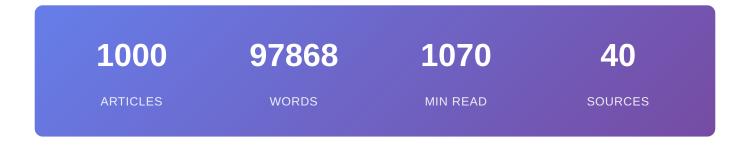


Daily Briefing - October 20, 2025

Your Daily Tech & Programming Digest

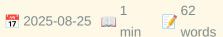
Monday, October 20, 2025





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











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

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

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







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

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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...

https://pubmed.ncbi.nlm.nih.gov/40864730/?

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

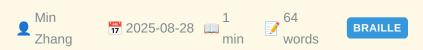


Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus 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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Diffusion trajectory of atypical morphological development in autism spectrum disorder



1 68 min words



TDCS TACS TRNS

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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Primary stabbing headache in a tertiary headache centre

1 2025-10-16 min 58

TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

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Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review



1 63 min words



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Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

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High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study

Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature









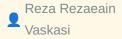
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Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial





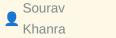


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Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

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Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TOCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance

Nathan 1 62
Ward min words

TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

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Effect of lower limb mirror visual feedback on cortical activation in healthy subjects: a self-controlled randomized trail



Summary: CONCLUSION: LLMVF increases neural activity in the sensory and motor related areas, indicating that LLMVF can promote more activation of brain functional areas, which verifies the top-down positive effect of LLMVF.

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TSFNet: Temporal-Spatial Fusion Network for Hybrid Brain-Computer Interface



Summary: Unimodal brain-computer interfaces (BCIs) often suffer from inherent limitations due to the characteristic of using single modalities. While hybrid BCIs combining electroencephalography (EEG) and functional near-infrared spectroscopy (fNIRS) offer complementary advantages, effectively integrating th...

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Diagnostic Efficacy of Olfactory Function Test Using Functional Near-Infrared Spectroscopy with Machine Learning in Healthy Adults: A Prospective Diagnostic-Accuracy (Feasibility/Validation) Study in Healthy Adults with Algorithm Development



Summary: Background/Objectives: The YSK olfactory function (YOF) test is a culturally adapted psychophysical tool that assesses threshold, discrimination, and identification. This study evaluated whether functional near-infrared spectroscopy (fNIRS) synchronized with routine YOF testing, combined with machin...

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Enhanced Activation in the Dorsolateral Prefrontal Cortex and Inferior Parietal Lobule During Recovery from Body Dissatisfaction



Summary: Previous studies have examined the neural mechanisms of body dissatisfaction. This study aimed to investigate the neural basis of recovery from body dissatisfaction. Sixty-seven young women participated in this study, engaging in a fat talk-a conversation known to induce body dissatisfaction-followe...

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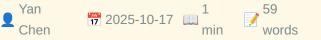
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Immediate modulation effects of Tongue Tri-needle on brain functional networks in infratentorial stroke patients with dysphagia: a randomized controlled trial







Summary: CONCLUSION: Infratentorial stroke patients with dysphagia exhibit disrupted functional connectivity within the fronto-temporo-sensorimotor network, which is associated with clinical impairment. Tongue Tri-needle multi-stage, selective reconfiguration of brain functional networks, particularly by mod...

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Riemannian geometry boosts functional near-infrared spectroscopy-based brain-state classification accuracy



1 37 min words





FNIRS

Summary: CONCLUSION: To our knowledge, we are the first to demonstrate that the proposed Riemannian-geometry-based classification approach is both powerful and viable for fNIRS data, substantially increasing the accuracy in binary and multi-class classification of brain activation patterns.

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Sensitive and specific fNIRS-based approach for awareness detection in disorders of consciousness: proof of principle in healthy adults









Summary: CONCLUSION: This individualized diagnostic approach may have the potential to significantly enhance diagnostic accuracy for DoCs. It provides a noninvasive, efficient, and objective assessment, potentially reducing the rate of misdiagnosis rates. The practicality and minimal technical requirements o...

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Neural and behavioral dynamics of dyadic rhythm coordination across limb pairings











Summary: Interpersonal motor synchronization relies on precise neural coordination, yet its underlying brain mechanisms remain incompletely understood. Guided by mutual prediction theory, we investigated how temporal structure and effector-specific constraints shape dyadic coordination. Using functional near...

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Motor imagery in individuals with congenital aphantasia

Magdalena Szubielska

1 71 min words

FNIRS

Summary: Individuals who experience aphantasia have an inability to create sensory mental images, what lead to a range of cognitive and behavioral differences compared to the general population. However, little is known about how this phenomenon affects the creation of motor imagery. Our study aims to check ...

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Interpersonal Neural Synchrony Across Levels of Interpersonal Closeness and Social Interactivity



1 63 min words







Summary: Interpersonal neural synchrony is a fundamental aspect of social interactions, offering insights into the neural mechanisms underlying human connection and developmental outcomes. So far, hyperscanning studies have examined synchrony across different dyads and tasks, leading to inconsistencies in ex...

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

Surjo R
Soekadar

1 67 min words

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders

1 35 min words

BRAIN COMPUTER INTERFACE

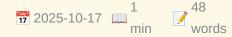
Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery



Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

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An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**



1 2025-10-19 min 68 words



BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

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Detection and rehabilitation of age-related motor skills impairment: neurophysiological biomarkers and perspectives







BRAIN COMPUTER INTERFACE

Summary: Age-related decline in motor control, manifesting as impaired posture, gait, and slowed movement execution, significantly diminishes the quality of life in older adults. These functional deficits are associated with alterations in neurophysiological data, which are analyzed using advanced techniques...

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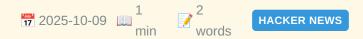


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Summary: Comments

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Artificial General Intelligence for Medical Imaging Analysis

2024-11-07 min 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, ...

http://ieeexplore.ieee.org/document/10746601

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:

http://ieeexplore.ieee.org/document/10856220

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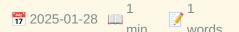


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IEEE Engineering in Medicine and Biology Society





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...

http://ieeexplore.ieee.org/document/11153361

A cytosolic function of DNMT1 controls neuronal morphogenesis via microtubule regulation

Zimmer-Bensch, G. M., Pitschelatow, G., Kurisu, J., Kawaue, T., Zuo, K., Xie, S., Weber-Hamacher, C.,

👤 Bayer-Kaufmann, C., Du, J., Wolff, P., Nagayama, S., Palacios-Sanchez, C., Rogowski, A., Egner-Walter, J., Ruggerone, P., Spehr, M., Carloni, P., Kengaku, M.

1 2000 min 2000 words **BIORXIV NEUROSCIENCE**

Summary: Proteins traditionally confined to a single cellular compartment are increasingly recognized to exert non-canonical functions in alternative domains. The DNA methyltransferase 1 (DNMT1), classically defined as the maintenance methyltransferase that preserves DNA methylation patterns during replicati...

https://www.biorxiv.org/content/10.1101/2025.10.19.683279v1?rss=1

Differential synaptic depression mediates the therapeutic effect of deep brain stimulation







Summary: Nature Neuroscience, Published online: 16 October 2025; www.nature.com/articles/s41593-025-02088-w">doi:10.1038/s41593-025-02088-w</ p>The authors show that deep brain stimulation (DBS) inhibits local neural activity via differential suppression of glutamate and GABA release, ...

https://www.nature.com/articles/s41593-025-02088-w

A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

Surjo R
Soekadar

1 67 min words

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders

1 35 min words

BRAIN COMPUTER INTERFACE

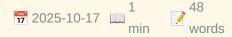
Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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+e462414

A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

https://pubmed.ncbi.nlm.nih.gov/41105834/?

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery



Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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+e462414

Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

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+e462414

An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**

Nadia Mammone

1 2025-10-19 min 68 words

BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

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Detection and rehabilitation of age-related motor skills impairment: neurophysiological biomarkers and perspectives







BRAIN COMPUTER INTERFACE

Summary: Age-related decline in motor control, manifesting as impaired posture, gait, and slowed movement execution, significantly diminishes the quality of life in older adults. These functional deficits are associated with alterations in neurophysiological data, which are analyzed using advanced techniques...

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HACKER NEWS

Summary: Comments



https://github.com/sharkdp/bat/releases/tag/v0.26.0

DeepSeek OCR







Summary: Comments

https://github.com/deepseek-ai/DeepSeek-OCR

DeepSeek OCR



Summary: Article URL: https://github.com/deepseek-ai/DeepSeek-OCR Comments URL: https://news.ycombinator.com/item?id=45640594">https://news.ycombinator.com/item?id=45640594 Points: 68 # Comments: 15

https://github.com/deepseek-ai/DeepSeek-OCR

Bat v0.26.0 Released



Summary: Article URL: https://github.com/sharkdp/bat/releases/tag/v0.26.0 Comments URL: https://news.ycombinator.com/item?id=45640678 Points: 10 # Comments: 1<...

https://github.com/sharkdp/bat/releases/tag/v0.26.0

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

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...

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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

1 243 min words





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**



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

1 2025-09-08 min 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

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









Summary: The post Call for Applications: IEEE T-MRB Editor in Chief Search appeared first on IEEE EMBS.

https://www.embs.org/uncategorized/call-for-applications-ieee-tmrb-editor-in-chief-search/

Spontaneous activity of astrocytes is a stochastic functional signal for memory consolidation

Gabriele LosiBeatrice VignoliRocco GranataAnnamaria LiaMicaela ZontaGabriele
SanseveroFrancesca PischeddaAngela ChiavegatoSpartaco SantiLorena ZentilinNicoletta BerardiGian
Michele RattoGiorgio CarmignotoMarco CanossaaInstitute of Neuroscience, National Research
Council, Padova section, Padova 35131, ItalybDepartment of Biomedical Sciences, University of
Padova, Padova 35131, ItalycDepartment of Physics, University of Trento, Povo (TN) 38123,
ItalydDepartment of Cellular Computational and Integrative Biology, University of Trento, Povo (TN)
38123, ItalyeCenter for Nanotechnology Innovation (NEST- National Enterprise for nanoScience and

nanoTechnology), Scuola Normale Superiore, Pisa 56126, ItalyfPadova Neuroscience Center,
 University of Padova, Padova 35131, ItalygInstitute of Neuroscience, National Research Council, Pisa
 section, Pisa 56125, ItalyhInstitute of Molecular Genetics "Luigi Luca Cavalli-Sforza," National
 Research Council, Bologna 40100, ItalyiIRCSS- Scientific Institute for Research, Hospitalization and
 Healthcare Istituto Ortopedico Rizzoli, Bologna 40100, ItalyjInternational Centre for Genetic
 Engineering and Biotechnology, Padriciano (TS) 34149, ItalykDepartment of Neuroscience,
 Psychology, Drug Research and Child Health (NEUROFARBA), University of Florence, Florence
 50139, ItalylInstitute of Biophysics, National Research Council, Pisa 56126, Italy



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 42, October 2025.

SignificanceLosi G., Vignoli B. et al. demonstrate that recurring, spontaneous intracellular Ca2+fluctuations in perisynaptic astrocytic processes [Ca2+microdomains (MDs)] are functional signals required for I...

https://www.pnas.org/doi/abs/10.1073/pnas.2500511122?af=R

Leveraging neuroinformatics to understand cognitive phenotypes in elite athletes through systems neuroscience



Summary: IntroductionUnderstanding the cognitive phenotypes of elite athletes offers a unique perspective on the intricate interplay between neurological traits and high-performance behaviors. This study aligns with advancing neuroinformatics by proposing a novel framework designed to capture and analyze the...

https://www.frontiersin.org/articles/10.3389/fninf.2025.1557879

Improving EEG classification of alcoholic and control subjects using DWT-CNN-BiGRU with various noise filtering techniques



Summary: Electroencephalogram (EEG) signal analysis plays a vital role in diagnosing and monitoring alcoholism, where accurate classification of individuals into alcoholic and control groups is essential. However, the inherent noise and complexity of EEG signals pose significant challenges. This study invest...

https://www.frontiersin.org/articles/10.3389/fninf.2025.1618050

Large language models can extract metadata for annotation of human neuroimaging publications







FRONTIERS NEUROINFORMATICS

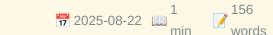
Summary: We show that recent (mid-to-late 2024) commercial large language models (LLMs) are capable of good quality metadata extraction and annotation with very little work on the part of investigators for several exemplar real-world annotation tasks in the neuroimaging literature. We investigated the GPT-4o...



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

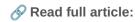
Editorial: Exoskeleton gait training







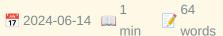
FRONTIERS NEUROSCIENCE



https://www.frontiersin.org/articles/10.3389/fnins.2025.1705522

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 .

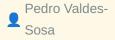
1 72 2024-07-02 min words OOSTENVELD ROBERT

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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JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing



Yong-Jie

Yong-Jie

2025-10-17

words

Yong-Words

Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

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Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota
Katayama

1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

https://pubmed.ncbi.nlm.nih.gov/41106803/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1xePBFBNvSlegfqCbvp4 5N3V9WgCNCS63Z1PLmhwJSPGd18QMT&fc=None&ff=20251020023149&v=2.18.0.post9+e462414

A reevaluation of the visual phantom illusion and its impact on the motion aftereffect



1 77 min words



LOW VISION

Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

https://pubmed.ncbi.nlm.nih.gov/41107310/?

Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance



Sven 1 36
Nebelung min words

LOW VISION

Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

⊗ Read full article:

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Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration



1 48 min words





LOW VISION

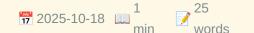
Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41108452/?

Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age









Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

https://pubmed.ncbi.nlm.nih.gov/41108819/?

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Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities









LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

https://pubmed.ncbi.nlm.nih.gov/41109031/?

Interventions to Reduce Incidence and Progression of Myopia in Children and Adults

Chi Pui
Pang
Pang
To 2025-10-18
Pang
To 76
Words
Low Vision

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

https://pubmed.ncbi.nlm.nih.gov/41109517/?

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Lamina cribrosa shape in non-human primates is different from that of humans

Ian A

1 77 min words

LOW VISION

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

https://pubmed.ncbi.nlm.nih.gov/41109592/?

Associations of adverse childhood experiences, inflammation, and cognition in older Black adults

Indira C 1 62
Turney min words

LOW VISION

Summary: CONCLUSIONS: Distinct ACEs profiles were significantly associated with episodic memory and HPA dysregulation-related inflammation. The severe adversity, parental conflict, and low adversity groups showed no reliable predictions to cognition or cognitive status. These findings highlight the need for ...

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Doing well in your courses: Andrej's advice for success (2013)

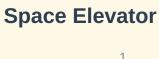
1 2 2 min words



HACKER NEWS

Summary: Comments

https://cs.stanford.edu/people/karpathy/advice.html









HACKER NEWS

Summary: Comments



https://neal.fun/space-elevator/

Space Elevator





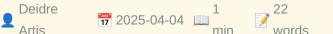


Summary: Article URL: https://neal.fun/ space-elevator/ Comments URL: https://news.ycombinator.com/item?id=45640226 Points: 31</ p> # Comments: 2

https://neal.fun/space-elevator/

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>.



https://www.embs.org/ojemb/search-for-editor-in-chief/#new_tab

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.



https://www.embs.org/blog-post/change-foi-for-ieee-embs/

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









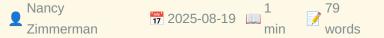


Summary: The post Open Call for AdCom Nominations appeared first on IEEE EMBS.



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/

Methodological considerations for quantifying brain asymmetry using neuroimaging techniques



BRAIN RESEARCH

Summary: Publication date: 15 November 2025Source: Brain Research, Volume 1867Author(s): Haokun Li, Jingli Qu, Gaolang Gong

Read full article:

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Prefrontal transcranial direct current stimulation enhances the analgesic effects of attention bias modification: a randomized controlled trial





BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Xue Jiang, Haozhi Zhao, Ruihan Wan, Chen Gong, Beibei Feng, Yafei Wang, Yangfan Xu, Wangwang Yan, Xueqiang Wang, Yixuan Ku, Yuling Wang

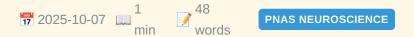


https://www.sciencedirect.com/science/article/pii/S0006899325005396?dgcid=rss_sd_all

The locus coeruleus maintains core body temperature and protects against hypothermia during dexmedetomidine-induced sedation

Berta Anuncibay SotoYing MaMathieu NolletSara WongGiulia MiraccaDaniel RastinejadRaquel YustosAlexei L. VyssotskiNicholas P. FranksWilliam WisdenaDepartment of Life Sciences, Imperial

■ College London, London SW7 2AZ, United KingdombUnited Kingdom Dementia Research Institute at Imperial College London, London W12 0BZ, United KingdomcInstitute of Neuroinformatics, University of Zurich and ETH Zurich, Zurich CH8057, Switzerland



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 41, October 2025.

SignificanceDexmedetomidine (DEX), a widely used sedative in intensive care, induces an arousable state resembling non-rapid eye movement (NREM) sleep and lowers body temperature. For some patients, even sligh...

https://www.pnas.org/doi/abs/10.1073/pnas.2422878122?af=R

Epileptic brain imaging by source localization CLARA supported by ictal-based semiology and VEEG in resource-limited settings

Aleksandra Kawala-Sterniuk 1 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

Editorial: AI and inverse methods for building digital twins in neuroscience



Maik

Kschischo

1
0
words



FRONTIERS COMPUTATIONAL NEUROSCIENCE

Read full article:

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Effects of AC induced electric fields on neuronal firing sensitivity and activity patterns



FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: IntroductionUnderstanding how neurons respond to time-varying electric fields is essential for both basic neuroscience and the development of neuromodulation strategies. However, the mechanisms by which alternating-current induced electric fields (AC-IEF) influence neuronal sensitivity and firing re...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1612314

Intrinsic calcium resonance and its modulation: insights from computational modeling



FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: Hippocampal neurons generate membrane potential resonance due to specific voltage-gated ion channels, known as resonating conductances, which play crucial physiological roles. However, it is not known whether this phenomenon of resonance is limited to membrane voltage or whether it propagates throug...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1669841

CRISP: a correlation-filtered recursive feature elimination and integration of SMOTE pipeline for gait-based Parkinson's disease screening



FRONTIERS COMPUTATIONAL NEUROSCIENCE

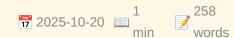
Summary: IntroductionParkinson's disease (PD) is the fastest-growing neurodegenerative disorder, with subtle gait changes such as reduced vertical ground-reaction forces (VGRF) often preceding motor symptoms. These gait abnormalities, measurable via wearable VGRF sensors, offer a non-invasive means for early...

Read full article:

https://www.frontiersin.org/articles/10.3389/fncom.2025.1660963

Language and "Theory of Mind" development of bilingual and monolingual children in Bulgaria







FRONTIERS HUMAN NEUROSCIENCE

Summary: Children from Bulgaria (N = 120) were tested on language and Theory of Mind (ToM) development. Sixty were ethnic bilingual Turkish children, and 60 were monolingual ethnic Bulgarian children. The age of the children varied between 3;6 to 5;0 years old. Both groups of children in the study were teste...

