversible tactile displays



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







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 ...

https://pubmed.ncbi.nlm.nih.gov/40871941/?

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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Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study











Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

https://pubmed.ncbi.nlm.nih.gov/41127342/?

Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

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As time goes by: SMA neuromodulation and time perception while watching moving images with different editing styles. A tDCS study









TDCS TACS TRNS

Summary: Within the framework of a "neurofilmological" approach - which integrates film studies, cognitive psychology, and neuroscience - the present study explored how cinematographic editing influences the viewer's perception of time. Previous behavioral research has shown that editing density affects temp...

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Modulating cortical excitability through transcranial direct current stimulation combined with therapeutic exercise for craniofacial myofascial pain: Randomized controlled trial



Summary: CONCLUSION: tDCS combined with therapeutic exercise safely enhances cortical excitability, pain modulation, function and patient outcomes in TMD, supporting Multimodal rehabilitation. Further research should refine protocals and confirm long-term benefits across populations.

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Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial

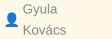


Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

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EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

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Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

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Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability







TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients

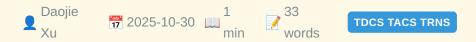


Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

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Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**







Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The evaluation of cognitive workload associated with indocyanine green fluorescence angiography in colorectal surgery











Summary: CONCLUSIONS: ICGFA interpretation exhibits broadly similar CWL as other operative steps, in both simulated and in-theatre settings with important differences evident by test context.

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**











Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

https://pubmed.ncbi.nlm.nih.gov/41154145/?

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning



Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**









Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI











Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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Early Motor Cortex Connectivity and Neuronal Reactivity in **Intracerebral Hemorrhage: A Continuous-Wave Functional Near-Infrared Spectroscopy Study**







Summary: Insights into motor cortex remodeling may enable the development of more effective rehabilitation strategies during the acute phase. We aim to assess the affected and unaffected motor/premotor/somatosensory cortex resting state functional connectivity (RSFC) and reactivity with continuous wave funct...

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Individual abilities to estimate levels of movement synchrony predict action observation network activation











Summary: Observers' ability to estimate levels of movement synchrony, such as in Olympic diving or rowing, is highly variable and, in part, constrained by personality traits and enjoyment of the movements. Embodiment also appears to play a crucial role, whereby stronger beliefs that one's body can complete p...

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The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

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A Review on Low-Dimensional Nanoarchitectonics for **Neurochemical Sensing and Modulation in Responsive Neurological Outcomes**







BRAIN COMPUTER INTERFACE

Summary: Low-Dimensional Nanohybrids (LDNHs) have emerged as potent multifunctional platforms for neurosensing and neuromodulation, providing elevated spatialtemporal precision, versatility, and biocompatibility. This review examines the intersection of LDNHs with artificial intelligence, brain-computer int...

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Trans-cVAE-GAN: Transformer-Based cVAE-GAN for High-**Fidelity EEG Signal Generation**

Yansheng

1

2025-10-29

min

58

words

BRAIN COMPUTER INTERFACE

Summary: Electroencephalography signal generation remains a challenging task due to its non-stationarity, multi-scale oscillations, and strong spatiotemporal coupling. Conventional generative models, including VAEs and GAN variants such as DCGAN, WGAN, and WGAN-GP, often yield blurred waveforms, unstable spe...

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Non-Linear Modeling and Precision Analysis Approach for Implantable Multi-Channel Neural Recording Systems



1 65 min words

BRAIN COMPUTER INTERFACE

Summary: High-precision implantable multi-channel neural recording systems are considered as having a crucial role in the diagnosis and treatment of neurological disorders. However, it is a significant design challenge to achieve an optimal trade-off among linear parameters, signal fidelity, power consumptio...

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RGB-D Cameras and Brain-Computer Interfaces for Human Activity Recognition: An Overview







BRAIN COMPUTER INTERFACE

Summary: This paper provides a perspective on the use of RGB-D cameras and noninvasive brain-computer interfaces (BCIs) for human activity recognition (HAR). Then, it explores the potential of integrating both the technologies for active and assisted living. RGB-D cameras can offer monitoring of users in th...

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Lower-Limb Motor Imagery Recognition Prototype Based on EEG Acquisition, Filtering, and Machine Learning-Based Pattern Detection







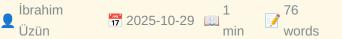
BRAIN COMPUTER INTERFACE

Summary: Advances in brain-computer interface (BCI) research have explored various strategies for acquiring and processing electroencephalographic (EEG) signals to detect motor imagery (MI) activities. However, the complexity of multichannel clinical systems and processing techniques can limit their accessib...