Read full article:

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1522507

The effects of amplitude modulated transcranial alternating current stimulation on working memory of college students

Xiao 1 166
Zhang min words

FRONTIERS HUMAN NEUROSCIENCE

Summary: BackgroundRecent studies suggest that amplitude-modulated transcranial alternating current stimulation (AM-tACS) may enhance cognitive functions, but its mechanisms and optimal application remain unclear. Methods Thirty-three healthy university students were randomly assigned to Sham, tACS (40 Hz, 1 m...

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1639378

Brain temporal dynamics correlate with clinical traits, spontaneous arm movements, and recovery in middle cerebral artery stroke

1 290 min words





FRONTIERS HUMAN NEUROSCIENCE

Summary: ObjectiveThe purpose of this study was to look into the brain functional network changes and their possible correlations with clinical traits, spontaneous arm movements, and recovery in middle cerebral artery stroke. Methods The study included 34 patients with acute cerebral infarction (CI) at middle ...

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The role of the hippocampus and retrosplenial cortex in spatial memory: a double blind anodal transcranial direct current stimulation study







FRONTIERS HUMAN NEUROSCIENCE

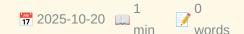
Summary: IntroductionSpatial memory supports orientation and navigation by integrating multiple spatial reference frames. Neuroimaging and lesion studies implicate the hippocampus (HIP) and retrosplenial cortex (RSC), but causal evidence from non-invasive brain stimulation is limited. Methods Eighteen particip...



https://www.frontiersin.org/articles/10.3389/fnhum.2025.1661310

Editorial: Cognition, neurodegeneration and immunity: from observational data to molecular mechanisms









FRONTIERS HUMAN NEUROSCIENCE



https://www.frontiersin.org/articles/10.3389/fnhum.2025.1704828

Tracking novel visual word learning via different methods with an original FPVS-EEG approach

Aliette 1 321 Lochy min words

FRONTIERS HUMAN NEUROSCIENCE

Summary: Reading is a crucial human skill and learning novel written word forms is a lifelong process. Here, we tracked the emergence of novel word lexical and neural representations after a training procedure, contrasting two learning methods, in 32 monolingual adults. Half of the novel words were provided...

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1647925

A novel methodological approach to understanding the cortical and subcortical effects of aerobic exercise in Parkinson's disease



FRONTIERS HUMAN NEUROSCIENCE

Summary: IntroductionAerobic exercise mitigates symptoms of Parkinson's disease (PD) and may slow disease progression; however, the neural mechanisms underlying these improvements are not well understood. In this study, we discuss the methodology for simultaneously recording local field potentials (LFP) from...

Read full article:

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1657049

Enlarged perivascular spaces in the basal ganglia mediate the negative impact of HbA1c levels on mild cognitive impairment

Junyan 1 256
Liu min words

FRONTIERS HUMAN NEUROSCIENCE

Summary: BackgroundThis study aimed to investigate the mediating effect of enlarged perivascular space (EPVS) in basal ganglia (BG) on the relationship between glycated hemoglobin (HbA1c) levels and mild cognitive impairment (MCI) in patients with cerebral small vessel disease (CSVD). Methods Data on HbA1c lev...

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TSLNet: a hierarchical multi-head attention-enabled twostream LSTM network for accurate pedestrian tracking and behavior recognition

Xiaoting
Ma

1 161
FRONTIERS NEUROROBOTICS
words

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...

Read full article:

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Examining the associations between nonbelieved memories and memory distrust, self-esteem, and rumination.

1 2022-11-10 min 175 CLINICAL NEUROSCIENCE

Summary: When beliefs in autobiographical memories are reduced while recollections remain relatively intact, a phenomenon termed nonbelieved memories (NBMs) unfolds. The current preregistered study (N = 104) used a 3-week longitudinal design to investigate the relationships between the frequency of ...

http://doi.org/10.1037/cns0000344

Relationship between thought suppression and dissociation and the mediating effect of rumination and unusual sleep experiences.



Summary: Dissociation is a phenomenon present in a wide variety of psychiatric disorders as well as in the general population. The objective of this study was to examine the relation between trait thought suppression (TS) and development of dissociative phenomena in the nonclinical population, with emphasis ...

http://doi.org/10.1037/cns0000366

Mental pain, boredom, and diffuse nociception.

1 237 min words

CLINICAL NEUROSCIENCE

Summary: In this article, I propose a novel theory to explain the possible physiological origins of the relatively mild mental pain that is often labeled as boredom and possibly loneliness or a negative mood, depending on one's situation. My admittedly speculative hypothesis is that most people in modern soc...

http://doi.org/10.1037/cns0000405

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





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...

http://doi.org/10.1037/neu0001028

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

1 261 min words

NEUROPSYCHOLOGY

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 ...

⊗ Read full article:

http://doi.org/10.1037/neu0001016

Toward accurate single image sand dust removal by utilizing uncertainty-aware neural network

1 189 min words

FRONTIERS NEUROROBOTICS

Summary: Although deep learning methods have made significant strides in single image sand dust removal, the heterogeneous uncertainty induced by dusty environments poses a considerable challenge. In response, our research presents a novel framework known as the Hierarchical Interactive Uncertainty-aware Net...

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Source-free domain adaptation for SSVEP-based braincomputer interfaces

Osman Berke Guney, Deniz Kucukahmetler and Huseyin

1 2025-10-08 min

216 words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Steady-state visually evoked potential-based Brain-computer interface (BCI) spellers assist individuals experiencing speech difficulties by enabling them to communicate at a fast rate. However, achieving a high information transfer rate (ITR) in most prominent methods requires an extensiv...



http://iopscience.iop.org/article/10.1088/1741-2552/ae0c3d

EEG workload estimation and classification: a systematic review

Jahid Hassan, Shamim Reza, Syed Udoy Ahmed, Nazmul Haque Anik and Md Obaydullah Khan



Summary: Objective. Electroencephalography (EEG) has evolved into an indispensable instrument for estimating cognitive workload in various domains. Machine Learning (ML) and deep learning (DL) techniques have been increasingly employed to develop accurate workload estimation and classification models based o...

http://iopscience.iop.org/article/10.1088/1741-2552/ad705e

Identification of modulated whole-brain dynamical models from nonstationary electrophysiological data

Addison Schwamb, Zongxi Yu and ShiNung Ching

1 198 min words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Understanding the mechanisms underlying brain dynamics is a longheld goal in neuroscience. However, these dynamics are both individualized and nonstationary, making modeling challenging. Here, we present a data-driven approach to modeling nonstationary dynamics based on principles of neu...

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Brain-to-text decoding with context-aware neural representations and large language models

Jingyuan Li, Trung Le, Chaofei Fan, Mingfei Chen and Eli Shlizerman



235 words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Decoding attempted speech from neural activity offers a promising avenue for restoring communication abilities in individuals with speech impairments. Previous studies have focused on mapping neural activity to text using phonemes as the intermediate target. While successful, decoding neu...

Read full article:

http://iopscience.iop.org/article/10.1088/1741-2552/adfab1

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

Maria Carla
Piastra

1
2024-06-14

min

64

words

OOSTENVELD ROBERT

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

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



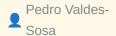
1 72 min words

OOSTENVELD ROBERT

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

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

One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

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









OOSTENVELD ROBERT

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

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

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

Krzysztof J
Gorgolewski

1 2024-09-23 min 82
words

OOSTENVELD ROBERT

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

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/?

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/?

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/?

JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing

Yong-Jie
Li

2025-10-17

min

63

words

Low VISION

Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

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Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota Katayama 1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

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A reevaluation of the visual phantom illusion and its impact on the motion aftereffect





LOW VISION

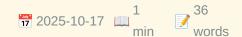
Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

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Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance







LOW VISION

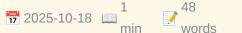
Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

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Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration







Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

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Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age









Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

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Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities



Zhuqiu 1 66 Sun min words





LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

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Interventions to Reduce Incidence and Progression of Myopia in Children and Adults



1 76 min words





LOW VISION

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

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Lamina cribrosa shape in non-human primates is different from that of humans

Sigal

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

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Associations of adverse childhood experiences, inflammation, and cognition in older Black adults

Indira C Turney

1 2025-10-19 min 62 words

LOW VISION

Summary: CONCLUSIONS: Distinct ACEs profiles were significantly associated with episodic memory and HPA dysregulation-related inflammation. The severe adversity, parental conflict, and low adversity groups showed no reliable predictions to cognition or cognitive status. These findings highlight the need for ...

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









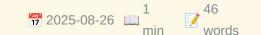
Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility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

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









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

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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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Diffusion trajectory of atypical morphological development in autism spectrum disorder



1 68 min words





TDCS TACS TRNS

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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Primary stabbing headache in a tertiary headache centre

1 2025-10-16 min 58

TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

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Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review



1 63 min words

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Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

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High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study

Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature









TDCS TACS TRNS

Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial



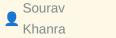


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Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

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Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







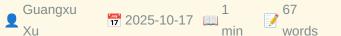
TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TOCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance

Nathan 1 62
Ward min words

TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

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Effect of lower limb mirror visual feedback on cortical activation in healthy subjects: a self-controlled randomized trail



Summary: CONCLUSION: LLMVF increases neural activity in the sensory and motor related areas, indicating that LLMVF can promote more activation of brain functional areas, which verifies the top-down positive effect of LLMVF.

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TSFNet: Temporal-Spatial Fusion Network for Hybrid Brain-Computer Interface



Summary: Unimodal brain-computer interfaces (BCIs) often suffer from inherent limitations due to the characteristic of using single modalities. While hybrid BCIs combining electroencephalography (EEG) and functional near-infrared spectroscopy (fNIRS) offer complementary advantages, effectively integrating th...

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Diagnostic Efficacy of Olfactory Function Test Using Functional Near-Infrared Spectroscopy with Machine Learning in Healthy Adults: A Prospective Diagnostic-Accuracy (Feasibility/Validation) Study in Healthy Adults with Algorithm Development



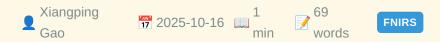
Summary: Background/Objectives: The YSK olfactory function (YOF) test is a culturally adapted psychophysical tool that assesses threshold, discrimination, and identification. This study evaluated whether functional near-infrared spectroscopy (fNIRS) synchronized with routine YOF testing, combined with machin...

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Enhanced Activation in the Dorsolateral Prefrontal Cortex and Inferior Parietal Lobule During Recovery from Body Dissatisfaction



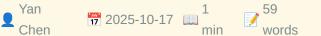
Summary: Previous studies have examined the neural mechanisms of body dissatisfaction. This study aimed to investigate the neural basis of recovery from body dissatisfaction. Sixty-seven young women participated in this study, engaging in a fat talk-a conversation known to induce body dissatisfaction-followe...

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Immediate modulation effects of Tongue Tri-needle on brain functional networks in infratentorial stroke patients with dysphagia: a randomized controlled trial









Summary: CONCLUSION: Infratentorial stroke patients with dysphagia exhibit disrupted functional connectivity within the fronto-temporo-sensorimotor network, which is associated with clinical impairment. Tongue Tri-needle multi-stage, selective reconfiguration of brain functional networks, particularly by mod...

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Riemannian geometry boosts functional near-infrared spectroscopy-based brain-state classification accuracy



1 37 min words





FNIRS

Summary: CONCLUSION: To our knowledge, we are the first to demonstrate that the proposed Riemannian-geometry-based classification approach is both powerful and viable for fNIRS data, substantially increasing the accuracy in binary and multi-class classification of brain activation patterns.

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Sensitive and specific fNIRS-based approach for awareness detection in disorders of consciousness: proof of principle in healthy adults







Summary: CONCLUSION: This individualized diagnostic approach may have the potential to significantly enhance diagnostic accuracy for DoCs. It provides a noninvasive, efficient, and objective assessment, potentially reducing the rate of misdiagnosis rates. The practicality and minimal technical requirements o...

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Neural and behavioral dynamics of dyadic rhythm coordination across limb pairings











Summary: Interpersonal motor synchronization relies on precise neural coordination, yet its underlying brain mechanisms remain incompletely understood. Guided by mutual prediction theory, we investigated how temporal structure and effector-specific constraints shape dyadic coordination. Using functional near...

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Motor imagery in individuals with congenital aphantasia

Magdalena Szubielska

1 71 min words

FNIRS

Summary: Individuals who experience aphantasia have an inability to create sensory mental images, what lead to a range of cognitive and behavioral differences compared to the general population. However, little is known about how this phenomenon affects the creation of motor imagery. Our study aims to check ...

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Interpersonal Neural Synchrony Across Levels of Interpersonal Closeness and Social Interactivity



1 63 min words







Summary: Interpersonal neural synchrony is a fundamental aspect of social interactions, offering insights into the neural mechanisms underlying human connection and developmental outcomes. So far, hyperscanning studies have examined synchrony across different dyads and tasks, leading to inconsistencies in ex...

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

Surjo R
Soekadar

1 67 min words

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders

1 35 min words

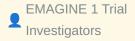
BRAIN COMPUTER INTERFACE

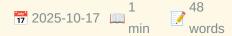
Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





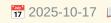
BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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+e462414

A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant







BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

https://pubmed.ncbi.nlm.nih.gov/41105834/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf_RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251020012038&v=2.18.0.post9 +e462414

Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery



Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

⊗ Read full article:

https://pubmed.ncbi.nlm.nih.gov/41106071/?
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+e462414

Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

https://pubmed.ncbi.nlm.nih.gov/41107249/?

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

https://pubmed.ncbi.nlm.nih.gov/41109909/?
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+e462414

An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**

Nadia Mammone

1 2025-10-19 min 68 words

BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

https://pubmed.ncbi.nlm.nih.gov/41109958/?

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Detection and rehabilitation of age-related motor skills impairment: neurophysiological biomarkers and perspectives







BRAIN COMPUTER INTERFACE

Summary: Age-related decline in motor control, manifesting as impaired posture, gait, and slowed movement execution, significantly diminishes the quality of life in older adults. These functional deficits are associated with alterations in neurophysiological data, which are analyzed using advanced techniques...

https://pubmed.ncbi.nlm.nih.gov/41110663/?

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Promethium — The Offline Chemistry Toolkit for Python



1 153 min words

REDDIT PYTHON

Summary: <!-- SC OFF --><div class="md"><h1>What My Project Does</h1> Promethium is your go-to periodic table and chemistry toolkit for Python, designed for scientists, students, and developers who want powerful chemistry features without external dependencies.

Read full article:

https://www.reddit.com/r/Python/comments/1ob0jk7/promethium the offline chemistry toolkit for/

Don't Force Your LLM to Write Terse [Q/Kdb] Code: An **Information Theory Argument**



HACKER NEWS

Summary: Comments

https://medium.com/@gabiteodoru/dont-force-your-llm-to-write-terse-code-an-argument-from-informationtheory-for-q-kdb-developers-04077c5b7038

A narrative exploration of oxytocin and anxiety in autism spectrum disorder

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

Read full article:

https://www.sciencedirect.com/science/article/pii/S0006899325005542?dgcid=rss sd all

Parkinsonism disrupts the balance between excitatory and inhibitory activity within the primary motor cortex during movement

Biswaranjan MohantyZheshan GuoLuke A. JohnsonJing WangJerrold L. VitekaDepartment of Neurology, University of Minnesota, Minneapolis, MN 55455







PNAS NEUROSCIENCE

Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 42, October 2025.

SignificanceThe primary motor cortex (M1) is a critical component for the generation of movement via corticospinal projections. In this study, we focused on how Parkinsonism alters M1 neuronal spiking activity...

https://www.pnas.org/doi/abs/10.1073/pnas.2510287122?af=R

DYRK1A in the physiology and pathology of the neuronastrocyte axis







FRONTIERS NEUROSCIENCE

Summary: Dual-specificity tyrosine phosphorylation-regulated kinase 1A (DYRK1A) is a dosage-sensitive kinase with critical roles in the neuron-astrocyte axis. During brain development, DYRK1A ensures the proper number of differentiated neurons and astrocytes. In neurons, this DYRK1A regulates neuronal morpho...



https://www.frontiersin.org/articles/10.3389/fnins.2025.1626062

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









BRAILLE

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

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

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







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

⊗ Read full article:

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

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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...

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

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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...

⊗ Read full article:

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

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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...

Read full article:

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

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

Önder 1 55 islek min words



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

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

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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



1 42 min words





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.

Read full article:

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...

⊗ Read full article:

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

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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...

Read full article:

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...

http://doi.org/10.1037/neu0001033

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

1 2025-09-15 min 268 words



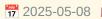


NEUROPSYCHOLOGY

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:

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...



⊗ Read full article:

http://doi.org/10.1037/neu0001018

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







NEUROPSYCHOLOGY

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...



Neural correlates of stigma: A systematic review.

1 2025-09-15 min 261 words

NEUROPSYCHOLOGY

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 ...

http://doi.org/10.1037/neu0001037

Back to the future in Neuropsychology.



NEUROPSYCHOLOGY

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 ...

Entire Linux Network stack diagram (2024)



Summary: Comments

https://zenodo.org/records/14179366

Carefully Educated to Be Idiots

DavidPiper 2025-10-20 min 13 HACKER NEWS

Summary: Article URL: https://www.hilarylayne.com/p/very-carefully-educated-to-be-idiots Comments URL: https://news.ycombinator.com/item? id=45639391">https://news.ycombinator.com/item?id=45639391 Po...

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https://www.hilarylayne.com/p/very-carefully-educated-to-be-idiots

Entire Linux Network stack diagram (2024)

hhutw 72 2025-10-20 min 13 words HACKER NEWS

Summary: Article URL: https://zenodo.org/records/14179366">https://zenodo.org/records/14179366 Comments URL: https://news.ycombinator.com/item?id=45639995 Points: 36 # Comments: 1

https://zenodo.org/records/14179366

Retrieving Planned Sample Sizes from AsPredicted Preregistrations

noreply@blogger.com (Daniel Lakens)

22 4417 min words

TWENTY PERCENT STATISTICIAN

Summary: &<u>

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

Are meta-scientists ignoring philosophy of science?

noreply@blogger.com (Daniel

TWENTY PERCENT STATISTICIAN

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

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

Easily download files from the Open Science Framework with **Papercheck**

noreply@blogger.com (Daniel

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 ...

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

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



Steve 1 108
Luck 1 words

Summary: The next 10-day ERP Boot Camp will be held July 31 – August 9, 2023 in San Diego, California. We are now taking applications, which will be due by April 1, 2023. 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_lmwj6bu0">l strong>.
br />You can access the final PDF of the slides <a href="https://ucdavis.box.com/s/f...

Read full article:

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

New Papers: Optimal Filter Settings for ERP Research

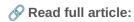






ERP BOOT CAMP

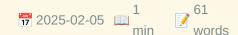
Summary: Zhang, G., Garrett, D. R., & D. R., & Luck, S. J. (in press). Optimal filters for ERP research I: A general approach for selecting filter settings. Psychophysiology. https:// doi.org/10.1111/psyp.14531 [<a href="https://www...



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

Education: Legal Issues









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

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

Education: Social and Cultural Issues

Adriel
Carridice

1 61 min 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...

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

Situated Epistemic Infrastructures: A Diagnostic Framework for Post-Coherence Knowledge



ARXIV CS HC

Summary: arXiv:2508.04995v3 Announce Type: replace Abstract: Large Language Models (LLMs) such as ChatGPT have rendered visible the fragility of contemporary knowledge infrastructures by simulating coherence while bypassing traditional modes of citation, authority, and validation. This paper introduces the ...



Free Lunch for User Experience: Crowdsourcing Agents for Scalable User Studies

Siyang Liu, Sahand Sabour, Xiaoyang Wang, Rada Mihalcea

1 2025-10-20 min 261 words

ARXIV CS HC

Summary: arXiv:2505.22981v2 Announce Type: replace Abstract: User studies are central to user experience research, yet recruiting participant is expensive, slow, and limited in diversity. Recent work has explored using Large Language Models as simulated users, but doubts about fidelity have hindered practic...

https://arxiv.org/abs/2505.22981

Quantifying the Engagement Effectiveness of Cyber Cognitive Attacks: A Behavioral Metric for Disinformation Campaigns

Bonnie Rushing, Shouhuai

1 121 min words

ARXIV CS HC

Summary: arXiv:2510.15805v1 Announce Type: cross Abstract: As disinformation-driven cognitive attacks become increasingly sophisticated, the ability to quantify their impact is essential for advancing cybersecurity defense strategies. This paper presents a novel framework for measuring the engagement effect...

Towards Proactive Defense Against Cyber Cognitive Attacks

Bonnie Rushing, Mac-Rufus Umeokolo, Shouhuai

1 95 words

ARXIV CS HC

Summary: arXiv:2510.15801v1 Announce Type: cross Abstract: Cyber cognitive attacks leverage disruptive innovations (DIs) to exploit psychological biases and manipulate decision-making processes. Emerging technologies, such as AI-driven disinformation and synthetic media, have accelerated the scale and sophi...

https://arxiv.org/abs/2510.15801

Preliminary Quantitative Study on Explainability and Trust in **AI Systems**



1 121 min words

ARXIV CS HC

Summary: arXiv:2510.15769v1 Announce Type: cross Abstract: Large-scale AI models such as GPT-4 have accelerated the deployment of artificial intelligence across critical domains including law, healthcare, and finance, raising urgent questions about trust and transparency. This study investigates the relatio...

⊗ Read full article:

Extending Load Forecasting from Zonal Aggregates to Individual Nodes for Transmission System Operators

Oskar Triebe, Fletcher Passow, Simon Wittner, Leonie Wagner, Julio Arend, Tao Sun, Chad Zanocco, Marek Miltner, Arezou Ghesmati, Chen-Hao Tsai, Christoph Bergmeir, Ram Rajagopal



Summary: arXiv:2510.14983v1 Announce Type: cross Abstract: The reliability of local power grid infrastructure is challenged by sustainable energy developments increasing electric load uncertainty. Transmission System Operators (TSOs) need load forecasts of higher spatial resolution, extending current foreca...

Sound Clouds: Exploring ambient intelligence in public spaces to elicit deep human experience of awe, wonder, and beauty

Chengzhi Zhang, Dashiel Carrera, Daksh Kapoor, Jasmine Kaur, Jisu Kim, Brian Magerko

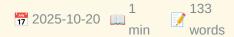
1 94 ARXIV CS HC min words

Summary: arXiv:2510.15865v1 Announce Type: new Abstract: While the ambient intelligence (AmI) systems we encounter in our daily lives, including security monitoring and energy-saving systems, typically serve pragmatic purposes, we wonder how we can design and implement ambient artificial intelligence experi...

https://arxiv.org/abs/2510.15865

The Spark Effect: On Engineering Creative Diversity in Multi-Agent Al Systems

Alexander Doudkin, Anton Voelker, Friedrich von

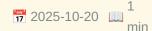


ARXIV CS HC

Summary: arXiv:2510.15568v1 Announce Type: new Abstract: Creative services teams increasingly rely on large language models (LLMs) to accelerate ideation, yet production systems often converge on homogeneous outputs that fail to meet brand or artistic expectations. Art of X developed persona-conditioned LLM...

A Feasibility Study on Usability and Trust among Population Groups of a Medical Avatar Supported by Large Language Models with Retrieval Augmented Generation







ARXIV CS HC

Summary: arXiv:2510.15531v1 Announce Type: new Abstract: Healthcare professionals have limited time to support patients and their relatives, but their information needs are high. Therefore, the Radboud University together with the Canisius Wilhelmina Hospital hospital developed a speaking virtual hu-man ava...



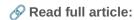
LLM-based In-situ Thought Exchanges for Critical Paper Reading

Xinrui Fang, Anran Xu, Chi-Lan Yang, Ya-Fang Lin, Sylvain Malacria, Koji Yatani

2025-10-20



Summary: arXiv:2510.15234v1 Announce Type: new Abstract: Critical reading is a primary way through which researchers develop their critical thinking skills. While exchanging thoughts and opinions with peers can strengthen critical reading, junior researchers often lack access to peers who can offer diverse ...



https://arxiv.org/abs/2510.15234

Cross-Population Amplitude Coupling in High-Dimensional Oscillatory Neural Time Series

Heejong Bong, Val\'erie Ventura, Eric A. Yttri, Matthew A. Smith, Robert E.

2025-10-20



ARXIV QBIO NC

Summary: arXiv:2105.03508v3 Announce Type: replace-cross Abstract: Neural oscillations have long been considered important markers of interaction across brain regions, yet identifying coordinated oscillatory activity from high-dimensional multiple-electrode recordings remains challenging. We sought to quant...



Emergence of Functionally Differentiated Structures via Mutual Information Minimization in Recurrent Neural Networks

Yuki Tomoda, Ichiro Tsuda, Yutaka Yamaguti

1 175 min words

ARXIV QBIO NC

Summary: arXiv:2507.12858v2 Announce Type: replace Abstract: Functional differentiation in the brain emerges as distinct regions specialize and is key to understanding brain function as a complex system. Previous research has modeled this process using artificial neural networks with specific constraints. H...

Read full article:

https://arxiv.org/abs/2507.12858

Amplitude equations of associative memory patterns in spatially distributed systems







ARXIV QBIO NC

Summary: arXiv:2506.13576v3 Announce Type: replace Abstract: Evolution equations are derived for the amplitudes of associative memories: heterogeneous states stored in the connectivity of distributed systems with non-local interactions. The resulting coupled amplitude equations describe the spatio-temporal ...

SpikeFit: Towards Optimal Deployment of Spiking Networks on Neuromorphic Hardware

Ivan Kartashov, Mariia Pushkareva, Iakov Karandashev

1 235 min words



ARXIV QBIO NC

Summary: arXiv:2510.15542v1 Announce Type: cross Abstract: This paper introduces SpikeFit, a novel training method for Spiking Neural Networks (SNNs) that enables efficient inference on neuromorphic hardware, considering all its stringent requirements: the number of neurons and synapses that can fit on a si...



https://arxiv.org/abs/2510.15542

GENESIS: A Generative Model of Episodic-Semantic Interaction

Marco D'Alessandro, Leo D'Amato, Mikel Elkano, Mikel Uriz, Giovanni Pezzulo

2025-10-20



ARXIV QBIO NC

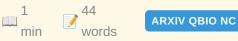
Summary: arXiv:2510.15828v1 Announce Type: new Abstract: A central challenge in cognitive neuroscience is to explain how semantic and episodic memory, two major forms of declarative memory, typically associated with cortical and hippocampal processing, interact to support learning, recall, and imagination. ...

State of Brain Emulation Report 2025

Niccoll`o Zanichelli, Maximilian Schons, Isaak Freeman, Philip Shiu, Anton Arkhipov

2025-10-20





Summary: arXiv:2510.15745v1 Announce Type: new Abstract: The State of Brain Emulation Report 2025 provides a comprehensive overview of recent achievements in brain emulation. By analyzing current trends and the state of the art, this report aims to identify key opportunities and challenges facing the field.



https://arxiv.org/abs/2510.15745

Perineuronal nets in the rodent suprachiasmatic nucleus



NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source: Neuroscience, Volume 588Author(s): Patricia R. Blakely, Naila F. Jamani, Katelyn G. Horsley, Kiana Hampton, Michael C. Antle



https://www.sciencedirect.com/science/article/pii/S030645222501019X?dgcid=rss_sd_all

Understanding the relationship between rosemary odor and mental workload through deep learning

NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source: Neuroscience, Volume 588Author(s): Evin Şahin Sadık, Hamdi Melih Saraoğlu, Sibel Canbaz Kabay, Cahit Keskinkılıç

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Choroid plexus enlargement correlates with cognitive impairment and brain atrophy in patients with temporal lobe epilepsy



NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source: Neuroscience, Volume 588Author(s): Ran Li, Kehong Zeng, Jinshuai Liu, Zifan Yang, Yu Wang

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Investigating the role of rumination on reward and punishment processing in an operant conditioning task using event-related potentials

1 min

NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source:
Neuroscience, Volume 588Author(s): Carolina Ceruti, Dennis Boye Larsen, Giulia
Erica Aliotta, Elia Valentini, Kristian Hennings, Carina Graversen, Carsten Dahl Mørch,
Laura Petrini

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Diurnal variations and intermittent arousals modulate jawopening and -closing muscle activity level during sleep in rats

min



NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source:
Neuroscience, Volume 588Author(s): Yiwen Zhu, Masaharu Yamada, Noriko Minota, Ayano Katagiri, Takafumi Kato

https://www.sciencedirect.com/science/article/pii/S0306452225009881?dgcid=rss_sd_all

Effects of olfactory training on patients with parosmia

1 min 18 words

NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source:
Neuroscience, Volume 588Author(s): Zetian Li, Luisa Richter, Tanja Krueger, Antje
Haehner, Thomas Hummel

https://www.sciencedirect.com/science/article/pii/S0306452225010188?dgcid=rss_sd_all

Cortical dynamics underlying motor skill acquisition: Insights from sequential and random practice using transcranial magnetic stimulation-electroencephalography

1 min



NEUROSCIENCE JOURNAL

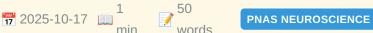
Summary: Publication date: 19 November 2025Source:
Neuroscience, Volume 588Author(s): Tomoya Kokue, Ryoki Sasaki, Yuma
Takenaka, Kenichi Sugawara

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Engineered 3D immuno-glial-neurovascular human miBrain model

Alice E. StantonAdele BubnysEmre AgbasBenjamin JamesDong Shin ParkAlan JiangRebecca L.

PinalsLiwang LiuNhat TruongAnjanet LoonColin StaabOyku CeritHsin-Lan WenDavid MankusMargaret E. BisherAbigail K. R. Lytton-JeanManolis KellisJoel W. BlanchardRobert LangerLi-Huei TsaiaKoch Institute, Massachusetts Institute of Technology, Cambridge, MA 02139bPicower Institute for Learning and Memory, Massachusetts Institute of Technology, Cambridge, MA 02139cDepartment of Brain and Cognitive Sciences, Massachusetts Institute of Technology, Cambridge, MA 02139dDepartment of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA 02139eBroad Institute of Harvard and Massachusetts Institute of Technology, Cambridge, MA 02139fDepartment of Anesthesiology, Boston Children's Hospital, Boston, MA 02139gDepartment of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139hDivision of Health Science and Technology, Massachusetts Institute of Technology, Cambridge, MA 02139iInstitute for Medical Engineering and Science, Massachusetts Institute of Technology, Cambridge, MA 02139







Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 42, October 2025.

SignificanceTo address the lack of human cell-based models incorporating all six of the major brain cell types together, which are critically needed to mimic features of brain pathobiology and accelerate mecha...



https://www.pnas.org/doi/abs/10.1073/pnas.2511596122?af=R

Reconfiguration of brain-wide neural activity after early life adversity

Taylor W. UselmanRussell E. JacobsElaine L. BeareraDepartment of Pathology, University of New Mexico Health Sciences Center, Albuquerque, NM 87131bZilkha Neurogenetic Institute, Keck School

■ of Medicine of University of Southern California, Los Angeles, CA 90033cBeckman Institute, California
Institute of Technology, Pasadena, CA 91125dDivision of Biology and Biological Engineering, California
Institute of Technology, Pasadena, CA 91125



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 42, October 2025.

SignificanceEarly life adversity (ELA) is a crucial determinant of adult health. Yet the neurobiological basis for this remains elusive. Localized brain regions display atypical neural activity in rodents who ...

https://www.pnas.org/doi/abs/10.1073/pnas.2506140122?af=R

Hierarchical dynamic coding coordinates speech comprehension in the human brain

Laura GwilliamsAlec MarantzDavid PoeppelJean-Rémi KingaDepartment of Psychology, Stanford University, Stanford, CA 94305bWu Tsai Neurosciences Institute, Stanford University, Stanford, CA 94305cStanford Data Science, Stanford University, Stanford, CA 94305dDepartment of Psychology, New York University, New York, NY 10003eDepartment of Linguistics, New York University, New York, NY 10003fEcole Normale Superieure, Paris Sciences et Lettres (PSL), CNRS, Paris 75005, FrancegMeta AI, Paris 75002, France



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 42, October 2025.

SignificanceTo understand speech, the brain generates a hierarchy of neural representations, which map from sound to meaning. We recorded whole-brain activity while participants listened to audiobooks and mode...

https://www.pnas.org/doi/abs/10.1073/pnas.2422097122?af=R

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

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

Donor Diabetes and 1-Year Descemet Membrane Endothelial **Keratoplasty Success Rate: A Randomized Clinical Trial**

Diabetes Endothelial Keratoplasty Study Group

1 66 min words

LOW VISION

Summary: CONCLUSIONS AND RELEVANCE: The 1-year success rate in eyes undergoing DMEK with successfully prepared tissue was very high regardless of donor diabetes status. These results, supported by the separately reported finding that endothelial cell loss and cornea morphometry after 1 year were not affected...

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JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing



Yong-Jie

Yong-Jie

2025-10-17

words

Yong-Words



Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

Read full article:

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Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota
Katayama

1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

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A reevaluation of the visual phantom illusion and its impact on the motion aftereffect

1 77 min words

LOW VISION

Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

https://pubmed.ncbi.nlm.nih.gov/41107310/?

Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance



Sven 1 36
Nebelung min words

LOW VISION

Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

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Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration



1 48 min words





LOW VISION

Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41108452/?

Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age



1 25 min words





Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

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Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities









LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

https://pubmed.ncbi.nlm.nih.gov/41109031/?

Interventions to Reduce Incidence and Progression of Myopia in Children and Adults

Chi Pui
Pang
Pang
To 2025-10-18
Pang
To 76
Words
Low Vision

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

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Lamina cribrosa shape in non-human primates is different from that of humans

Ian A

1 77 min words

LOW VISION

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

https://pubmed.ncbi.nlm.nih.gov/41109592/?

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











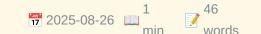
Summary: The development of highly sensitive, wide linear-range flexible pressure sensors is crucial for practical applications in human-computer interaction, physiological signal detection, and motion monitoring. However, traditional flexible pressure sensors often suffer from limited compressibility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

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









BRAILLE

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

Read full article:

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Explosion-powered eversible tactile displays







BRAILLE

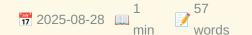
Summary: High-resolution electronic tactile displays stand to transform haptics for remote machine operation, virtual reality, and digital information access for people who are blind or visually impaired. Yet, increasing the resolution of these displays requires increasing the number of individually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

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









BRAILLE

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

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







BRAILLE

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

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









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

Read full article:

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











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











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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Diffusion trajectory of atypical morphological development in autism spectrum disorder



1 68 min words



TDCS TACS TRNS

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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https://pubmed.ncbi.nlm.nih.gov/41102402/?

Primary stabbing headache in a tertiary headache centre

1 2025-10-16 min 58

TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

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Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review



1 63 min words

TDCS TACS TRNS

Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

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High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study

Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature









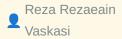
TDCS TACS TRNS

Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial

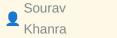




Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

https://pubmed.ncbi.nlm.nih.gov/41103970/?

Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

https://pubmed.ncbi.nlm.nih.gov/41106071/?

Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TDCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance



Nathan 1 62
Ward min words



TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

https://pubmed.ncbi.nlm.nih.gov/41110029/?

Diffusion trajectory of atypical morphological development in autism spectrum disorder

Xujun 1 68
Duan min words

BRAIN COMPUTER INTERFACE

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**



2025-10-17 min 67 words





BRAIN COMPUTER INTERFACE

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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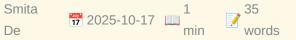
utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019235931&v=2.18.0.post9 +e462414

Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders







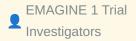


BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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+e462414

A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant









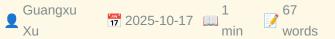
BRAIN COMPUTER INTERFACE

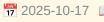
Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

https://pubmed.ncbi.nlm.nih.gov/41105834/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf_RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019235931&v=2.18.0.post9 +e462414

Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









BRAIN COMPUTER INTERFACE

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

https://pubmed.ncbi.nlm.nih.gov/41106071/?

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Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

https://pubmed.ncbi.nlm.nih.gov/41107249/?

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)







BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

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+e462414

An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**

Nadia Mammone

1 2025-10-19 min 68 words

BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

https://pubmed.ncbi.nlm.nih.gov/41109958/?

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Trio - Should I move to a more popular async framework?

1 338 min words

REDDIT PYTHON

Summary: <!-- SC_OFF --><div class="md">I'm new-ish to python but come from a systems and embedded programming background and want to use python and pytest to automate testing with IoT devices through BLE, serial or other transports in the future. I started prototyping with Trio as that was the library I ...

Read full article:

https://www.reddit.com/r/Python/comments/1oah08y/trio should i move to a more popular async/

Oskar Speck's 1932 Kayak Journey from Germany to Australia



Summary: Comments

https://nswskc.wordpress.com/2002/10/24/incredible-journey-50/

Introduction to reverse-engineering vintage synth firmware



Summary: Comments

https://ajxs.me/blog/Introduction to Reverse-Engineering Vintage Synth Firmware.html

Introduction to reverse-engineering vintage synth firmware

☐ jmillikin 2025-10-20 ☐ 1 ☐ 13 ☐ HACKER NEWS

Summary: Article URL: https://ajxs.me/blog/Introduction_to_Reverse-Engineering_Vintage_Synth_Firmware.html Comments URL: https://news.ycombinator...

https://ajxs.me/blog/Introduction_to_Reverse-Engineering_Vintage_Synth_Firmware.html

Coarse-graining reveals collective predictive information in a sensory population

Kline, A. G., Koch-Janusz, M., Walczak, A. M., Mora, T., Palmer, S. E.

175 words

BIORXIV NEUROSCIENCE

Summary: Biological systems perform complex computations using hundreds of individual actors, but they do so efficiently and in a way that can be read out and interpreted by other biological networks. Coarse-graining may allow for key collective features to be effectively and efficiently communicated. In the...

https://www.biorxiv.org/content/10.1101/2025.10.18.683195v1?rss=1

Topological decoding of grid cell activity via path lifting to covering spaces

Yao, Y. J., Yoon, I. H.