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Fatal Isolated Right Ventricular Rupture Without External Chest Injury in a Young Driver: Forensic Autopsy Findings After a One-Sided Vehicle Collision







BRAIN COMPUTER INTERFACE

Summary: Traumatic deaths are common, with cardiac trauma affecting 7–12% of patients with thoracic injuries. Blunt cardiac injury (BCI), although rare, is associated with a high mortality rate. This report presents a case of blunt cardiac rupture (BCR) observed at autopsy despite the absence of external che...

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Comparative analysis across diverse plant species reveals superior antibiofilm efficacy and dose-dependency of root extracts compared to leaf extracts







BRAIN COMPUTER INTERFACE

Summary: Although both root- and leaf-derived plant extracts hold potential as antibiofilm agents, research has predominantly focused on leaf tissues. In this study, we systematically compared the antibiofilm efficacy of 158 root and 248 leaf extracts from 360 plant species across five concentrations (0.1, 0...

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An Active, Multimodal Neural Interface for Real-Time Monitoring of Cortical Electrical, Thermal, and Optical **Dynamics**







BRAIN COMPUTER INTERFACE

Summary: Chronic neurophysiological monitoring devices facilitate the timely diagnosis and treatment of episodic or recurrent neurological disorders. Compared with passive electrodes, silicon-based active transistors provide intrinsic signal amplification and, when combined with capacitive-coupling measureme...

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Feasibility of decoding cerebellar movement-related potentials for brain-computer interface applications









BRAIN COMPUTER INTERFACE

Summary:
In Brain-Computer Interface (BCI) applications, signals are conventionally acquired from the cerebrum, and only a subset of the complex interactions that occur in several areas of the brain are collected. One area that has not been investigated for BCI application is the cerebellum, despite its...

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Acute Effects of Portable Dry-EEG Neurofeedback on **Classical Chinese Learning: A Three-Arm Repeated-Measures** Study



Peng 1 48 words



BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: Portable dry-electrode EEG systems can reliably support realtime neurofeedback to enhance attention and cognitive control in complex language learning contexts. This study provides empirical validation for deploying dry-EEG sensors in adaptive educational technologies and contributes t...

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I used Python (w/ Unsloth & Colab) to fine-tune Llama 3.1 to speak my rare Spanish dialect





REDDIT PYTHON

Summary: <!-- SC_OFF --><div class="md">Just wanted to share a fun project that shows how powerful (and fast!) the Python AI ecosystem has become. of generic AI, so I used Python + Unsloth to fine-tune Llama 3.1 on a free Google Colab T4. As a test, I taught it to speak " Aragonese,...

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https://www.reddit.com/r/Python/comments/10ju1vf/i used python w unsloth colab to finetune llama/

Springs and bounces in native CSS



Summary: Comments

https://www.joshwcomeau.com/animation/linear-timing-function/

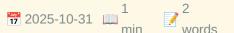
ICE and the Smartphone Panopticon



Summary: Comments

https://www.newyorker.com/culture/infinite-scroll/ice-and-the-smartphone-panopticon

John Carmack on Mutable Variables







HACKER NEWS

Summary: Comments



https://twitter.com/id_aa_carmack/status/1983593511703474196

Ground stop at JFK due to staffing







Summary: Comments

https://www.fly.faa.gov/adv/adv_otherdis? advn=13&adv_date=10312025&facId=JFK&title=ATCSCC%20ADVZY%20013%20JFK/ ZNY%2010/31/2025%20CDM%20GROUND%20STOP&titleDate=10/31/2025

Show HN: Quibbler – A critic for your coding agent that learns what you want

etherio 7 2025-10-31 min 13 words

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https://github.com/fulcrumresearch/quibbler

Roadmap for Improving the Type Checker

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ICE and the Smartphone Panopticon

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John Carmack on Mutable Variables

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SimulScan and Partial Least Squares: Visualizing swallowing through functional and dynamic imaging correlations

Sutton, B. P., Bosshardt, A., Peng, C.-H., Kim, J., Jin, R., Krishna, V., Pearson, W. G., Liu, Z., Malandraki, G.

2025-10-30 min 225 words BIORXIV NEUROSCIENCE

Summary: Purpose: Swallowing is a complex function involving the precise coordination of muscles, nerves, and brain areas, and can be disrupted in a variety of neurological conditions. Current imaging studies to visualize the central control of swallowing cannot examine both the biomechanics of the swallow a...

https://www.biorxiv.org/content/10.1101/2025.10.29.685135v1?rss=1

Symmetry breaking and avalanche shapes in modular neural networks

De Candia, A., Conte, D., Alvankar Golpayegan, H., Scarpetta,

1 2025-10-30 min

175 words

BIORXIV NEUROSCIENCE

Summary: Modularity is as a key characteristic of structural and functional brain networks across species and spatial scales. We investigate the stochastic Wilson-Cowan model on a modular network in which synaptic strengths differ between intra-module and inter-module connections. The system exhibits a rich ...

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The Impact of Different Learning Processes on Acquisition, Transfer, and Proprioception in Complex Motor Tasks

Babu, R., Block, H.

J.

Biorxiv neuroscience words

Summary: Motor skill learning involves multiple mechanisms, including use-dependent learning (UDL), reinforcement learning (RL), and error-based learning (EBL). These operate over different time scales and neural pathways, contributing uniquely to skill acquisition, consolidation, and transfer. Here we asked...

https://www.biorxiv.org/content/10.1101/2025.10.29.684950v1?rss=1

Evidence for an Active Handoff between Hemispheres during Target Tracking

Broschard, M. B., Roy, J. E., Brincat, S. L., Mahnke, M. K., Miller, E.

K.

1
2025-10-29 min

173 words

JOURNAL NEUROSCIENCE CURRENT

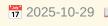
Summary: The brain has somewhat separate cognitive resources for the left and right sides of our visual field. Despite this lateralization, we have a smooth and unified perception of our environment. This raises the question of how the cerebral hemispheres are coordinated to transfer information between t...

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http://www.jneurosci.org/cgi/content/short/45/44/e0841252025?rss=1

Attentional Mechanisms for Learning Feature Combinations







JOURNAL NEUROSCIENCE CURRENT



http://www.jneurosci.org/cgi/content/short/45/44/e0784252025?rss=1

Exposure to Bullying Engages Social Distress Circuits in the Adolescent and Adult Brain

Paranko, B., Garandeau, C. F., Seppälä, K., Putkinen, V., Santavirta, S., Hirvonen, J., Salmivalli, C., Nummenmaa, L.







JOURNAL NEUROSCIENCE CURRENT

Summary: Despite advances in understanding the psychological and social consequences of peer victimization, the immediate effects of bullying on the central nervous system remain elusive. Here we mapped the neural, affective, and attentional responses to simulated bullying in adolescents and adults and te...



http://www.jneurosci.org/cgi/content/short/45/44/e0738252025?rss=1

Alpha-Band Activity Tracks Reflexive Changes in the Breadth of the Zoom Lens of Attention

van Moorselaar, D., Theeuwes, J., Van der Stigchel,

1 184 min words

JOURNAL NEUROSCIENCE CURRENT

Summary: Spatial attention is often conceptualized as a flexible "zoom lens" that can dynamically adjust its focus, but most evidence stems from studies of voluntary attention. Our study investigates whether involuntary, reflexive attention exhibits similar adaptability in attentional scope. Using behavio...

Read full article:

http://www.jneurosci.org/cgi/content/short/45/44/e0706252025?rss=1

Rebound Bursting Selectively Enables Fast Dynamics in Dopamine Midbrain Neurons Projecting to the Dorsolateral Striatum

Stojanovic, S., Knowlton, C. J., Egger-Mackrodt, R., Mankel, J., Shin, J., Lammel, S., Canavier, C. C.,

1 249 min words



JOURNAL NEUROSCIENCE CURRENT

Summary: Dopamine (DA) midbrain neurons are involved in a wide array of key brain functions including movement control and reward-based learning. They are also critical for major brain disorders such as Parkinson's disease or schizophrenia. DA neurons projecting to distinct striatal territories are ...

http://www.jneurosci.org/cgi/content/short/45/44/e0361252025?rss=1

Linking Connectivity Dynamics to Symptom Severity and Cognitive Abilities in Children with Autism Spectrum Disorder: An FNIRS Study



Summary: Functional near-infrared spectroscopy (fNIRS) has emerged as a valuable tool for investigating neurobiological markers in children with autism spectrum disorder (ASD). While previous studies have identified abnormal functional connectivity in ASD children compared with typically developing (TD) p...



http://www.jneurosci.org/cgi/content/short/45/44/e0161252025?rss=1

Spatiotemporal Dynamics of Lateral Na+ Diffusion in Apical **Dendrites of Mouse CA1 Pyramidal Neurons**

Nelson, J. S. E., Meyer, J., Gerkau, N. J., Kafitz, K. W., Ullah, G., Santamaria, F., Rose, C.