R

1
173
BIORXIV NEUROSCIENCE
words

Summary: High-dimensional neural activity often reside in a low-dimensional subspace, referred to as neural manifolds. Grid cells in the medial entorhinal cortex provide a periodic spatial code that are organized near a toroidal manifold, independent of the spatial environment. Due to the periodic nature of ...

https://www.biorxiv.org/content/10.1101/2025.10.17.683158v1?rss=1

Poised for action

William P. 1 11 2025-10-06 min words

NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 06 October 2025; www.nature.com/articles/s41593-025-02083-1">doi:10.1038/s41593-025-02083-1 p>Poised for action

https://www.nature.com/articles/s41593-025-02083-1

Astrocytes make room for microglia





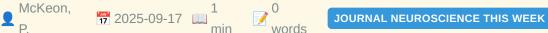


Summary: Nature Neuroscience, Published online: 06 October 2025; www.nature.com/articles/s41593-025-02082-2">doi:10.1038/s41593-025-02082-2</ p>Astrocytes make room for microglia

https://www.nature.com/articles/s41593-025-02082-2

This Week in The Journal









http://www.jneurosci.org/cgi/content/short/45/38/etwij45382025?rss=1

This Week in The Journal









McKeon,
P

1

2025-09-24

min

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JOURNAL NEUROSCIENCE THIS WEEK

http://www.jneurosci.org/cgi/content/short/45/39/etwij45392025?rss=1

This Week in The Journal





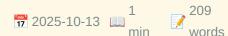




http://www.jneurosci.org/cgi/content/short/45/40/etwij45402025?rss=1

Cognitive training improves executive function and selfefficacy in young women with chronic stroke: a pilot study







FRONTIERS HUMAN NEUROSCIENCE

Summary: IntroductionYoung women are increasingly affected by stroke and often experience persistent executive function deficits that impact global functioning. The purpose of this pilot study was to evaluate the feasibility and effectiveness of a strategybased cognitive training program (Strategic Memory A...

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1677642

As time goes by: SMA neuromodulation and time perception while watching moving images with different editing styles. A tDCS study

Ruggero 1 201 Eugeni min words

FRONTIERS HUMAN NEUROSCIENCE

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...

⊗ Read full article:

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1595599

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

Maria Carla





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

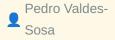
1 72 2024-07-02 min words OOSTENVELD ROBERT

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...

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

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One hundred years of EEG for brain and behaviour research









OOSTENVELD ROBERT

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

Richard J A van

1 65 min words

OOSTENVELD ROBERT

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

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

Krzysztof J Gorgolewski 1 82 min words

OOSTENVELD ROBERT

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

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

Fanny Quandt

1 65 min words

OOSTENVELD ROBERT

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

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

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

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

1 74 min words

OOSTENVELD ROBERT

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

Read full article:

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Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

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

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

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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:

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

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...

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

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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...

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

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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:

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

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...

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

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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

Runar 1 65 TACTILE ACUITY words

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



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

Read full article:

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

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







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

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

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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...

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

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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 ...

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...

Read full article:

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

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



1 55 min words



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

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

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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



1 42 min words





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.

Read full article:

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**



Divya 1 73
Singh min words





BRAILLE

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

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Online Regulation of Task Difficulty based on Neuro- and **Motor-feedback to improve engagement in Visual-motor Task**



1 36 min words







Summary: CONCLUSION: Our findings suggest that the proposed NMF system can enable online neural activity regulation in visual-motor tasks and achieve enhanced integration between cognitive and sensorimotor areas, with the potential to improve the rehabilitation training outcomes.

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Effect of lower limb mirror visual feedback on cortical activation in healthy subjects: a self-controlled randomized trail



Summary: CONCLUSION: LLMVF increases neural activity in the sensory and motor related areas, indicating that LLMVF can promote more activation of brain functional areas, which verifies the top-down positive effect of LLMVF.

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TSFNet: Temporal-Spatial Fusion Network for Hybrid Brain-Computer Interface



Summary: Unimodal brain-computer interfaces (BCIs) often suffer from inherent limitations due to the characteristic of using single modalities. While hybrid BCIs combining electroencephalography (EEG) and functional near-infrared spectroscopy (fNIRS) offer complementary advantages, effectively integrating th...

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Diagnostic Efficacy of Olfactory Function Test Using Functional Near-Infrared Spectroscopy with Machine Learning in Healthy Adults: A Prospective Diagnostic-Accuracy (Feasibility/Validation) Study in Healthy Adults with Algorithm Development



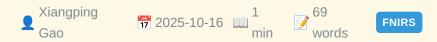
Summary: Background/Objectives: The YSK olfactory function (YOF) test is a culturally adapted psychophysical tool that assesses threshold, discrimination, and identification. This study evaluated whether functional near-infrared spectroscopy (fNIRS) synchronized with routine YOF testing, combined with machin...

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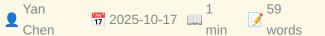
Enhanced Activation in the Dorsolateral Prefrontal Cortex and Inferior Parietal Lobule During Recovery from Body Dissatisfaction



Summary: Previous studies have examined the neural mechanisms of body dissatisfaction. This study aimed to investigate the neural basis of recovery from body dissatisfaction. Sixty-seven young women participated in this study, engaging in a fat talk-a conversation known to induce body dissatisfaction-followe...

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Immediate modulation effects of Tongue Tri-needle on brain functional networks in infratentorial stroke patients with dysphagia: a randomized controlled trial









Summary: CONCLUSION: Infratentorial stroke patients with dysphagia exhibit disrupted functional connectivity within the fronto-temporo-sensorimotor network, which is associated with clinical impairment. Tongue Tri-needle multi-stage, selective reconfiguration of brain functional networks, particularly by mod...

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Riemannian geometry boosts functional near-infrared spectroscopy-based brain-state classification accuracy



1 37 min words





Summary: CONCLUSION: To our knowledge, we are the first to demonstrate that the proposed Riemannian-geometry-based classification approach is both powerful and viable for fNIRS data, substantially increasing the accuracy in binary and multi-class classification of brain activation patterns.

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Sensitive and specific fNIRS-based approach for awareness detection in disorders of consciousness: proof of principle in healthy adults







Summary: CONCLUSION: This individualized diagnostic approach may have the potential to significantly enhance diagnostic accuracy for DoCs. It provides a noninvasive, efficient, and objective assessment, potentially reducing the rate of misdiagnosis rates. The practicality and minimal technical requirements o...

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Neural and Behavioral Dynamics of Dyadic Rhythm Coordination across Limb Pairings











Summary: Interpersonal motor synchronization relies on precise neural coordination, yet its underlying brain mechanisms remain incompletely understood. Guided by mutual prediction theory, we investigated how temporal structure and effector-specific constraints shape dyadic coordination. Using functional near...

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Motor imagery in individuals with congenital aphantasia

Magdalena Szubielska

1 71 min words

FNIRS

Summary: Individuals who experience aphantasia have an inability to create sensory mental images, what lead to a range of cognitive and behavioral differences compared to the general population. However, little is known about how this phenomenon affects the creation of motor imagery. Our study aims to check ...

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Diffusion trajectory of atypical morphological development in autism spectrum disorder



1 68 min words



BRAIN COMPUTER INTERFACE

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

Surjo R
Soekadar

1 67 min words

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders

1 35 min words

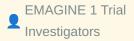
BRAIN COMPUTER INTERFACE

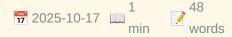
Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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+e462414

A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant







BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery



Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

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An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**



BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

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Forth: The programming language that writes itself

1 2 2 min words





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LoC Is a Dumb Metric for Functions



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Forth: The programming language that writes itself



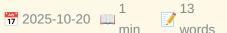
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Look at how unhinged GPU box art was in the 2000s







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Nvidia has produced the first Blackwell wafer on US soil









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Map of spiking activity underlying change detection in the mouse visual system

Bennett, C., Gale, S. D., Heller, G., Ramirez, T. K., Belski, H., Piet, A., Zobeiri, O., Amster, A., Arkhipov, A., Cahoon, A., Caldejon, S., Carlson, M., Casal, L., Daniel, S., Farrell, C., Garrett, M., Gillis, R.,

Grasso, C., Hardcastle, B., Hytnen, R., Johnson, T., Ledochowitsch, P., L'Heureux, Q., Mastrovito, D., McBride, E., Mihalas, S., Mochizuki, C., Morrison, C., Nayan, C., Ngo, K., North, K., Ollerenshaw, D., Ouellette, B., Rhoads, P., Ronellenfitch, K., Schroedter, M., Siegle, J. H., Slaughterbeck, C., Sullivan, D., Swapp, J., Taormina, M., Wakeman, W., Waughman, X., Williford, A., Ph



Summary: Visual behavior requires coordinated activity across hierarchically organized brain circuits. Understanding this complexity demands datasets that are both large-scale (sampling many areas) and dense (recording many neurons in each area). Here we present a database of spiking activity across the mous...

https://www.biorxiv.org/content/10.1101/2025.10.17.683190v1?rss=1

A simple, open-source restraint system for magnetic resonance imaging in awake rats

Quansah Amissah, R., Hanafy, M. K., Kayir, H., Zeman, P., Gilbert, K., Li, A., Bellyou, M., Schormans, A. L., Allman, B. L., Khokhar, J.





BIORXIV NEUROSCIENCE

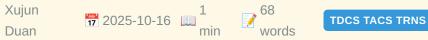
Summary: Magnetic resonance imaging (MRI) is a critical tool for translational neuroscience, offering cross-species insights into brain structure and function; however, its application in preclinical research is constrained by routine anesthesia use or sedation, which alters neural activity and limits compar...



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Diffusion trajectory of atypical morphological development in autism spectrum disorder









Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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Primary stabbing headache in a tertiary headache centre

1 2025-10-16 min 58

TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

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Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review



1 63 min words

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Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

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High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study



Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature









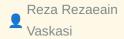
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Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial

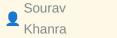




Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

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Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

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Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TOCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance

Nathan 1 62
Ward min words

TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

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Online Regulation of Task Difficulty based on Neuro- and Motor-feedback to improve engagement in Visual-motor Task





Summary: CONCLUSION: Our findings suggest that the proposed NMF system can enable online neural activity regulation in visual-motor tasks and achieve enhanced integration between cognitive and sensorimotor areas, with the potential to improve the rehabilitation training outcomes.

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Effect of lower limb mirror visual feedback on cortical activation in healthy subjects: a self-controlled randomized trail











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Diagnostic Efficacy of Olfactory Function Test Using Functional Near-Infrared Spectroscopy with Machine Learning in Healthy Adults: A Prospective Diagnostic-Accuracy (Feasibility/Validation) Study in Healthy Adults with Algorithm Development

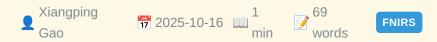


Summary: Background/Objectives: The YSK olfactory function (YOF) test is a culturally adapted psychophysical tool that assesses threshold, discrimination, and identification. This study evaluated whether functional near-infrared spectroscopy (fNIRS) synchronized with routine YOF testing, combined with machin...

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Enhanced Activation in the Dorsolateral Prefrontal Cortex and Inferior Parietal Lobule During Recovery from Body Dissatisfaction



Summary: Previous studies have examined the neural mechanisms of body dissatisfaction. This study aimed to investigate the neural basis of recovery from body dissatisfaction. Sixty-seven young women participated in this study, engaging in a fat talk-a conversation known to induce body dissatisfaction-followe...

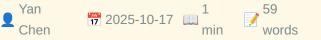
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Immediate modulation effects of Tongue Tri-needle on brain functional networks in infratentorial stroke patients with dysphagia: a randomized controlled trial







Summary: CONCLUSION: Infratentorial stroke patients with dysphagia exhibit disrupted functional connectivity within the fronto-temporo-sensorimotor network, which is associated with clinical impairment. Tongue Tri-needle multi-stage, selective reconfiguration of brain functional networks, particularly by mod...

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https://pubmed.ncbi.nlm.nih.gov/41103520/?

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Riemannian geometry boosts functional near-infrared spectroscopy-based brain-state classification accuracy



1 37 min words





FNIRS

Summary: CONCLUSION: To our knowledge, we are the first to demonstrate that the proposed Riemannian-geometry-based classification approach is both powerful and viable for fNIRS data, substantially increasing the accuracy in binary and multi-class classification of brain activation patterns.

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Sensitive and specific fNIRS-based approach for awareness detection in disorders of consciousness: proof of principle in healthy adults







Summary: CONCLUSION: This individualized diagnostic approach may have the potential to significantly enhance diagnostic accuracy for DoCs. It provides a noninvasive, efficient, and objective assessment, potentially reducing the rate of misdiagnosis rates. The practicality and minimal technical requirements o...

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Neural and Behavioral Dynamics of Dyadic Rhythm Coordination across Limb Pairings











Summary: Interpersonal motor synchronization relies on precise neural coordination, yet its underlying brain mechanisms remain incompletely understood. Guided by mutual prediction theory, we investigated how temporal structure and effector-specific constraints shape dyadic coordination. Using functional near...

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Motor imagery in individuals with congenital aphantasia

Magdalena Szubielska

1 71 min words

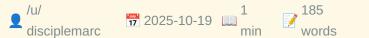
FNIRS

Summary: Individuals who experience aphantasia have an inability to create sensory mental images, what lead to a range of cognitive and behavioral differences compared to the general population. However, little is known about how this phenomenon affects the creation of motor imagery. Our study aims to check ...

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friendly PyTorch book — here's what I learned about explaining machine learning simply 👇



REDDIT PYTHON

Summary: <!-- SC OFF --><div class="md">Hey everyone, I recently published Tabular Machine Learning with PyTorch: Made Easy for Beginners, and while writing it, I realized something interesting — most people don't struggle with code, they struggle with understanding what the model is doing undernea...

https://www.reddit.com/r/Python/comments/1ob2vp3/friendly pytorch book heres what i learned about/

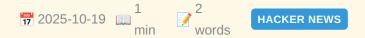
What's Behind the Mysterious Ancient Wall in the Gobi Desert?



Summary: Comments

https://news.artnet.com/art-world/the-hunt-gobi-wall-mongolia-2674588

Gleam OTP – Fault Tolerant Multicore Programs with Actors



Summary: Comments

https://github.com/gleam-lang/otp

QuickDrawViewer: A Mac OS X utility to visualise QuickDraw (PICT) files



Summary: Comments

https://github.com/wiesmann/QuickDrawViewer

Gleam OTP – Fault Tolerant Multicore Programs with Actors



Summary: Article URL: https://github.com/gleam-lang/otp">https://github.com/gleam-lang/otp Comments URL: https://news.ycombinator.com/item?id=45638588 Points: 28 # Comments: 3

Read full article:

https://github.com/gleam-lang/otp

Replua.nvim – an Emacs-style scratch buffer for executing Lua

mghaig 2025-10-19 min 13 HACKER NEWS

Summary: Article URL: https://github.com/mghaight/replua.nvim">https://github.com/mghaight/replua.nvim Comments URL: https://news.ycombinator.com/item?id=45638739 Points: 10 # Comments: 1

https://github.com/mghaight/replua.nvim

QuickDrawViewer: A Mac OS X utility to visualise QuickDraw (PICT) files

Summary: Article URL: https://github.com/wiesmann/QuickDrawViewer
Comments URL: https://news.ycombinator.com/item?id=45638966 Points: 20 # Comments: 6

https://github.com/wiesmann/QuickDrawViewer

From Hollywood to horticulture: Cate Blanchett on a mission to save seeds

RickJWagner 7 2025-10-20 min 13 HACKER NEWS

Summary: Article URL: https://www.bbc.com/news/articles/cwy7ekl4yl8o Comments URL: https://news.ycombinator.com/item?id=45639157">https://news.ycombinator.com/item?id=45639157 Points: 5 # Comments: 0

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4D trajectory prediction for inbound flights

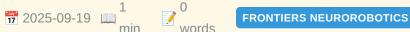


Summary: IntroductionTo address the challenges of cumulative errors, insufficient modeling of complex spatiotemporal features, and limitations in computational efficiency and generalization ability in 4D trajectory prediction, this paper proposes a high-precision, robust prediction method.MethodsA hybrid mod...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1625074

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



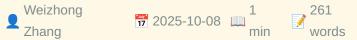






https://www.frontiersin.org/articles/10.3389/fnbot.2025.1675642

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









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

E-Sort: empowering end-to-end neural network for multichannel spike sorting with transfer learning and fast postprocessing



1 2025-10-16 min 272 words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Spike sorting, which involves detecting and attributing spikes to their putative neurons from extracellular recordings, is a common process in electrophysiology and brain-computer interface systems. Recent advances in large-scale neural recording technologies are challenging the conventio...



http://iopscience.iop.org/article/10.1088/1741-2552/ae0d33

LCN2 promotes HEI-OC1 cells senescence via activating NFκB signal pathway in presbycusis





NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source: Neuroscience, Volume 588Author(s): Jingjing Wu, Xiaowen Liu, Daxue Zhu, Baicheng Xu, Yufen Guo



https://www.sciencedirect.com/science/article/pii/S030645222501005X?dgcid=rss sd all

Decreased DNA methyltransferase 1 level in blood cells in Parkinson's disease

1 min

NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source:
Neuroscience, Volume 588Author(s): A.O. Lavrinova, E.M. Litusova, P.A.
Gagarina, A.A. Dmitriev, N.V. Melnikova, E.A. Demidova, A.S. Zhuravlev, D.G.
Kulabukhova, I.V. Miliukhina, A.A. Timofeeva, O.A. Berkovich, S.N. Pchelina, A.K. Emel...</br>

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A deep learning approach to artifact removal in Transcranial Electrical Stimulation: From shallow methods to deep neural networks and state space models

1 min



NEUROSCIENCE JOURNAL

Summary: Publication date: 19 November 2025Source:
Neuroscience, Volume 588Author(s): Miguel Fernandez-de-Retana, Pablo
Matanzas-de-Luis, Javier Peña, Aitor Almeida

https://www.sciencedirect.com/science/article/pii/S030645222500990X?dgcid=rss sd all

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

Maria Carla
Piastra

1
2024-06-14

min

64

words

OOSTENVELD ROBERT

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

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



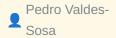
1 72 min words

OOSTENVELD ROBERT

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

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

One hundred years of EEG for brain and behaviour research







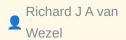
OOSTENVELD ROBERT

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









OOSTENVELD ROBERT

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

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

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

Krzysztof J
Gorgolewski

1 2024-09-23 min 82
words

OOSTENVELD ROBERT

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

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

1 65 min words

OOSTENVELD ROBERT

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

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

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



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...

Read full article:

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

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

Tim M
Tierney

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

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Optimal configuration of on-scalp OPMs with fixed channel counts







OOSTENVELD ROBERT

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

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

Donor Diabetes and 1-Year Descemet Membrane Endothelial **Keratoplasty Success Rate: A Randomized Clinical Trial**

Diabetes Endothelial Keratoplasty Study Group

1 66 min words

LOW VISION

Summary: CONCLUSIONS AND RELEVANCE: The 1-year success rate in eyes undergoing DMEK with successfully prepared tissue was very high regardless of donor diabetes status. These results, supported by the separately reported finding that endothelial cell loss and cornea morphometry after 1 year were not affected...

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JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing



Yong-Jie

Yong-Jie

2025-10-17

words

Yong-Words

Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41105537/?

Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota
Katayama

1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

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A reevaluation of the visual phantom illusion and its impact on the motion aftereffect

1 77 min words

LOW VISION

Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

https://pubmed.ncbi.nlm.nih.gov/41107310/?

Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance



Sven 1 36
Nebelung min words

LOW VISION

Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

⊗ Read full article:

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Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration



1 48 min words





LOW VISION

Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41108452/?

Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age









Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

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Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities









LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

https://pubmed.ncbi.nlm.nih.gov/41109031/?