1 241 min words JOURNAL NEUROSCIENCE CURRENT

Summary: Sodium ions (Na⁺) are major charge carriers mediating neuronal excitation and play a fundamental role in brain physiology. Glutamatergic synaptic activity is accompanied by large transient Na⁺ increases, but the spatiotemporal dynamics of Na⁺ signals and propertie...

http://www.jneurosci.org/cgi/content/short/45/44/e0077252025?rss=1

Bltp1 Is Required for Survival and Normal Development and Function of the Neuromuscular Junction in Mice

Liu, Y., Ye, Q., Ma, D. K., Rothermel, B. A., Lin,

W min 233

words

JOURNAL NEUROSCIENCE CURRENT

Summary: BLTP1 (Bridge-Like Lipid Transfer Protein Family Member 1), previously known as Tweek, Kiaa1109, FSA, or 4932438A13Rik, is a nonvesicular lipid transport protein linked to Alkuraya–Kučinskas syndrome (AKS), an autosomal recessive disorder with severe brain malformations and arthrogry...

http://www.jneurosci.org/cgi/content/short/45/44/e0029252025?rss=1

Logarithmic coding leads to adaptive stabilization in the presence of sensorimotor delays

Leonardo DemarchiMonica CoraggiosoAntoine HubertThomas PanierGhislaine Morvan-DuboisVolker

■ BormuthGeorges DebrégeasaSorbonne Université, CNRS, Laboratoire Jean Perrin, Paris F75005, FrancebSorbonne Université, CNRS, INSERM, Institut de Biologie Paris-Seine, Paris F75005, France



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 43, October 2025.

SignificanceAnimal movement is shaped by the continuous interaction between motor actions and sensory feedback. This process is challenging due to time delays, which can have destabilizing effects, and the con...

https://www.pnas.org/doi/abs/10.1073/pnas.2510385122?af=R

Amyloid precursor protein and C99 are subunits in human microglial Hv1 channels that enhance current and inflammatory mediator release

Ruiming ZhaoPunyanuch SophanpanichkulJean Paul ChadarevianYiwen DingHui DaiMaha NayakHayk DavtyanMathew Blurton-JonesSteve A. N. GoldsteinaDepartment of Pediatrics, Susan and Henry Samueli College of Health Sciences, University of California Irvine, Irvine, CA 92697bDepartment of Physiology and Biophysics, Susan and Henry Samueli College of Health

Sciences, University of California Irvine, Irvine, CA 92697cDepartment of Pharmaceutical Sciences, Susan and Henry Samueli College of Health Sciences, University of California Irvine, Irvine, CA 92697dDepartment of Neurobiology and Behavior, Institute for Memory Impairments and Neurological Disorders, Sue and Bill Gross Stem Cell Research Center, University of California Irvine, Irvine, CA 92697



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 43, October 2025.

SignificanceMicroglial-mediated neuroinflammation is strongly implicated in the development and progression of Alzheimer's disease (AD). Here we demonstrate that human induced pluripotent stem cell (iPSC)-micr...

⊗ Read full article:

https://www.pnas.org/doi/abs/10.1073/pnas.2509903122?af=R

Large language models can extract metadata for annotation of human neuroimaging publications





FRONTIERS NEUROINFORMATICS

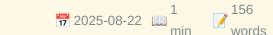
Summary: We show that recent (mid-to-late 2024) commercial large language models (LLMs) are capable of good quality metadata extraction and annotation with very little work on the part of investigators for several exemplar real-world annotation tasks in the neuroimaging literature. We investigated the GPT-4o...



https://www.frontiersin.org/articles/10.3389/fninf.2025.1609077

A correlation-based tool for quantifying membrane periodic skeleton associated periodicity









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

Epileptic brain imaging by source localization CLARA supported by ictal-based semiology and VEEG in resource-limited settings

Aleksandra Kawala-Sterniuk 77 2025-08-29 min 279 words

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...

https://www.frontiersin.org/articles/10.3389/fninf.2025.1661617

VAE deep learning model with domain adaptation, transfer learning and harmonization for diagnostic classification from multi-site neuroimaging data



Summary: In large public multi-site fMRI datasets, the sample characteristics, data acquisition methods, and MRI scanner models vary across sites and datasets. This non-neural variability obscures neural differences between groups and leads to poor machine learning based diagnostic classification of neurodev...

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

Jan G. Bjaalie

1 207 min words

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...

https://www.frontiersin.org/articles/10.3389/fninf.2025.1629388

CRISP: a correlation-filtered recursive feature elimination and integration of SMOTE pipeline for gait-based Parkinson's disease screening



1 255 min 2025-10-10 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...

Read full article:

https://www.frontiersin.org/articles/10.3389/fncom.2025.1660963

Using noise to distinguish between system and observer effects in multimodal neuroimaging

Milan 1 196
Brázdil 2025-10-17 min words

FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: IntroductionIt has become increasingly common to record brain activity simultaneously at more than one spatiotemporal scale. Here, we address a central question raised by such cross-scale datasets: do they reflect the same underlying dynamics observed in different ways, or different dynamics observe...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1693279

An AI methodology to reduce training intensity, error rates, and size of neural networks

Thaddeus J. A.

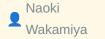
1 243 min words

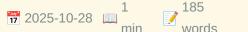
FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: Massive computing systems are required to train neural networks. The prodigious amount of consumed energy makes the creation of AI applications significant polluters. Despite the enormous training effort, neural network error rates limit its use for medical applications, because errors can lead to i...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1628115

Revisiting the Model Human Processor: a neurophysiological investigation based on P300 and Bereitschaftspotential







FRONTIERS HUMAN NEUROSCIENCE

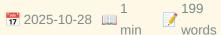
Summary: IntroductionThe Model Human Processor (MHP), while useful, lacks direct neurophysiological validation. This study aimed to validate and extend the MHP by analyzing P300 and Bereitschaftspotential (BP) brainwave components. Methods Our initial finding of qualitatively different neural signatures betwee...



https://www.frontiersin.org/articles/10.3389/fnhum.2025.1690746

Hypertrophic olivary degeneration secondary to brain abscess: a case report and literature review







FRONTIERS HUMAN NEUROSCIENCE

Summary: IntroductionHypertrophic olivary degeneration (HOD) is a rare transsynaptic neurodegenerative disorder arising from disruption of the Guillain-Mollaret triangle (GMT), a neural circuit critical for motor coordination. Classical clinical presentation includes palatal tremor. While cerebrovascular eti...



https://www.frontiersin.org/articles/10.3389/fnhum.2025.1674100

From early symptoms to EEG silence: tracking the neurodegenerative course of sporadic Creutzfeldt-Jakob disease

Liangliang
Qiu

1 2025-10-28 min

2 339
words

FRONTIERS HUMAN NEUROSCIENCE

Summary: BackgroundSporadic Creutzfeldt-Jakob disease (sCJD) is a rapidly progressive and fatal neurodegenerative disorder. Early diagnosis remains challenging due to nonspecific initial symptoms. Although electroencephalography (EEG) is a key diagnostic tool, particularly through the detection of periodic s...

⊗ Read full article:

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1652773

TSLNet: a hierarchical multi-head attention-enabled twostream LSTM network for accurate pedestrian tracking and behavior recognition



Summary: Accurate pedestrian tracking and behavior recognition are essential for intelligent surveillance, smart transportation, and human-computer interaction systems. This paper introduces TSLNet, a Hierarchical Multi-Head Attention-Enabled Two-Stream LSTM Network, designed to overcome challenges such as e...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1663565

A simple robot suggests trunk rotation is essential for emergence of inside leading limb during quadruped galloping turns

Summary: During turning maneuvers in the galloping gait of quadruped animals, a strong relationship exists between the turning direction and the sequence in which the forelimbs make ground contact: the outer forelimb acts as the "trailing limb" while the inner forelimb serves as the "leading limb." However, ...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1628368

White matter microstructure in mid- to late adulthood is influenced by pathway-stratified polygenic risk for Alzheimer's disease



Summary: IntroductionAlzheimer's disease involves progressive white matter microstructural degeneration that may precede clinical symptoms by decades. While polygenic risk scores (PRS) quantify cumulative genetic liability for AD, genome-wide PRS lack mechanistic specificity. We tested whether pathway-specif...