Interventions to Reduce Incidence and Progression of Myopia in Children and Adults

Chi Pui
Pang
Pang
To 2025-10-18
Pang
To 76
Words
Low Vision

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

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Lamina cribrosa shape in non-human primates is different from that of humans

Ian A

1 77 min words

LOW VISION

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

https://pubmed.ncbi.nlm.nih.gov/41109592/?

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

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

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

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

Hiroyuki

1 75
min words

TACTILE ACUITY

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

Read full article:

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

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

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

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

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

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Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

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

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

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







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

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









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

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

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

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

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

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

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

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

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

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

Charles M

Greenspon

1

86

words

TACTILE ACUITY

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

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/?

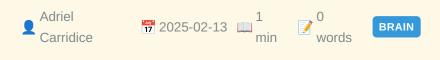
I built a tool that tells you how hard a website is to scrape



Summary: <!-- SC_OFF --><div class="md">Hi everyone,
 I made a Python package called caniscrape that analyzes any website's anti-bot protections before you start scraping. It tells you what you're up against (Cloudflare, rate limits, JavaScript rendering, CAPTCHAs, TLS fingerp...

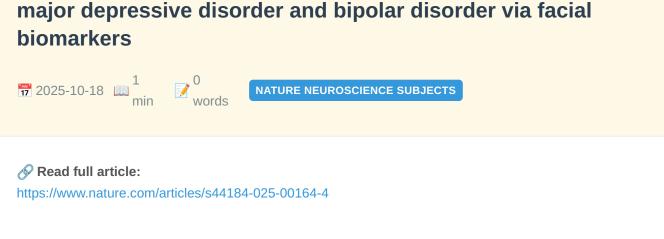
https://www.reddit.com/r/Python/comments/1ob3na1/i_built_a_tool_that_tells_you_how_hard_a_website/

Education: Standards



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

Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial





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

Yuan 1 190
Ma 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...

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

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

Maria Carla Piastra



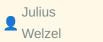


OOSTENVELD ROBERT

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/?

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



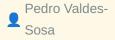
1 72 2024-07-02 min words OOSTENVELD ROBERT

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...

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

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1BUB2BG5RbxOblmhBbiJWEhGG43qlVrvGNHOTqBKva9wWrltM&fc=None&ff=20251019184027&v=2.18.0.post9+e462414

One hundred years of EEG for brain and behaviour research









OOSTENVELD ROBERT

https://pubmed.ncbi.nlm.nih.gov/39174725/?

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...

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

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1BUB2BG5RbxOblmhBbiJWEhGG43qlVrvGNHOTqBKva9wWrltM&fc=None&ff=20251019184027&v=2.18.0.post9+e462414

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 ...

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

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...

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

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1BUB2BG5RbxOblmhBbiJWEhGG43qlVrvGNHOTqBKva9wWrltM&fc=None&ff=20251019184027&v=2.18.0.post9+e462414

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...

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

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...

⊗ Read full article:

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

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1BUB2BG5RbxObImhBbiJWEhGG43qlVrvGNHOTqBKva9wWrltM&fc=None&ff=20251019184027&v=2.18.0.post9+e462414

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

1 74 min words

OOSTENVELD ROBERT

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

Read full article:

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

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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Diffusion trajectory of atypical morphological development in autism spectrum disorder



Y Xujun 1 68 Duan min words



BRAIN COMPUTER INTERFACE

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

https://pubmed.ncbi.nlm.nih.gov/41102402/?

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

Surjo R
Soekadar

1 67 min words

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

https://pubmed.ncbi.nlm.nih.gov/41104262/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019184011&v=2.18.0.post9 +e462414

Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders

1 35 min words

BRAIN COMPUTER INTERFACE

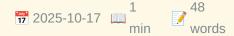
Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

https://pubmed.ncbi.nlm.nih.gov/41104690/?

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





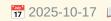
BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

https://pubmed.ncbi.nlm.nih.gov/41105410/?
utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf_RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019184011&v=2.18.0.post9
+e462414

A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant







BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

https://pubmed.ncbi.nlm.nih.gov/41105834/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf_RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019184011&v=2.18.0.post9 +e462414

Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery



Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

https://pubmed.ncbi.nlm.nih.gov/41106071/?
utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf_RdKXdtNCvGW0IVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019184011&v=2.18.0.post9
+e462414

Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

https://pubmed.ncbi.nlm.nih.gov/41107249/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf_RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019184011&v=2.18.0.post9 +e462414

Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)







BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

https://pubmed.ncbi.nlm.nih.gov/41108907/? utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019184011&v=2.18.0.post9 +e462414

Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

https://pubmed.ncbi.nlm.nih.gov/41109909/?
utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf_RdKXdtNCvGW0IVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019184011&v=2.18.0.post9
+e462414

An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**



1 2025-10-19 min 68 words

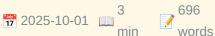
BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

https://pubmed.ncbi.nlm.nih.gov/41109958/?

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Monthly Updates [Oct]







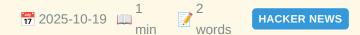
FMHY

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

Original C64 Lode Runner Source Code



Summary: Comments



https://github.com/Piddewitt/Loderunner

Designing EventQL, an Event Query Language



Summary: Article URL: https://docs.eventsourcingdb.io/blog/2025/10/20/designing-eventql-an-event-query-language/ Comments URL: https:/

https://docs.eventsourcingdb.io/blog/2025/10/20/designing-eventql-an-event-query-language/

Original C64 Lode Runner Source Code

● indigodaddy 7 2025-10-19 min 13 words HACKER NEWS

Summary: Article URL: https:// github.com/Piddewitt/Loderunner Comments URL: https://news.ycombinator.com/item? id=45638514 Points: 5 # Comments: 0

https://github.com/Piddewitt/Loderunner

Important Changes to the 2024 ERP Boot Camp







ERP BOOT CAMP

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

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

Registration is now full for the 2024 ERP Boot Camp

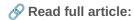


1 106 min words



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

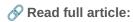






ERP BOOT CAMP

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?







ERP BOOT CAMP

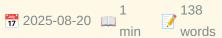
Summary: Carrasco, C. D., Simmons, A. M., Kiat, J. E., & D., Luck, S. J. (in press). Enhanced working memory representations for rare events. Psychophysiology. https://doi.org/

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







ERP BOOT CAMP

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



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

Education: Additional Resources







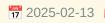
BRAIN

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

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

Education: References











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

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

 ● ieeebrain
 1 2025-03-03
 61 min

 BRAIN
 BRAIN

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

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

Call for Papers: IEEE Transactions on Human-Machine Systems



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

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

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



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

Call for 2025 Society Awards Nominations

Deidre

1 15 min 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 IEEE EMBS</a href="https://www.embs.org">IEEE EMBS</a href="https://www.embs.org">IEEE EMBS</a href="https://www.embs.org">IEEE EMBS</a href="https://www.embs.org">IEEE EMBS</a href="https://www.embs.org">IEEE EMBS IEEE EMBS</a href="https://www.embs.org">IEEE EMBS</a href

Read full article:

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

Microglia maintain retinal redox homeostasis following ablation of rod photoreceptors in zebrafish

Morales, M., Mitchell, D. 1 2025-10-19 min 2224 words

Summary: Microglia rapidly respond to injury, stress, and perturbations to neurons in the brain and retina and perform phagocytosis to clear dying cells and debris. Oxidative stress is a frequent feature of neurodegeneration, and while glia are crucial for managing such stress, microglia may also be dysfunct...

https://www.biorxiv.org/content/10.1101/2025.10.17.683173v1?rss=1

Synapse Detection Efficiency in EM Drosophila Connectomics



Summary: Researchers have long noted the differences in synapse count between different EM reconstructions of similar circuitry. In this paper we attempt to determine the portion of these differences that may be due to different sample preparation and imaging techniques, in particular serial-section transmis...

Read full article:

https://www.biorxiv.org/content/10.1101/2025.10.16.682869v1?rss=1

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

Hui 1 258 Liu min words

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

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

Maria Carla





OOSTENVELD ROBERT

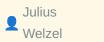
Summary: Previous studies have found electroencephalogram (EEG) amplitude and scalp topography differences between neurotypical and neurological/neurosurgical groups, being interpreted at the cognitive level. However, these comparisons are invariably accompanied by anatomical changes. Critical to EEG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

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



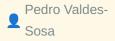
1 72 2024-07-02 min words OOSTENVELD ROBERT

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









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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 ...

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

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...

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

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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...

⊗ Read full article:

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

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

1 74 min words

OOSTENVELD ROBERT

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

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Optimal configuration of on-scalp OPMs with fixed channel counts

Robert Oostenveld

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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Donor Diabetes and 1-Year Descemet Membrane Endothelial Keratoplasty Success Rate: A Randomized Clinical Trial

Diabetes Endothelial Keratoplasty Study Group

1 66 min words

LOW VISION

Summary: CONCLUSIONS AND RELEVANCE: The 1-year success rate in eyes undergoing DMEK with successfully prepared tissue was very high regardless of donor diabetes status. These results, supported by the separately reported finding that endothelial cell loss and cornea morphometry after 1 year were not affected...

https://pubmed.ncbi.nlm.nih.gov/41105094/?

JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing

Yong-Jie
Li

2025-10-17

min

63

words

Low VISION

Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

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Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota Katayama 1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41106803/?

A reevaluation of the visual phantom illusion and its impact on the motion aftereffect



Frank 1 77
Tong min words

LOW VISION

Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

https://pubmed.ncbi.nlm.nih.gov/41107310/?

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Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance



1 36 min words



LOW VISION

Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41107495/?

Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration

Janet S
Sunness

1 48 min words

Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

https://pubmed.ncbi.nlm.nih.gov/41108452/?

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Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age



25 Low vision



Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41108819/?

Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities



Zhuqiu 1 66 Sun min words





LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

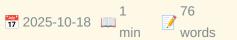
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Interventions to Reduce Incidence and Progression of Myopia in Children and Adults









LOW VISION

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41109517/?

Lamina cribrosa shape in non-human primates is different from that of humans

Sigal

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

https://pubmed.ncbi.nlm.nih.gov/41109592/?

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Showcase: I wrote a GitHub Action to Summarize uv.lock Changes

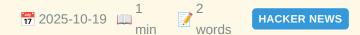
REDDIT PYTHON

Summary: <!-- SC OFF --><div class="md">What My Project Does</ strong> I have been loving everything about uv but reviewing changes as git diffs is always a chore.

I wrote this action to summarize the changes and provide a simple report via PR comment. Target Audience</s...

https://www.reddit.com/r/Python/comments/1oa9e3c/showcase_i_wrote_a_github_action_to_summarize/

Deterministic multithreading is hard (2024)



Summary: Comments

https://www.factorio.com/blog/post/fff-415

Show HN: 18yo first iOS app: blocks distracting apps and unlocks with QR/barcode



Summary: Comments

https://apps.apple.com/us/app/recode-screen-time-control/id6752352978

Duke Nukem: Zero Hour N64 ROM Reverse-Engineering Project Hits 100%

Dirdculture 7 2025-10-19 min 13 words

Summary: Article URL: https://github.com/Gillou68310/
DukeNukemZeroHour">https://github.com/Gillou68310/
Comments URL: https://news.ycombinator.com/item?id=45637880">https://news.ycombinator.com/item?id=45637880 Points: 9 # Comments: 0

https://github.com/Gillou68310/DukeNukemZeroHour

Show HN: 18yo first iOS app: blocks distracting apps and unlocks with QR/barcode

Summary: I built Recode because I realized I was spending 8-10 hours a day on my phone pretty consistently. I tried other screen time apps but I found them too easy to bypass and end my blocks whenever I wanted to use an app.My solution was to build an app blocker app that makes users have to scan a ph...

https://apps.apple.com/us/app/recode-screen-time-control/id6752352978

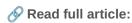
Ivan Lee, Appointed Editor-in-Chief of EMBC Proceedings







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

Editorial: Emerging practices in therapeutic targeting of neurodegenerative diseases by modulating protein kinases



BRAIN RESEARCH

Summary: Publication date: 15 November 2025Source: Brain Research, Volume 1867Author(s): Md.Imtaiyaz Hassan, Belgin Sever

https://www.sciencedirect.com/science/article/pii/S0006899325005190?dgcid=rss_sd_all

Altered social proximity in adult mice following prenatal stress Exposure: An exploratory link to cortical neurogenesis

BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Tsukasa Tomoe, Rei Sugiyama, Niina Kiriyama, Airi Otsuka, Munekazu Komada

Read full article:

https://www.sciencedirect.com/science/article/pii/S0006899325005463?dgcid=rss_sd_all

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



BRAIN RESEARCH

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

Read full article:

https://www.sciencedirect.com/science/article/pii/S000689932500544X?dgcid=rss sd all

Brain-wide patterns of oscillatory amplitudes represent naturalistic behavior

1 min 12 words

NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage,

Volume 321Author(s): Duho Sihn, Sung-Phil Kim

https://www.sciencedirect.com/science/article/pii/S1053811925005245?dgcid=rss_sd_all

Investigating the effect of masking and background field removal algorithms on the quality of QSM reconstructions using a realistic numerical head phantom





NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): Carlos Milovic, Patrick S. Fuchs, Mathias Lambert, Oriana Arsenov, Oliver C. Kiersnowski, Laxmi Muralidharan, Russell Murdoch, Jannette Nassar, Karin Shmueli



https://www.sciencedirect.com/science/article/pii/S1053811925005026?dgcid=rss sd all

Chronic radon exposure is associated with developmental alterations to neural and behavioral indices of cognitive control

min



NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): Haley R. Pulliam, Christine M. Embury, Maggie P. Rempe, Hannah J. Okelberry, Danielle L. Rice, Anna T. Coutant, Ryan Glesinger, Tony W. Wilson, Brittany K. Taylor

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Comparative evaluation of single- and multi-delay arterial spin labeling MRI in preterm neonates

1 min



NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): Yeva Prysiazhniuk, Sasha Alexander, Rui Duarte Armindo, Elizabeth Tong, Kristen W Yeom, Jakub Otáhal, Martin Kynčl, Michael Moseley, Jan Petr, Moss Y Zhao, Gary K Steinberg

https://www.sciencedirect.com/science/article/pii/S1053811925005142?dgcid=rss_sd_all

Contentopic mapping in ventral and dorsal association cortex: The topographical organization of manipulable object information

1 min 16 words

NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): J. Almeida, S. Kristensen, Z. Tal, A. Fracasso

https://www.sciencedirect.com/science/article/pii/S1053811925005178?dgcid=rss_sd_all

Neural correlates of inhibitory control during a simple food go/no-go task in adolescents varying in familial obesity risk





NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): SA Duck, L Chen, A Papantoni, L Benson, G Thapaliya, E Jansen, MB Nebel, SH Mostofsky, KS Rosch, S Carnell

https://www.sciencedirect.com/science/article/pii/S1053811925005191?dgcid=rss_sd_all

Crossing the scales: Single-neuron recruitment and continuous cortical propagation of slow wave events revealed by integrative opto-magnetic imaging

1 22 words

NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): Dirk Cleppien, Miriam Schwalm, Hendrik Backhaus, Ting Fu, Felipe Aedo-Jury, Gaby Schneider, Albrecht Stroh

https://www.sciencedirect.com/science/article/pii/S1053811925005166?dgcid=rss_sd_all

Psychedelic 5-HT_{2A} receptor agonism alters neurovascular coupling and differentially affects neuronal and hemodynamic measures of brain function



1 2025-10-13 min 35 words



NATURE NEUROSCIENCE

Summary: Nature Neuroscience, Published online: 13 October 2025; www.nature.com/articles/s41593-025-02069-z">doi:10.1038/s41593-025-02069-z</ p>Padawer-Curry et al. show that the hallucinogenic 5-HT2A receptor agonist DOI alters neurovascular coupling in mice, with implications for the...

https://www.nature.com/articles/s41593-025-02069-z

This Week in The Journal





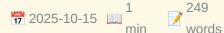


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http://www.jneurosci.org/cgi/content/short/45/42/etwij45422025?rss=1

Network Activity Shapes Inhibitory Synaptic Development in the Mouse Hippocampus







JOURNAL NEUROSCIENCE CURRENT

Summary: The proper development of excitatory/inhibitory (E/I) balance is critical for brain function, as any imbalance has been associated with myriad neuropsychiatric disorders. How this balance evolves during synaptic development remains unclear. To address this question, we examine how manipulations o...

http://www.jneurosci.org/cgi/content/short/45/42/e1182242025?rss=1

Stereoelectroencephalography Reveals Neural Signatures of **Multisensory Integration in the Human Superior Temporal Sulcus during Audiovisual Speech Perception**

Zhang, Y., Magnotti, J. F., Zhang, X., Wang, Z., Yu, Y., Davis, K. A., Sheth, S. A., Isaac Chen, H., Yoshor, D., Beauchamp, M. S.

1 244 min 244

JOURNAL NEUROSCIENCE CURRENT

Summary: Human speech perception is multisensory, integrating auditory information from the talker's voice with visual information from the talker's face. BOLD fMRI studies have implicated the superior temporal gyrus (STG) in processing auditory speech and the superior temporal sulcus (STS) in integrating...

Read full article:

http://www.jneurosci.org/cgi/content/short/45/42/e1037252025?rss=1

Competition between Tool and Hand Motion Impairs Movement Planning in Limb Apraxia

Thibault, S., Yates, J. B., Buxbaum, L. J., Wong, A.

JOURNAL NEUROSCIENCE CURRENT

Summary: Tool use is a complex motor planning problem. Prior research suggests that planning to use tools involves resolving competition between different tool-related action representations. We therefore reasoned that competition may also be exacerbated with tools for which the motions of the tool and th...

http://www.jneurosci.org/cgi/content/short/45/42/e0692252025?rss=1

Largely Intact But Less Reliable and Distributed Neural Representations of Subjective Value in Human Opioid Addiction

LoFaro, F. M., Gueguen, M. C. M., Kapoor, A., Alvarez, E. E., Bonagura, D., Konova, A. B.



Summary: Addiction, particularly opioid use disorder (OUD), is often characterized by heightened propensity for risk-taking. While tolerance for risk and uncertainty varies across individuals, the elevated risk-taking in people with OUD is assumed to stem from altered cognitive decision-making processes b...

http://www.jneurosci.org/cgi/content/short/45/42/e0679252025?rss=1

Metallothionein III Mediates Ca2+-Dependent Zn2+ Spikes to Inhibit Dendritic Arborization

Salvagio, L., Zhang, C., Rue, B. E., Doris, N., Koehring, C., Tyler, I., Vargas, R. S., Oh, W. C., Qin, Y.

1 2025-10-15 min 244 JOURNAL NEUROSCIENCE CURRENT words

Summary: Zinc is crucial for neuron function, but whether and how labile zinc ion (Zn²⁺) acts as an intracellular signaling molecule remains unclear. In this work, we investigate the relationship between Ca²⁺ and Zn²⁺ dynamics using fluorescence imaging. Our findings revea...

http://www.jneurosci.org/cgi/content/short/45/42/e0627252025?rss=1

Marmoset Anterior Cingulate Area 32 Neurons Exhibit Responses to Presented and Produced Calls during Naturalistic Vocal Communication

Johnston, K. D., Gilliland, R. E., Wong, R. K., Everling,

1 154 min words

JOURNAL NEUROSCIENCE CURRENT

Summary: Vocal communication is a complex social behavior that entails the integration of auditory perception and vocal production. Both anatomical and functional evidence have implicated the anterior cingulate cortex (ACC), including area 32, in these processes, but the dynamics of neural responses in ar...

http://www.jneurosci.org/cgi/content/short/45/42/e0405252025?rss=1

This Week in The Journal





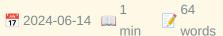




http://www.jneurosci.org/cgi/content/short/45/42/etwij45422025?rss=1

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







OOSTENVELD ROBERT

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

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

Julius

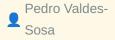
1 72 2024-07-02 min words OOSTENVELD ROBERT

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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

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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

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

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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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...