Read full article:

https://www.frontiersin.org/articles/10.3389/fnins.2025.1638503

Localization performance of cochlear implant users with a real-time bilaterally-synchronized sound coding strategy that provides explicit interaural timing cues with mixed rates of stimulation

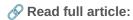






FRONTIERS NEUROSCIENCE

Summary: IntroductionBilateral cochlear implants (BiCIs) do not restore sound localization abilities to the full extent exhibited by typical hearing (TH) listeners, partly due to poor encoding of interaural time differences (ITDs). ITD cues have been provided and investigated using synchronized research proc...



https://www.frontiersin.org/articles/10.3389/fnins.2025.1682452

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 .

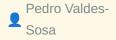
1 72 2024-07-02 min words OOSTENVELD ROBERT

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: Increasing access to data while retaining scientific utility

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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SCI-YOLO11: An improved defect detection algorithm for transmission line insulators based on YOLO11

Miaomiao Wang

1 66 min words



LOW VISION

Summary: The detection of insulator defects in transmission lines is of paramount importance for the safe operation of power systems. However, small object detection faces numerous challenges, such as significant difficulty, substantial interference from complex backgrounds, and inconsistent annotation quali...

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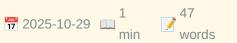
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Vision-language model-based semantic-guided imaging biomarker for lung nodule malignancy prediction









LOW VISION

Summary: CONCLUSION: By incorporating semantic features into the vision-language model, our approach surpasses the SOTA models in predicting lung cancer from CT scans collected from diverse clinical settings. It provides explainable outputs, aiding clinicians in comprehending the underlying meaning of model ...

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Effectiveness of mHealth-based vision screening on uptake of referral services among children of government schools in Rawalpindi, Pakistan: study protocol for a randomised controlled trial



Summary: INTRODUCTION: Vision screening in educational settings holds significant importance for early detection of visual impairment. A key challenge is the low uptake of referral services which significantly limits the effectiveness of screening. Mobile health (mHealth) is one intervention that is rapidly ...

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Predicting motor rehabilitation outcomes in children with low vision: a nomogram-based study

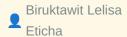


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Top causes of visual impairment, satisfaction with eye care services, and associated factors among visually impaired patients attending an eye care center in Ethiopia





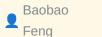


Summary: Due to limited access to timely and affordable eye care, the burden of visual impairment is disproportionately high in low- and middle-income countries, including Ethiopia. However, the quality of eye care services and patients' satisfaction with these services among visually impaired individuals ha...

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Case Report: Botulism associated with cosmetic BoNT-A injections: respiratory failure and multidrug-resistant infection as emerging clinical challenges







LOW VISION

Summary: Botulism is a life-threatening neurotoxin-mediated disease characterized by flaccid descending paralysis which begins with cranial nerve palsies and might progress to extremity weakness and respiratory failure. Respiratory failure following cosmetic injections were scarcely reported due to the low d...

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Egg Freshness Safety and Detection Techniques: A Comprehensive Review and Future Perspective









Summary: Globally, annual egg production has steadily increased, and liquid eggs are gradually replacing shell eggs, with the potential to become the dominant form of future egg consumption. However, current freshness evaluation systems mainly focus on shell eggs, with almost no global standard for liquid eq...

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Neurobehavioral Changes in Macular Degeneration: Spatial Frequency Use in Scene Recognition





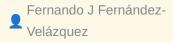


Summary: CONCLUSIONS: These findings demonstrate that macular diseases leads to altered spatial frequency processing within residual vision itself, particularly affecting finedetail analysis. This perceptual degradation is accompanied by functional brain reorganization supporting partial compensation. The r...

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Six-Month Interim Analyses of the Efficacy of Repeated Low-**Level Red-Light Therapy Combined with Orthokeratology for Myopia Control in Spanish Children**









Summary: CONCLUSIONS: The six-month interim analysis indicates that combining RLRL therapy with OK effectively controls myopia progression in Spanish children, with no severe adverse effects. Long-term follow-up is ongoing.

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Predictors of posttraumatic stress disorder among displaced families in Lebanon: A cross-sectional study

Rola Bou

1 72 LOW VISION min words

Summary: This study aimed to assess the prevalence of posttraumatic stress disorder (PTSD) among Lebanese individuals internally displaced by the recent conflict and to identify key predictors of PTSD. The findings are intended to guide targeted policy and advocacy strategies aimed at improving mental health...

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



1 70 min words

TACTILE ACUITY

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
Kajimoto

75 TACTILE ACUITY words

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









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...

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

Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

2025-07-02

min

80

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



1 64 min words



TACTILE ACUITY

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

Eric 1 2025-08-24 min 22 TACTILE ACUITY

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/?

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



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...

https://pubmed.ncbi.nlm.nih.gov/40924900/?

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

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 TACTILE ACUITY words

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

Greenspon

1 86 min 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...

https://pubmed.ncbi.nlm.nih.gov/40964349/?

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



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...

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Explosion-powered eversible tactile displays



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











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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Examining the ability of the interRAI communication collaborative action plan to identify individuals with sensory challenges: A retrospective cohort study









Summary: CONCLUSIONS: The communication CAP was robust in flagging individuals with sensory impairments as these individuals are more likely to fall into the triggered to facilitate improvement group. The three case studies highlight the importance of assessing all aspects of communication (e.g., cognitive, ...

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Analysis of Stability and Functionality of Coil and Piezoelectric Braille Modules Under Varying Temperature Conditions



Summary: In this study, the performance and reliability of two different types of Braille modules, i.e., coil and piezoelectric, under varying temperature conditions were compared. The coil module works on the principle of electromagnetic forces generated by coils, while the piezoelectric module is based on ...

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As time goes by: SMA neuromodulation and time perception while watching moving images with different editing styles. A tDCS study







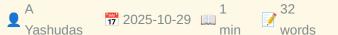


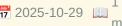
TDCS TACS TRNS

Summary: Within the framework of a "neurofilmological" approach - which integrates film studies, cognitive psychology, and neuroscience - the present study explored how cinematographic editing influences the viewer's perception of time. Previous behavioral research has shown that editing density affects temp...

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Modulating cortical excitability through transcranial direct current stimulation combined with therapeutic exercise for craniofacial myofascial pain: Randomized controlled trial







Summary: CONCLUSION: tDCS combined with therapeutic exercise safely enhances cortical excitability, pain modulation, function and patient outcomes in TMD, supporting Multimodal rehabilitation. Further research should refine protocals and confirm long-term benefits across populations.

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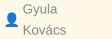
Effects of transcranial direct current stimulation combined with gait-oriented motor training on disability, quality of life, and motor function in individuals with subacute stroke: a randomized controlled trial



Summary: CONCLUSIONS: The combination of tDCS and gait-oriented training significantly improves motor function, participation, and self-perceived social and emotional functioning in sub-acute stroke rehabilitation and demonstrates sustained effects over time.

https://pubmed.ncbi.nlm.nih.gov/41159517/?

EXPRESS: State-dependent TMS of the Right Lateral Occipital Complex Does not Disrupt Object Detection and Categorization







TDCS TACS TRNS

Summary: Object detection and categorization are essential to object recognition. Previous studies suggested that the lateral occipital complex (LOC) plays a key role in various steps of object representation. However, it remains unclear whether the LOC contributes to object detection or object categorizatio...

https://pubmed.ncbi.nlm.nih.gov/41159690/?

Baseline task performance predicts mini-mental state examination improvement after individuals with dementia practice an N-back task with bilateral transcranial direct current stimulation



Summary: CONCLUSION: This study replicates a pervasive finding in the tDCS literature: participants who perform worse at baseline often demonstrate the greatest improvements with tDCS. Furthermore, these results have clinical implications, in that tDCS may be most beneficial in individuals when clear deficit...

https://pubmed.ncbi.nlm.nih.gov/41160658/?

Non-invasive brain stimulation (NIBS) in the modulation of hypnotic experience and hypnotizability







TDCS TACS TRNS

Summary: Non-Invasive Brain Stimulation (NIBS) techniques, including Transcranial Magnetic Stimulation (TMS) and Transcranial Direct Current Stimulation (tDCS), have emerged as valuable tools in neuroscience, clinical interventions, and hypnosis research. NIBS enables the modulation of neural activity to exp...

https://pubmed.ncbi.nlm.nih.gov/41161947/?

The effects of combining anodal transcranial direct current stimulation with robot-assisted gait training on lower limb motor function and the motor cortex regulation of stroke patients



Summary: CONCLUSIONS: The combination of anodal tDCS and RAGT can enhance lower limb motor function in stroke patients, while also modulating the connectivity within the motor network. Additionally, the elevation of functional connectivity between the bilateral cerebral hemispheres, quantifiable through fNIR...

https://pubmed.ncbi.nlm.nih.gov/41163056/?