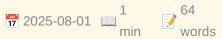
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Sensitivity and vagal reactivity to C-tactile-mediated affective touch in mild cognitive impairment due to Alzheimer's disease







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 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...

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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

Runar 1 65 Words Words

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



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

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









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

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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

Önder

1 55 min words

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

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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



1 42 min words

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**







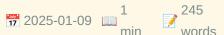
Summary: This study evaluated the effectiveness of an audiosensory performance method in enhancing oral health knowledge and status among visually impaired children aged 6-12 years in the National Capital Region (NCR), Delhi. An interventional study design was used, involving 251 participants equally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

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







Summary: Nightmare Distress Questionnaire (NDQ) is commonly used to assess nightmare distress. The psychometric properties of the Chinese version of NDQ (NDQ-CV) have been shown to be satisfactory in the general population of Chinese adolescents. This study aims to evaluate the psychometric properties of NDQ...



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.**







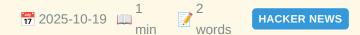
DREAMING

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

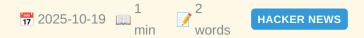
Bible and Quran apps flagged NSFW by F-Droid



Summary: Comments

https://forum.f-droid.org/t/nsfw-flag-incorrectly-added-to-bible-and-quran-apps/33401

Ozempic's Patent Expires in January: Novo Nordisk's Canadian Mistake



Summary: Comments

https://www.science.org/content/blog-post/novo-nordisk-s-canadian-mistake

Ozempic's Patent Expires in January: Novo Nordisk's Canadian Mistake

Summary: Article URL: https://www.science.org/content/blog-post/novo-nordisk-s-canadian-mistake Comments URL: https://news.ycombinator.com/item?id=45637744"...

https://www.science.org/content/blog-post/novo-nordisk-s-canadian-mistake

Ask HN: Those who applied to the OpenAl Grove program, did you ever hear back?

heywoods 7 2025-10-19 min 96 words

Summary: Link to the Grove program: https://openai.com/index/openai-grove/ HN discussion when it was announced: https://news.ycombinator.com/item?id=45223660I applied. I never had high hopes of getting accepted, but never receiving confirmation of my application submission nor an email notifying me I w...

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Bible and Quran apps flagged NSFW by F-Droid

1 13 HACKER NEWS

Summary: Article URL: https://forum.f-droid.org/t/nsfw-flag-incorrectly-added-to-bible-and-quran-apps/33401 Comments URL: https://news.ycombina...

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Behaviorally relevant cell ensembles in rat motor cortex are replayed during sleep and implicate hippocampal involvement in motor skill learning

Nazari, P. R., Eckert, M., Tatsuno, M.

1 247 min words

BIORXIV NEUROSCIENCE

Summary: Motor memory is essential for our daily activities. It involves complex neural processes during learning and sleep. However, unlike explicit memory where its neural activation and role in memory consolidation are well-studied, the properties of cell ensembles for motor memory are less understood. In...

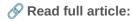
https://www.biorxiv.org/content/10.1101/2025.10.17.683181v1?rss=1

How the Ventromedial Prefrontal Cortex (VMPFC) Facilitates **Welfare Maximization in Social Contexts**





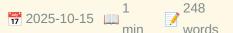




http://www.jneurosci.org/cgi/content/short/45/42/e0221252025?rss=1

Prenatal Downregulation of CB1 Cannabinoid Receptors in the Mouse Prefrontal Cortex Disrupts Cortical Lamination and **Induces a Transcriptional Signature Associated with Social** Interaction Deficits

Simon-Sanchez, S., den Boon, F., Garcia-Rincon, D., Skrempou, G., Paraiso-Luna, J., Aguilera, A., Nieto, M., Werkman, T. R., Guzman, M., Chameau, P., Galve-Roperh, I.







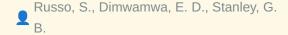
JOURNAL NEUROSCIENCE CURRENT

Summary: Endocannabinoid signaling exerts a neurodevelopmental regulatory role via CB₁ cannabinoid receptors (CB₁Rs), which control pyramidal neuron differentiation, migration, and axonal guidance. Here, we investigated the longlasting consequences of transient prenatal CB<sub>1</su...



http://www.jneurosci.org/cgi/content/short/45/42/e0120252025?rss=1

Layer 6 Corticothalamic Neurons Induce High Gamma Oscillations Through Cortico-cortical and Cortico-thalamocortical Pathways





JOURNAL NEUROSCIENCE CURRENT

Summary: Layer 6 corticothalamic (L6CT) neurons project to both cortex and thalamus, inducing multiple effects including the modulation of cortical and thalamic firing, and the emergence of high gamma oscillations in the cortical local field potential (LFP). We hypothesize that the high gamma oscillations...

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

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



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 41, October 2025.

SignificanceNumerous studies have developed imaging techniques for visualizing diverse cell types in the retina. However, these techniques often face challenges such as low resolution and the need for technica...



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

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

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

Zohaib
Mushtaq

1
0
min
words

FRONTIERS COMPUTATIONAL NEUROSCIENCE

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

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

Thomas
Hummel

Thomas

Tactile Acuity

Thomas

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

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

Hiroyuki

1 75
min words

TACTILE ACUITY

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

Read full article:

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

Leah R

Bent

1

2025-06-27

min

69

words

TACTILE ACUITY

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

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Directional vibro-tactile hazard warnings for drivers with vision impairments

Alex R

Bowers

1

80

min

words

TACTILE ACUITY

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

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







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

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









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

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

Paula Anne Newman-Casev

1 74 TACTILE ACUITY words

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

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

Sviatoslav N Bagriantsev

1 2025-09-13 min 58 words

TACTILE ACUITY

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

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

Charles M

Greenspon

1

86

words

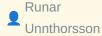
TACTILE ACUITY

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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Diffusion trajectory of atypical morphological development in autism spectrum disorder

Xujun 1 68 min words

TDCS TACS TRNS

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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Primary stabbing headache in a tertiary headache centre

1 58 min words



TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

https://pubmed.ncbi.nlm.nih.gov/41102620/?

Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review

Andrew 1 63
Flood min words

TDCS TACS TRNS

Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

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High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study

Li 1 50 Kuang min words

TDCS TACS TRNS

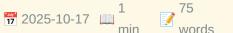
Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature





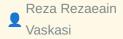


TDCS TACS TRNS

Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial





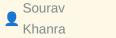


TDCS TACS TRNS

Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

https://pubmed.ncbi.nlm.nih.gov/41103970/?

Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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r1ebioUg42SIGRyVKSoW4m6X-ecQ00&fc=None&ff=20251019171659&v=2.18.0.post9+e462414

Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TDCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance

Nathan 1 62
Ward min words

TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

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Online Regulation of Task Difficulty based on Neuro- and Motor-feedback to improve engagement in Visual-motor Task





Summary: CONCLUSION: Our findings suggest that the proposed NMF system can enable online neural activity regulation in visual-motor tasks and achieve enhanced integration between cognitive and sensorimotor areas, with the potential to improve the rehabilitation training outcomes.

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Effect of lower limb mirror visual feedback on cortical activation in healthy subjects: a self-controlled randomized trail











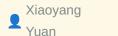
Summary: CONCLUSION: LLMVF increases neural activity in the sensory and motor related areas, indicating that LLMVF can promote more activation of brain functional areas, which verifies the top-down positive effect of LLMVF.

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TSFNet: Temporal-Spatial Fusion Network for Hybrid Brain-Computer Interface









Summary: Unimodal brain-computer interfaces (BCIs) often suffer from inherent limitations due to the characteristic of using single modalities. While hybrid BCIs combining electroencephalography (EEG) and functional near-infrared spectroscopy (fNIRS) offer complementary advantages, effectively integrating th...

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Diagnostic Efficacy of Olfactory Function Test Using Functional Near-Infrared Spectroscopy with Machine Learning in Healthy Adults: A Prospective Diagnostic-Accuracy (Feasibility/Validation) Study in Healthy Adults with Algorithm Development



Summary: Background/Objectives: The YSK olfactory function (YOF) test is a culturally adapted psychophysical tool that assesses threshold, discrimination, and identification. This study evaluated whether functional near-infrared spectroscopy (fNIRS) synchronized with routine YOF testing, combined with machin...

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Enhanced Activation in the Dorsolateral Prefrontal Cortex and Inferior Parietal Lobule During Recovery from Body Dissatisfaction



Summary: Previous studies have examined the neural mechanisms of body dissatisfaction. This study aimed to investigate the neural basis of recovery from body dissatisfaction. Sixty-seven young women participated in this study, engaging in a fat talk-a conversation known to induce body dissatisfaction-followe...

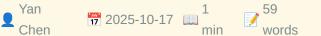
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Immediate modulation effects of Tongue Tri-needle on brain functional networks in infratentorial stroke patients with dysphagia: a randomized controlled trial











Summary: CONCLUSION: Infratentorial stroke patients with dysphagia exhibit disrupted functional connectivity within the fronto-temporo-sensorimotor network, which is associated with clinical impairment. Tongue Tri-needle multi-stage, selective reconfiguration of brain functional networks, particularly by mod...

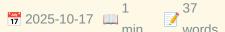
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Riemannian geometry boosts functional near-infrared spectroscopy-based brain-state classification accuracy











Summary: CONCLUSION: To our knowledge, we are the first to demonstrate that the proposed Riemannian-geometry-based classification approach is both powerful and viable for fNIRS data, substantially increasing the accuracy in binary and multi-class classification of brain activation patterns.

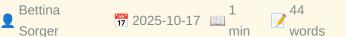
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Sensitive and specific fNIRS-based approach for awareness detection in disorders of consciousness: proof of principle in healthy adults







Summary: CONCLUSION: This individualized diagnostic approach may have the potential to significantly enhance diagnostic accuracy for DoCs. It provides a noninvasive, efficient, and objective assessment, potentially reducing the rate of misdiagnosis rates. The practicality and minimal technical requirements o...

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Neural and Behavioral Dynamics of Dyadic Rhythm Coordination across Limb Pairings











Summary: Interpersonal motor synchronization relies on precise neural coordination, yet its underlying brain mechanisms remain incompletely understood. Guided by mutual prediction theory, we investigated how temporal structure and effector-specific constraints shape dyadic coordination. Using functional near...

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Motor imagery in individuals with congenital aphantasia

Magdalena Szubielska

1 71 min words

FNIRS

Summary: Individuals who experience aphantasia have an inability to create sensory mental images, what lead to a range of cognitive and behavioral differences compared to the general population. However, little is known about how this phenomenon affects the creation of motor imagery. Our study aims to check ...

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Diffusion trajectory of atypical morphological development in autism spectrum disorder



1 68 min words



BRAIN COMPUTER INTERFACE

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

Surjo R
Soekadar

1 67 min words

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders

1 35 min words

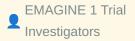
BRAIN COMPUTER INTERFACE

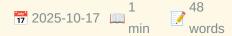
Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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+e462414

A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery



Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)







BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

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+e462414

An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**

Nadia Mammone

1 2025-10-19 min 68 words

BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

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For those who miss terminal animations...

REDDIT PYTHON

Summary: <!-- SC_OFF --><div class="md">Just for ease, the repo is also posted up here. https://github.com/DaSettingsPNGN/PNGN-Terminal-Animator What my project does: animates text in Discord to look like a terminal outp...

Read full article:

https://www.reddit.com/r/Python/comments/1oalj6u/for those who miss terminal animations/

The working-class hero of Bletchley Park you didn't see in the movies

1 2 2025-10-12 min words HACKER NEWS

Summary: Comments

https://www.theguardian.com/world/2025/oct/12/move-over-alan-turing-meet-the-working-class-hero-of-bletchley-park-you-didnt-see-in-the-movies

The White House is already one of the most blocked accounts on Bluesky



Summary: Article URL: https://techcrunch.com/2025/10/19/the-white-house-is-already-one-of-the-most-blocked-accounts-on-bluesky/ Comments URL: https://news.ycombinator.com...

https://techcrunch.com/2025/10/19/the-white-house-is-already-one-of-the-most-blocked-accounts-on-bluesky/

Cognitive Resilience in Aging Degus is Linked to CA3 **Hippocampal GABAergic Integrity**

Ibaceta-Gonzalez, C., Neira, D., Ardiles, N. M., Baeza-Araya, N., kirkwood, a., Moya, P., Palacios, A.





BIORXIV NEUROSCIENCE

Summary: The preservation of cognitive function during aging remains a key challenge in neuroscience. In this study, we applied an integrative approach, combining behavioral assays with neurophysiological recordings, to investigate hippocampal circuit integrity. We used Octodon degus, a rodent with exception...



https://www.biorxiv.org/content/10.1101/2025.10.18.682786v1?rss=1

Modeling Alzheimer's Disease with APOE4 Neuron-Glial Brain Assembloids Reveals IGFBPs as Therapeutic Targets

Sherman, E., Qiu, K., Roberts, R., Shichman, L., Li, S., Sun, H., Ide, L., Tucker, A., Iee, s., Gniadzik,

👤 W., Shin, J.-B., Sol-Church, K., Kapur, J., Zhang, A., Erisir, A., Jiang, L., Alzheimer's Disease Neuroimaging Initiative







BIORXIV NEUROSCIENCE

Summary: Alzheimer's disease (AD) research has been hindered by the lack of models that faithfully recapitulate the full profile of disease progression in a human genetic background. We developed a 3D assembloid model ("Masteroid") using iPSC-derived neurons, astrocytes, and microglia from APOE4/4 and isogen...

https://www.biorxiv.org/content/10.1101/2025.10.17.683162v1?rss=1

The spatiotemporal structure of neural activity in motor cortex during reaching

Canfield, R. A., Ouchi, T., Fang, H., Macagno, B., Smith, L. I., Scholl, L. R., Orsborn, A.

1 245 min 2025-10-19 min words

BIORXIV NEUROSCIENCE

Summary: Intracortical brain-computer interfaces (BCI) leverage knowledge about neural representations to translate movement-related neural activity into actions. BCI implants have targeted broad cortical regions known to have relevant motor representations, but emerging technologies will allow flexible targ...

Read full article:

https://www.biorxiv.org/content/10.1101/2025.10.17.683171v1?rss=1

The neural basis of emotional generalization in empathy

Hayden, B., Allawalla, A., Adkinson, J., Fan, X., Franch, M., Gates, V., Mathura, R., Pascuzzi, B.,

👤 Mocchi, M., Myers, J., Pulapaka, S., Banks, G., Bartoli, E., Goodman, W., Mathew, S., Pitkow, X., Pouratian, N., Provenza, N., Shofty, B., Watrous, A., Bijanki, K., Sheth, S., Yoo, S. B. M.

1 149 min words

BIORXIV NEUROSCIENCE

Summary: The essence of empathy is generalization of emotion across persons. Here, we leverage recent theoretical advances in the neuroscience of generalization to help us understand empathy. We measured brain activity in human neurosurgical patients performing two tasks, one focused on identifying their own...

https://www.biorxiv.org/content/10.1101/2025.10.18.683207v1?rss=1

Spatially-local inhibition and synaptic plasticity together enable dynamic, context-dependent integration of parallel sensory pathways

Chen, Q., Rieke, F. 2025-10-19 min 152 words

Summary: Retinal ganglion cells have traditionally been grouped into cells that are sensitive to luminance but not spatial structure and cells with responses that are enhanced by spatial structure. Neither category captures responses of mouse Off Transient alpha cells, which are largest for spatially homogen...

⊗ Read full article:

https://www.biorxiv.org/content/10.1101/2025.10.18.683230v1?rss=1

Intersection of transient cell states with stable cell types in hippocampus

Olmstead, J. A., King, L. E., Bloodgood, B.
L.

1
2025-10-19 min
words

BIORXIV NEUROSCIENCE

Summary: The transcriptome of a brain cell encodes both its stable identity and its dynamic responses to environmental stimuli. While significant progress has been made in categorizing cell types within the brain, deciphering to what extent transcriptional identity and transcriptional state are related remai...

https://www.biorxiv.org/content/10.1101/2025.10.17.683151v1?rss=1

Correction: Prenatal substance exposure and infant neurodevelopment: a review of magnetic resonance imaging studies



⊗ Read full article:

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1717377

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



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

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

Approaches for retraining sEMG classifiers for upper-limb prostheses







FRONTIERS NEUROROBOTICS

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



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

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







FRONTIERS NEUROROBOTICS

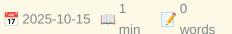
Summary: Overcoming visual degradation in challenging imaging scenarios is essential for accurate scene understanding. Although deep learning methods have integrated various perceptual capabilities and achieved remarkable progress, their high computational cost limits practical deployment under resource-cons...



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

Editorial: What makes us human: from genes to machine







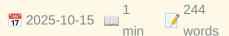
FRONTIERS NEUROSCIENCE



https://www.frontiersin.org/articles/10.3389/fnins.2025.1682082

Anodal transcranial direct current stimulation does not alter GABA concentration or functional connectivity in the normal visual cortex







FRONTIERS NEUROSCIENCE

Summary: IntroductionAnodal direct current stimulation (a-tDCS) of the visual cortex is a potential rehabilitation tool for vision disorders such as amblyopia and macular degeneration. However, the underlying neural mechanisms are currently unknown. When applied to the human motor cortex, a-tDCS reduces the ...

Read full article:

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A pipelined, resource-efficient convolutional neural network architecture for detecting and diagnosing Alzheimer's disease using brain sMRI



V. 1 2025-10-15 min 265 words

FRONTIERS NEUROSCIENCE

Summary: IntroductionAlzheimer's disease (AD) is a progressive neurological disorder that impairs memory and cognitive function in elderly individuals. Early detection is vital to slow disease progression and enable timely therapeutic intervention. Traditional diagnostic approaches for AD, however, often inv...

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https://www.frontiersin.org/articles/10.3389/fnins.2025.1653565

Balancing accuracy and efficiency: co-design of hybrid quantization and unified computing architecture for spiking neural networks



Liang
Chen

1
2025-10-15
min

257
FRONTIERS NEUROSCIENCE





Summary: The deployment of Spiking Neural Networks (SNNs) on resource-constrained edge devices is hindered by a critical algorithm-hardware mismatch: a fundamental tradeoff between the accuracy degradation caused by aggressive quantization and the resource redundancy stemming from traditional decoupled hard...

Read full article:

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Does spatialized audio enhance the creation of mental representations?

Lorenzo 1 164
Picinali min words

FRONTIERS NEUROSCIENCE

Summary: Navigating unfamiliar environments without vision is a considerable challenge for blind individuals, as it requires constructing accurate cognitive maps. Binaural audio feedback, which delivers spatialized auditory cues, has been proposed as a means of enhancing spatial navigation by leveraging the ...

https://www.frontiersin.org/articles/10.3389/fnins.2025.1660373

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

Maria Carla Piastra

1 64 min words



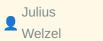
OOSTENVELD ROBERT

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

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



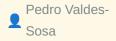
1 72 2024-07-02 min words OOSTENVELD ROBERT

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









OOSTENVELD ROBERT

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

Read full article:

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Optimal configuration of on-scalp OPMs with fixed channel counts

Robert 1 69
Oostenveld min words

OOSTENVELD ROBERT

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

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

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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:

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

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...