Efficacy of transcranial direct current stimulation on emergence agitation in patients undergoing transurethral resection of the prostate: A double-blind, randomized, shamcontrolled study



Summary: CONCLUSION: One session of anodal tDCS over the left DLPFC significantly reduced the incidence of EA in patients who underwent TURP under general anesthesia. Trial Registration: Chinese Clinical Trial Registry (http://chictr.org.cn), ChiCTR2300076689.

https://pubmed.ncbi.nlm.nih.gov/41163224/?

Non-invasive brain stimulation combined with three rehabilitation approaches for cognitive and emotional well-being in Parkinson's patients



Summary: CONCLUSION: This study demonstrates that non-invasive brain stimulation combined with cognitive rehabilitation (CR) is the most effective approach for improving cognitive function in Parkinson's patients, while combined motor-cognitive rehabilitation (MCR) shows particular efficacy for emotional wel...

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Precision Neuromodulation for Diabetes-Associated **Cognitive Decline: a Transcranial Electrical Stimulation Approach**



Ahmad
Alipour

Alipou

Summary: CONCLUSION: These findings indicate that tDCS presents a promising, noninvasive therapeutic approach. It demonstrates potential for enhancing cognitive function in patients with DACD and for facilitating improved long-term glycemic control. This highlights the role of brain neuromodulation as a com...

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The evaluation of cognitive workload associated with indocyanine green fluorescence angiography in colorectal surgery



1 24 min words





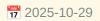
Summary: CONCLUSIONS: ICGFA interpretation exhibits broadly similar CWL as other operative steps, in both simulated and in-theatre settings with important differences evident by test context.

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Neural Mechanisms of the Impact of Rotated Terrain Symbols on Spatial Representation in Orienteers: Evidence from Eye-**Tracking and Whole-Brain fNIRS Synchronization**











Summary: Spatial representation is a core element of spatial cognition in orienteering, but the visual-spatial neural modulation mechanisms underlying spatial representations with differently oriented maps have not yet been systematically elucidated. This study recruited 67 orienteering athletes as participa...

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A Study on Hemodynamic and Brain Network Characteristics During Upper Limb Movement in Children with Cerebral Hemiplegia Based on fNIRS



Summary: Background: Hemiplegic cerebral palsy (HCP) is a motor dysfunction disorder resulting from perinatal developmental brain injury, predominantly impairing upper limb function in children. Nonetheless, there has been insufficient research on the brain activation patterns and inter-brain coordination me...

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Task-Dependent Neural Activity in the Posterior Parietal **Cortex Is Associated with Better Balance in Adults with Acquired Brain Injury**









Summary: Background/Objectives: There is scarce evidence on the neural underpinnings of balance in people with chronic acquired brain injury (ABI). Thus, the objective was to measure this in adults with ABI during four balance tasks and to examine the relationship between neural activity and balance performa...

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Medication vs. Movement in ADHD: Interaction Between Medication and Physical Activity on Neurocognitive Functioning

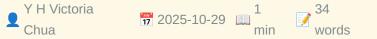


Summary: Background/Objectives: Movement during attention-demanding tasks may help compensate for cortical under-arousal in pediatric ADHD patients. However, the influence of medication during movement is unknown. This study assessed the impact of concurrent movement during executive functioning tasks on dor...

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A Systematic Review of Inter-Brain Synchrony and Psychological Conditions: Stress, Anxiety, Depression, **Autism and Other Disorders**



Summary: CONCLUSIONS: Collectively, the findings support IBS as a potentially dynamic, condition-sensitive, and contextually modulated neurophysiological indicator of interpersonal functioning, with implications for diagnostics, intervention design, and the advancement of social neuroscience in clinical sett...

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DrSVision: A Machine Learning Tool for Cortical Region-Specific fNIRS Calibration Based on Cadaveric Head MRI



1 63 min words

FNIRS

Summary: Functional Near-Infrared Spectroscopy is (fNIRS) a non-invasive neuroimaging technique that monitors cerebral hemodynamic responses by measuring near-infrared (NIR) light absorption caused by changes in oxygenated and deoxygenated hemoglobin concentrations. While fNIRS has been widely used in cognit...

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