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

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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...

Read full article:

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

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

Eric
Fjeldheim

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:

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

Runar 1 65 Words Words

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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Diffusion trajectory of atypical morphological development in autism spectrum disorder



Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41102402/?

Primary stabbing headache in a tertiary headache centre

1 2025-10-16 min 58

TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

https://pubmed.ncbi.nlm.nih.gov/41102620/?

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Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review

Flood

1 63 min words

TDCS TACS TRNS

Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41103728/?

High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study

Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature







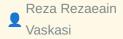
TDCS TACS TRNS

Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

Read full article:

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial





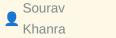


TDCS TACS TRNS

Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

https://pubmed.ncbi.nlm.nih.gov/41103970/?

Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







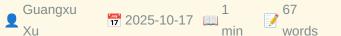
TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

https://pubmed.ncbi.nlm.nih.gov/41106071/?

Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TDCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance

Nathan 1 62
Ward min words

TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

https://pubmed.ncbi.nlm.nih.gov/41110029/?

Diffusion trajectory of atypical morphological development in autism spectrum disorder

Xujun 1 68
Duan min words

BRAIN COMPUTER INTERFACE

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

2025-10-17 min 67 words

BRAIN COMPUTER INTERFACE

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

https://pubmed.ncbi.nlm.nih.gov/41104262/?

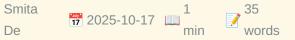
utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu-tbw4049Wgf RdKXdtNCvGW0lVBZFpHe7zaN4k4DwoD5&fc=None&ff=20251019163955&v=2.18.0.post9 +e462414

Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders









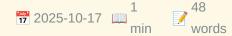
BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

https://pubmed.ncbi.nlm.nih.gov/41104690/? utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1rSUu- $tbw4049Wgf_RdKXdtNCvGW0IVBZFpHe7zaN4k4DwoD5\&fc=None\&ff=20251019163955\&v=2.18.0.post9$ +e462414

Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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+e462414

A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

https://pubmed.ncbi.nlm.nih.gov/41105834/?

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery



Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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+e462414

Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

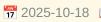
Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

https://pubmed.ncbi.nlm.nih.gov/41107249/?

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

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+e462414

An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**





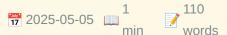
BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

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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 222 BEHAVIORAL NEUROSCIENCE

Summary: The orbitofrontal cortex (OFC) is critical for learning and decision making, but its organization in terms of anatomical connections to other brain areas is not well understood in humans. Here we used diffusion magnetic resonance imaging and probabilistic tractography to characterize the cortical an...

Read full article:

http://doi.org/10.1037/bne0000628

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

Maria Carla
Piastra

1
2024-06-14

min

64

words

OOSTENVELD ROBERT

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

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



1 72 min words

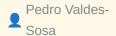


OOSTENVELD ROBERT

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

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

One hundred years of EEG for brain and behaviour research







OOSTENVELD ROBERT

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









OOSTENVELD ROBERT

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

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

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

Krzysztof J
Gorgolewski

1 2024-09-23 min 82
words

OOSTENVELD ROBERT

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

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

1 65 min words

OOSTENVELD ROBERT

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

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

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

Luca 1 70
Pollonini 2025-01-27 min words

OOSTENVELD ROBERT

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

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Pseudonymisation of neuroimages and data protection: 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/?

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

Tim M
Tierney

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

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Optimal configuration of on-scalp OPMs with fixed channel counts



1 69 min words





OOSTENVELD ROBERT

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

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

Donor Diabetes and 1-Year Descemet Membrane Endothelial **Keratoplasty Success Rate: A Randomized Clinical Trial**

Diabetes Endothelial Keratoplasty Study Group

1 66 min words

LOW VISION

Summary: CONCLUSIONS AND RELEVANCE: The 1-year success rate in eyes undergoing DMEK with successfully prepared tissue was very high regardless of donor diabetes status. These results, supported by the separately reported finding that endothelial cell loss and cornea morphometry after 1 year were not affected...

https://pubmed.ncbi.nlm.nih.gov/41105094/?

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JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing



Yong-Jie

Yong-Jie

2025-10-17

words

Yong-Words

Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41105537/?

Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota
Katayama

1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

https://pubmed.ncbi.nlm.nih.gov/41106803/?

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A reevaluation of the visual phantom illusion and its impact on the motion aftereffect

1 77 min words

LOW VISION

Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

https://pubmed.ncbi.nlm.nih.gov/41107310/?

Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance



Sven 1 36
Nebelung min words

LOW VISION

Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

⊗ Read full article:

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Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration



1 48 min words





LOW VISION

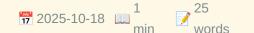
Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41108452/?

Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age









Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

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Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities









LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

https://pubmed.ncbi.nlm.nih.gov/41109031/?

Interventions to Reduce Incidence and Progression of Myopia in Children and Adults

Chi Pui
Pang
Pang
To 2025-10-18
Pang
To 76
Words
Low Vision

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

https://pubmed.ncbi.nlm.nih.gov/41109517/?

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Lamina cribrosa shape in non-human primates is different from that of humans

Ian A

1 77 min words

LOW VISION

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

https://pubmed.ncbi.nlm.nih.gov/41109592/?

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...

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







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

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

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









BRAILLE

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

Read full article:

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

Explosion-powered eversible tactile displays







BRAILLE

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

https://pubmed.ncbi.nlm.nih.gov/40864730/?

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









BRAILLE

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

Read full article:

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

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



Min 1 64
Zhang min words



BRAILLE

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

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







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

Read full article:

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







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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Diffusion trajectory of atypical morphological development in autism spectrum disorder



1 68 min words





TDCS TACS TRNS

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41102402/?

Primary stabbing headache in a tertiary headache centre

1 2025-10-16 min 58

TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

https://pubmed.ncbi.nlm.nih.gov/41102620/?

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Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review



1 63 min words



TDCS TACS TRNS

Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41103728/?

High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study



Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

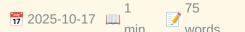
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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature









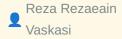
TDCS TACS TRNS

Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

Read full article:

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial





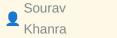


TDCS TACS TRNS

Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

https://pubmed.ncbi.nlm.nih.gov/41103970/?

Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

https://pubmed.ncbi.nlm.nih.gov/41106071/?

Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TOCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance

Nathan 1 62
Ward min words

TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

https://pubmed.ncbi.nlm.nih.gov/41110029/?

Diffusion trajectory of atypical morphological development in autism spectrum disorder

Xujun 1 68
Duan min words

BRAIN COMPUTER INTERFACE

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

2025-10-17 min 67 words





BRAIN COMPUTER INTERFACE

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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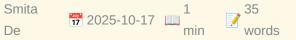
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Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders







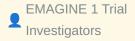


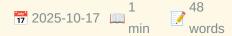
BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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+e462414

A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery



Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)







BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

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+e462414

An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**

Nadia Mammone

1 2025-10-19 min 68 words

BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

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[Fun project] UV scripts, but for functions.

● /u/
DifficultDifficulty

1 2025-10-19 min 268 words

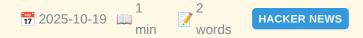
REDDIT PYTHON

Summary: <!-- SC OFF --><div class="md">What My Project Does</ strong> I recently created uv-func, a small tool that brings the dependency-isolation concept of tools like uv scripts down to the level of individual Pyt...

Read full article:

https://www.reddit.com/r/Python/comments/10avf1l/fun project uv scripts but for functions/

Could the XZ backdoor been detected with better Git/Deb packaging practices?



Summary: Comments

https://optimizedbyotto.com/post/xz-backdoor-debian-git-detection/

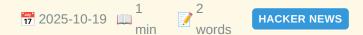
Airliner hit by possible space debris



Summary: Comments

https://avbrief.com/united-max-hit-by-falling-object-at-36000-feet/

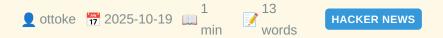
We Need Arabic Language Models



Summary: Comments

https://www.natureasia.com/en/nmiddleeast/article/10.1038/nmiddleeast.2025.142

Could the XZ backdoor been detected with better Git/Deb packaging practices?



Summary: Article URL: https://optimizedbyotto.com/post/xz-backdoor-debian-git-detection/ Comments URL: https://news.ycombinator.com/item?id=45636116">https://news.ycombinator.com/item?id=45636116 Po...

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Airliner hit by possible space debris

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What Unix pipelines got right and how we can do better

Tajiv_abraham 72 2025-10-19 min 13 HACKER NEWS

Summary: Article URL: https://programmingsimplicity.substack.com/p/what-unix-pipelines-got-right-and Comments URL: https://news.ycombinator.com/item?i...

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We Need Arabic Language Models

thinkingemote 7 2025-10-19 min 13 words

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https://www.natureasia.com/en/nmiddleeast/article/10.1038/nmiddleeast.2025.142

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

Julius

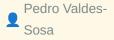
1 72 2024-07-02 min words OOSTENVELD ROBERT

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

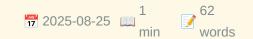
Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure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

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









BRAILLE

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

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

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







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

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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...

https://pubmed.ncbi.nlm.nih.gov/40864730/?

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

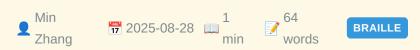


Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus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

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



1 55 min words



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

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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



1 42 min words





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.

Read full article:

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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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Diffusion trajectory of atypical morphological development in autism spectrum disorder



1 68 min words



TDCS TACS TRNS

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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Primary stabbing headache in a tertiary headache centre

1 2025-10-16 min 58

TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

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Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review



1 63 min words

TDCS TACS TRNS

Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

Read full article:

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High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study



Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature









TDCS TACS TRNS

Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial





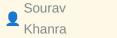


TDCS TACS TRNS

Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

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Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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r1ebioUg42SIGRyVKSoW4m6X-ecQ00&fc=None&ff=20251019153918&v=2.18.0.post9+e462414

Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

https://pubmed.ncbi.nlm.nih.gov/41106071/?

Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TDCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance

Nathan 1 62
Ward min words

TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

https://pubmed.ncbi.nlm.nih.gov/41110029/?

Saving Memory with Polars (over Pandas)







Summary: <!-- SC OFF --><div class="md">You can save some memory by moving to Polars from Pandas but watch out for a subtle difference in the quantile's different default interpolation methods. Read more here:
 https://wedgwort...

https://www.reddit.com/r/Python/comments/1oa4r54/saving_memory_with_polars_over_pandas/

Dosbian: Boot to DOSBox on Raspberry Pi





HACKER NEWS

Summary: Comments

https://cmaiolino.wordpress.com/dosbian/

US Government Uptime Monitor

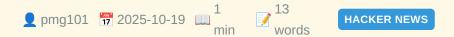


Summary: Comments



https://usa-status.com/

The AI bubble is 17 times bigger than the dot-com bust



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US Government Uptime Monitor

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a> Comments URL: <a href="https://news.ycombinator.com/item?"
id=45637049">https://news.ycombinator.com/item?id=45637049 Points: 3 # Comments: 0

https://usa-status.com/

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...

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Haptic Relocation Away From the Fingertip: Where, Why, and How

1 194 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...

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

Tactile-Thermal Interactions: Cooperation and Competition

1 198 TRANSACTIONS HAPTICS words

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...

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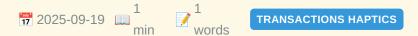
Twenty Years of World Haptics: Retrospective and Future Directions



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Front Cover



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An Exploration of the Electrocorticogram Signatures Evoked by Ultrasound Thalamus Stimulation Under Isoflurane **Anesthesia in Rats**

1 252 min words

TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: The transcranial ultrasound stimulation (TUS) on the thalamus can indirectly induce cortical response. Studies have shown that general anesthetic induced unconsciousness is related to interruption of thalamocortical connectivity. However, the neural mechanism of how anesthesia levels infl...

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Effects of theta burst stimulation on the interoceptive brain network and cardiac interoception



BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Lisa Lai, Til Ole Bergmann, Claus Vögele, Jonathan Cimino, Damien Salles, Marian Van der Meulen, Tabea Schmidt, André Schulz</

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A deep learning framework for real-time prediction of the behavioral state transition during predation

BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Guifeng Zhai, Jincheng Wang, Qiaoqian Wei, Qiyue Deng, Xue Liu, Zhiyi Chen, Yi Zhou

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Processing Mandarin Chinese classifiers as a lexicosyntactic feature during noun phrase production



BRAIN RESEARCH

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Astrocyte response in Alzheimer's disease: Good or bad?

BRAIN RESEARCH

Summary: Publication date: 1 December 2025Source: Brain Research, Volume 1868Author(s): Alaa Ismail, Hayder M. Al-kuraishy, Ali I. Al-Gareeb, Ali K. Albuhadily, Asmaa S.A. Yassen, Athanasios Alexiou, Marios Papadakis, Gaber El-Saber Batiha



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MR-guided graph learning of ¹⁸F-florbetapir PET enables accurate and interpretable Alzheimer's disease staging



NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): Xinyi Chen, Lijuan Chen, Weiheng Yao, Qiankun Zuo, Ye Li, Dong Liang, Shuqiang Wang, Meiyun Wang, Tao Sun

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Scale-dependent brain age with cosmological higher-order statistics from structural magnetic resonance imaging

1 21 NEUROIMAGE words

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): Aurelio Carnero Rosell, Niels Janssen, Antonella Maselli, Ernesto Pereda, Marc Huertas-Company, Francisco-Shu Kitaura

https://www.sciencedirect.com/science/article/pii/S1053811925005038?dgcid=rss_sd_all

Astrocytic Ca²⁺ prevents synaptic depotentiation by limiting repetitive activity in dendrites during motor learning



Summary: Nature Neuroscience, Published online: 13 October 2025; doi:10.1038/s41593-025-02072-4
PLai et al. show a function of astrocytic Ca2+ in preventing synaptic depotentiation by reducing repetitive dendritic activity in the motor cor...

https://www.nature.com/articles/s41593-025-02072-4

Medicine on the menu: When illness informs appetite

Ji Heon HanWilliam W. JaaDepartment of Neuroscience, The Herbert Wertheim UF Scripps Institute

• for Biomedical Innovation & Technology, Jupiter, FL 33458bProgram in Integrative Biology and Neuroscience, Department of Biological Sciences, Florida Atlantic University, Jupiter, FL 33458



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 42, October 2025.

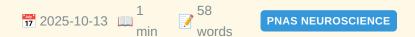
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https://www.pnas.org/doi/abs/10.1073/pnas.2524005122?af=R

Sex differences in healthy brain aging are unlikely to explain higher Alzheimer's disease prevalence in women

Anne RavndalAnders M. FjellDidac Vidal-PiñeiroØystein SørensenEmilie S. FalchJulia KropiunigPablo

F. GarridoJames M. RoeJosé-Luis Alatorre-WarrenMarkus H. SneveDavid Bartrés-FazAlvaro Pascual-LeoneAndreas M. BrandmaierSandra DüzelSimone KühnUlman LindenbergerLars NybergLeiv Otto WatneRichard N. HensonKristine B. WalhovdHåkon GrydelandaCenter for Lifespan Changes in Brain and Cognition, Department of Psychology, University of Oslo, Oslo 0317, NorwaybComputational Radiology and Artificial Intelligence, Department of Radiology and Nuclear Medicine, Oslo University Hospital, Oslo 0372, NorwaycDepartment of Medicine, Faculty of Medicine and Health Sciences and Neurosciences Institute, University of Barcelona, Barcelona 08036, SpaindInstitut Guttmann, Institut Universitari de Neurorehabilitació adscrit a la Universidad Autónoma de Barcelona, Badalona 08916, SpaineFundació de Recerca Clínic Barcelona, Institut d'Investigacions Biomèdiques August Pi i Sunyer, Barcelona 08036, SpainfHinda and Arthur Marcus Institute for Aging Research and Deanna and Sidney Wolk Center for Memory Health, Hebrew SeniorLife, Boston, MA 02131gDepartment of Neurology, Harvard Medical School, Boston, MA 02115hCenter for Lifespan Psychology, Max Planck Institute for Human Development, Berlin 14195, GermanyiDepartment of Psychology, MSB Medical School Berlin, Berlin 14197, GermanyiMax Planck University College London Centre for Computational Psychiatry and Ageing Research, Berlin 14195, GermanykMax Planck University College London Centre for Computational Psychiatry and Ageing Research, London WC1B 5EH, United KingdomlDepartment of Psychiatry and Psychotherapy, University Clinic Hamburg-Eppendorf, Hamburg 20251, GermanymCenter for Environmental Neuroscience, Max Planck Institute for Human Development, Berlin 14195, GermanynUmeå Center for Functional Brain Imaging, Umeå University, Umeå 901 87, SwedenoDepartment of Medical and Translational Biology, Umeå University, Umeå 901 87, SwedenpDepartment of Diagnostics and Intervention, Umeå University, Umeå 901 87, SwedenqOslo Delirium Research Group, Institute of Clinical Medicine, Campus Ahus, University of Oslo, Oslo 0318, Norwayr Department of Geriatric Medicine, Akershus University Hospital, Lørenskog 1478, NorwaysMedical Research Council Cognition and Brain Sciences Unit, Department of Psychiatry, University of Cambridge, Cambridge CB2 7EF, United Kingdom



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 42, October 2025.

Solve />As Alzheimer's disease (AD) is diagnosed more frequently in women, understanding the role of sex has become a key priority in AD research. However, despite aging being the primary risk factor for AD, it remain...

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Functional organization of the primary motor cortex in psychosis and the potential role of intereffector regions in psychomotor slowing

Sebastian WaltherFlorian WüthrichAnastasia PavlidouNiluja NadesalingamStephan HeckersMelanie G. NuofferVictoria ChapellierKatharina StegmayerLydia V. MaderthanerAlexandra KyrouSofie von KänelStephanie LefebvreaUniversity Hospital of Psychiatry and Psychotherapy Bern, Translational Research Center, University of Bern, 3000 Bern, SwitzerlandbTranslational Imaging Center, Swiss Institute for Translational and Entrepreneurial Medicine, 3000 Bern, SwitzerlandcDepartment of

■ Psychiatry, Psychosomatics, and Psychotherapy, Center of Mental Health, University Hospital of Würzburg, 97080 Würzburg, GermanydDepartment of Psychiatry and Behavioral Science, Vanderbilt University, Nashville, TN 37232eGraduate School for Health Sciences, University of Bern, 3000 Bern, SwitzerlandfUniversity Hospital Inselspital Bern, Department for Neurology, Psychosomatic Medicine, 3000 Bern, SwitzerlandgDepartment of Consultation-Liaison Psychiatry and Psychosomatic Medicine, University Hospital Zurich, University of Zurich, 8091 Zurich, Switzerland



Summary: Proceedings of the National Academy of Sciences, Volume 122, Issue 42, October 2025.

SignificanceRecent literature recommended a revision of the human motor homunculus to include, in addition to the primary motor cortex regions active during movement execution, intereffector regions orchestrat...

https://www.pnas.org/doi/abs/10.1073/pnas.2425388122?af=R

Super-resolution microscopy and deep learning methods: what can they bring to neuroscience: from neuron to 3D spine segmentation

Lydia 1 130 Danglot min words

FRONTIERS NEUROINFORMATICS

Summary: In recent years, advances in microscopy and the development of novel fluorescent probes have significantly improved neuronal imaging. Many neuropsychiatric disorders are characterized by alterations in neuronal arborization, neuronal loss—as seen in Parkinson's disease—or synaptic loss, as in Alzhei...

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Early heart disease prediction using LV-PSO and Fuzzy Inference Xception Convolution Neural Network on phonocardiogram signals



C. 254
Palanisamy min words



FRONTIERS NEUROINFORMATICS

Summary: IntroductionHeart disease is one of the leading causes of mortality worldwide, and early detection is crucial for effective treatment. Phonocardiogram (PCG) signals have shown potential in diagnosing cardiovascular conditions. However, accurate classification of PCG signals remains challenging due t...

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Circuit-level modeling of prediction error computation of multi-dimensional features in voluntary actions

Yiling 1 207

FRONTIERS COMPUTATIONAL NEUROSCIENCE

Summary: IntroductionPredictive processing posits that the brain minimizes discrepancies between internal predictions and sensory inputs, offering a unifying account of perception, cognition, and action. In voluntary actions, it is thought to suppress self-generated sensory outcomes. Although sensory mismatc...

https://www.frontiersin.org/articles/10.3389/fncom.2025.1551555

Listening to mom in the neonatal intensive care unit: a randomized trial of increased maternal speech exposure on white matter connectivity in infants born preterm



1 344 min words



FRONTIERS HUMAN NEUROSCIENCE

Summary: ObjectiveEarly speech experiences are presumed to contribute to the development of brain structures involved in processing speech. Previous research has been limited to correlational studies. Here, we conducted a randomized trial with neonates born preterm to determine whether increased exposure to ...

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Emerging neuromodulation treatments for opioid and stimulant use disorders

Katherine W. Scangos

1 115 min words

FRONTIERS HUMAN NEUROSCIENCE

Summary: Over the past decade, deaths attributable to opioid and stimulant use have risen dramatically. While the U.S. Food and Drug Administration (FDA) has approved three medications for opioid use disorder, there is currently no FDA-approved treatment for stimulant use disorder. Despite the availability o...

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1570555

The effect of development on cortical auditory evoked potentials in normal hearing listeners and cochlear implant users

Bruce 1 257
Gantz min words

FRONTIERS HUMAN NEUROSCIENCE

Summary: IntroductionCortical auditory evoked potentials (CAEPs), such as the P1-N1-P2 complex (onset response) and the acoustic change complex (ACC), provide insight into sound detection and discrimination. While their developmental trajectories are well documented in normal-hearing (NH) listeners, less is ...

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Adaptive-expert-weight-based load balance scheme for dynamic routing of MoE

Peng
Cheng

Peng
min

1
provides

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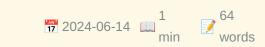
Summary: Load imbalance is a major performance bottleneck in training mixture-ofexperts (MoE) models, as unbalanced expert loads can lead to routing collapse. Most existing approaches address this issue by introducing auxiliary loss functions to balance the load; however, the hyperparameters within these lo...

https://www.frontiersin.org/articles/10.3389/fnbot.2025.1590994

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

Maria Carla





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

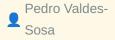
1 72 2024-07-02 min words OOSTENVELD ROBERT

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 Oostenveld

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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Donor Diabetes and 1-Year Descemet Membrane Endothelial Keratoplasty Success Rate: A Randomized Clinical Trial

Diabetes Endothelial Keratoplasty Study Group

1 66 min words

LOW VISION

Summary: CONCLUSIONS AND RELEVANCE: The 1-year success rate in eyes undergoing DMEK with successfully prepared tissue was very high regardless of donor diabetes status. These results, supported by the separately reported finding that endothelial cell loss and cornea morphometry after 1 year were not affected...

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JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing

Yong-Jie
Li

2025-10-17

min

63

words

Low VISION

Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

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Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota Katayama 1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

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A reevaluation of the visual phantom illusion and its impact on the motion aftereffect





LOW VISION

Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

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Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance







LOW VISION

Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

Read full article:

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Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration

Janet S
Sunness

1 48 min words

Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

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Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age



25 Low vision



Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

Read full article:

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Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities





LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

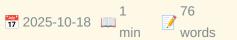
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Interventions to Reduce Incidence and Progression of Myopia in Children and Adults









LOW VISION

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

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Lamina cribrosa shape in non-human primates is different from that of humans

 Ian A

 Sigal

 1

 1

 min

 77

 words

Low vision

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

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



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...

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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...

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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...

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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...

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

Runar 1 2025-09-27 min 65 words Words

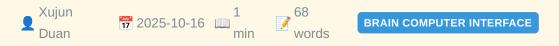
Summary: Systems presenting haptic information have emerged as an important technological advance in assisting individuals with sensory impairments or amputations, where the aim is to enhance sensory perception or provide sensory substitution through tactile feedback. These systems provide information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

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Diffusion trajectory of atypical morphological development in autism spectrum disorder



Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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+e462414

A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

Surjo R
Soekadar

1 67 min words

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders

1 35 min words

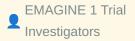
BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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Electromagnetic Stimulation to Reduce Disability After Ischemic Stroke: The EMAGINE Randomized Clinical Trial





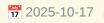
BRAIN COMPUTER INTERFACE

Summary: CONCLUSION AND RELEVANCE: This trial found that ENTF therapy is safe. Although the difference between groups was not statistically significant, ENTF therapy may reduce global disability in patients with severe baseline disability after ischemic stroke. These results warrant confirmation in a higher ...

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A different bimodal: case series of patients with a cochlear implant and a contralateral bone conduction implant









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: The synergy of electrical and vibratory auditory stimulation observed in this case series provided subjective functional benefits and measurable speech perception benefits for some patients, while others experienced minimal or no measurable benefit and ceased usage.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery

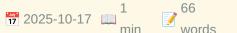


Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

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Modulation of brain oscillations by continuous theta burst stimulation in patients with insomnia









BRAIN COMPUTER INTERFACE

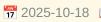
Summary: Continuous theta burst stimulation (cTBS) induces long-lasting depression of cortical excitability in motor cortex. In the present study, we explored the modulation of cTBS on resting state electroencephalogram (rsEEG) during wakefulness and subsequent sleep in patients with insomnia disorder. Forty...

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Establishing a comprehensive national auditory implant registry in Japan: Trends and demographics from the first two years (2023-2024)









BRAIN COMPUTER INTERFACE

Summary: CONCLUSION: This is the first comprehensive report from the national registry in Japan that includes not only CIs but also AMEIs and BCIs. The registry demonstrated reliable data capture and highlighted important trends in patient demographics and surgical practices. Continued data collection will e...

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Emoface: Al-assisted diagnostic model for differentiating major depressive disorder and bipolar disorder via facial biomarkers



Summary: Affective disorders, including Major Depressive Disorder (MDD) and Bipolar Disorder (BD), exhibit significant mood abnormalities, making rapid diagnosis essential for social stability and healthcare efficiency. Traditional diagnostic solutions, including medical history collection and psychological ...

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+e462414

An Explainable 3D-Deep Learning Model for EEG Decoding in **Brain-Computer Interface Applications**

Nadia Mammone

1 2025-10-19 min 68 words

BRAIN COMPUTER INTERFACE

Summary: Decoding electroencephalographic (EEG) signals is of key importance in the development of brain-computer interface (BCI) systems. However, high inter-subject variability in EEG signals requires user-specific calibration, which can be time-consuming and limit the application of deep learning approach...

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Implicit learning of melodic structure: A role for pitch?

1 180 min words



PSYCHOMUSICOLOGY

Summary: Growing evidence suggests that pitch influences musical processing, with melodic processing being enhanced in higher pitch ranges (e.g., Fujioka et al., 2005) and rhythmic processing being enhanced in lower pitches, and these effects may have a basis in elementary properties of the auditory system (...

http://doi.org/10.1037/pmu0000303

The sound of manufactured music: Reviewing the role of artificial stimuli in music cognition research.

1 259 min words

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 PSYCHOMUSICOLOGY words

Summary: Previous literature has found links between music listening and cognitive performance. Specifically, background music may play a role in modulating cognitive inhibition. However, determining what type of background music affects cognitive inhibition throughout the lifespan has not been studied. The ...

http://doi.org/10.1037/pmu0000300

Absolute pitch: A literature review of underlying factors, with special regard to music pedagogy.

1 2023-07-10 min 202 PSYCHOMUSICOLOGY

Summary: Absolute pitch (AP) is a fairly rare and special phenomenon that has relevance for musicology, psychology, genetics, and neuroscience. AP possessors are able to identify the pitch of an isolated sound or to produce that sound without a reference point. The authors' aim is to review the literature on...

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...

http://doi.org/10.1037/pmu0000299

Early contingency information enhances human punishment sensitivity when punishment is frequent but not rare.

1 155 min words





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.



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

Compare Single Board Computers

1 2 2 min words



HACKER NEWS

Summary: Comments

https://sbc.compare/

Compare Single Board Computers



Summary: Article URL: https://sbc.compare/ Comments URL: https://news.ycombinator.com/item?id=45636365 Points: 9 # Comments: 1 p>

https://sbc.compare/

Pulmonary Hypertension Detection From Heart Sound Analysis



Summary: The detection of Pulmonary Hypertension (PH) from the computer analysis of digitized heart sounds is a low-cost and non-invasive solution for early PH detection and screening. We present an extensive cross-domain evaluation methodology with varying animals (humans and porcine animals) and varying au...

Read full article:

Transcranial Focused Ultrasound Modulates Visual Thalamus in a Nonhuman Primate Model



TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: The thalamus plays a pivotal role as a neural hub, integrating and distributing visual information to cortical regions responsible for visual processing. Transcranial focused ultrasound (tFUS) has emerged as a promising non-invasive brain stimulation technology, enabling modulation of neu...

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An Active Insole to Reduce Plantar Pressure Loading: Using **Predictive Finite Element Driven Soft Hydraulic Actuators to Minimize Plantar Pressure and the Pressure Time Integral for Diabetic Foot Ulceration Risk Management**

1 230 min words





TRANSACTIONS BIOMEDICAL ENGINEERING

Summary: Objective: This article aims to design, manufacture and evaluate an active insole to reduce plantar tissue loading to minimise the risk of diabetic foot ulceration for people living with diabetes. Methods: A prototype hydraulic soft robotic actuating insole was produced. It was controlled by an appr...

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Optimizing Non-Intersecting Synthetic Vascular Trees in Nonconvex Organs

1 196 TRANSACTIONS BIOMEDICAL ENGINEERING words

Summary: Objective: The understanding of the mechanisms driving vascular development is still limited. Techniques to generate vascular trees synthetically have been developed to tackle this problem. However, most algorithms are limited to single trees inside convex perfusion volumes. We introduce a new frame...

http://ieeexplore.ieee.org/document/10944261

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1 1 words



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TRANSACTIONS BIOMEDICAL ENGINEERING

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IEEE Engineering in Medicine and Biology Society Publication Information



http://ieeexplore.ieee.org/document/11174019

Front Cover



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A Survey of Few-Shot Learning for Biomedical Time Series

1 176 min words 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...

Read full article:

http://ieeexplore.ieee.org/document/10745649

Longitudinal study of single-pulse TMS in infants with perinatal brain injury: safety and feasibility







FRONTIERS HUMAN NEUROSCIENCE

Summary: IntroductionPerinatal brain injury is a leading cause of cerebral palsy. Singlepulse transcranial magnetic stimulation (spTMS) provides a non-invasive method for investigating motor pathway development; however, data on the safety and feasibility of its repeated use in infants are limited. This stu...

https://www.frontiersin.org/articles/10.3389/fnhum.2025.1686054

Loudness dependence of auditory evoked potentials reflects trait anxiety and harm avoidance in healthy adults: an exploratory study

Makoto
Nishihara

1
2025-10-15
min

181
words

FRONTIERS HUMAN NEUROSCIENCE

Summary: Loudness dependence of auditory-evoked potentials (LDAEP), a neurophysiological measure that reflects central serotonergic activity, is also influenced by the noradrenaline and dopamine systems. While it has been used in investigations of various psychiatric disorders, the fundamental characteristic...

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The diagnostic significance of pupillary reflex pathways: insights from classical examination and advanced pupillometry

Joanna 1 212 Konopińska min words

FRONTIERS NEUROSCIENCE

Summary: Background/objectivesThe pupil, a dynamic ocular structure, serves as a critical indicator of neurological and ophthalmological function. This interdisciplinary review explores the anatomical, physiological, and pathological aspects of pupillary reflexes and disorders.ContentEmphasis is placed on th...

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Endovascular management of tandem embolic stroke due to cardioembolic free-floating thrombus: a case report

Liang Liang 259 FRONTIERS NEUROSCIENCE words

Summary: BackgroundTandem lesions (TLs), defined as simultaneous occlusions of both extracranial and intracranial arteries, represent a particularly challenging subset of large vessel occlusion (LVO) strokes. While most TLs are attributed to atherosclerotic changes or arterial dissection, a smaller subset or...

https://www.frontiersin.org/articles/10.3389/fnins.2025.1654601

Development of novel signal and spike velocity analysis tools in compact peripheral nerve recording designs

Jonas Klus, Alexander J Boys, Ruben Ruiz-Mateos Serrano, George G Malliaras and Alejandro Carnicer-Lombarte

1 2025-10-14 min 236 words JOURNAL NEURAL ENGINEERING

Summary: Objective. Analysis tools for peripheral nerve recordings remain underdeveloped compared to those for brain signals, limiting the advancement of nerve neurotechnologies for clinical treatments such as closed-loop systems. This study introduces and explores the performance of two novel nerve signal a...

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BGTransform: a neurophysiologically informed EEG data augmentation framework

Jin Yue, Xiaolin Xiao, Hao Zhang, Minpeng Xu and Dong Ming

1 2025-10-14 min

279 words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Deep learning has emerged as a powerful approach for decoding electroencephalography (EEG)-based brain–computer interface (BCI) signals. However, its effectiveness is often limited by the scarcity and variability of available training data. Existing data augmentation methods often introdu...

http://iopscience.iop.org/article/10.1088/1741-2552/ae0c3a

Using economic value signals from primate prefrontal cortex in neuro-engineering applications

Tevin C Rouse, Shira M Lupkin and Vincent B McGinty

1 2025-10-14 min 276 words

JOURNAL NEURAL ENGINEERING

Summary: Objective. Brain–machine interface (BMI) research has shown the efficacy of using motor and sensory-related neural signals to assist physically impaired patients. Despite the comparable ability to extract more abstract cognitive signals from the brain, little effort has been devoted to leveraging th...

http://iopscience.iop.org/article/10.1088/1741-2552/ae0bf6

Inter-ictal spike rates are not modulated by anti-seizure medication taper in the epilepsy monitoring unit: a tale of two confounders *

Nina J Ghosn, Katherine Walsh, Kevin Xie, Carlos Aguila, Akash R Pattnaik, Devin Ma, Abba M Krieger, Erin C Conrad and Brian Litt

1 2025-10-14 min 273 words

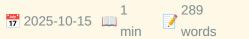
JOURNAL NEURAL ENGINEERING

Summary: Objective. New implantable and wearable devices hold great promise to help patients manage their seizure disorders. One proposed application is measuring the rate of interictal epileptiform discharges as a biomarker of medication levels and seizure risk. This study aims to determine whether interict...

http://iopscience.iop.org/article/10.1088/1741-2552/ae0521

Neuralace: manufacture, parylene-C coating, and mechanical properties

Juan Pablo Botero, Spencer M Roberts, Piotr Mackowiak, Nicholas S Witham, Lukas Selzer, Balaji Srikanthan, Kai Zoschke, Sandeep Negi and Florian Solzbacher





JOURNAL NEURAL ENGINEERING

Summary: Objective. This study investigates the mechanical properties of the Neuralace, a novel ultra-thin, high-channel-count mesh-type subdural electrode array, to characterize its mechanical compatibility with neural tissue (i.e., the forces exerted onto the brain upon conformation) for chronic brain-comp...



http://iopscience.iop.org/article/10.1088/1741-2552/ae0c39

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







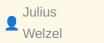
OOSTENVELD ROBERT

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





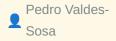


Summary: We present an extension to the Brain Imaging Data Structure (BIDS) for motion data. Motion data is frequently recorded alongside human brain imaging and electrophysiological data. The goal of Motion-BIDS is to make motion data interoperable across different laboratories and with other data modalitie...

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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 Oostenveld

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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Donor Diabetes and 1-Year Descemet Membrane Endothelial Keratoplasty Success Rate: A Randomized Clinical Trial

Diabetes Endothelial Keratoplasty Study Group





LOW VISION

Summary: CONCLUSIONS AND RELEVANCE: The 1-year success rate in eyes undergoing DMEK with successfully prepared tissue was very high regardless of donor diabetes status. These results, supported by the separately reported finding that endothelial cell loss and cornea morphometry after 1 year were not affected...

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JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing

Yong-Jie
Li

2025-10-17

min

63

words

Low VISION

Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

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Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota Katayama 1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

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A reevaluation of the visual phantom illusion and its impact on the motion aftereffect





LOW VISION

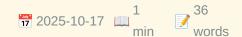
Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

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Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance







LOW VISION

Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

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Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration

Janet S
Sunness

1 48 min words



Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

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Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age









Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

https://pubmed.ncbi.nlm.nih.gov/41108819/?

Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities



Zhuqiu 1 66 Sun min words





LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

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Interventions to Reduce Incidence and Progression of Myopia in Children and Adults



1 76 min words





LOW VISION

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

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Lamina cribrosa shape in non-human primates is different from that of humans

Sigal

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

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

Jianming

1 62 min words

BRAILLE

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

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

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

Million 1 46
Phiri 2025-08-26 min words

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

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Explosion-powered eversible tactile displays

Robert F

1 64 min words

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...

https://pubmed.ncbi.nlm.nih.gov/40864730/?

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



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...

Read full article:

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

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/?

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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.

Read full article:

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**



Divya 1 73
Singh min words





BRAILLE

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...

⊗ Read full article:

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

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Online Regulation of Task Difficulty based on Neuro- and **Motor-feedback to improve engagement in Visual-motor Task**



1 36 min words







Summary: CONCLUSION: Our findings suggest that the proposed NMF system can enable online neural activity regulation in visual-motor tasks and achieve enhanced integration between cognitive and sensorimotor areas, with the potential to improve the rehabilitation training outcomes.

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41091617/?

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Effect of lower limb mirror visual feedback on cortical activation in healthy subjects: a self-controlled randomized trail

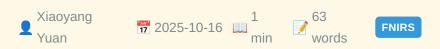


Summary: CONCLUSION: LLMVF increases neural activity in the sensory and motor related areas, indicating that LLMVF can promote more activation of brain functional areas, which verifies the top-down positive effect of LLMVF.

https://pubmed.ncbi.nlm.nih.gov/41094487/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251019144508&v=2.18.0.post9+e462414

TSFNet: Temporal-Spatial Fusion Network for Hybrid Brain-Computer Interface



Summary: Unimodal brain-computer interfaces (BCIs) often suffer from inherent limitations due to the characteristic of using single modalities. While hybrid BCIs combining electroencephalography (EEG) and functional near-infrared spectroscopy (fNIRS) offer complementary advantages, effectively integrating th...

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41094934/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251019144508&v=2.18.0.post9+e462414

Diagnostic Efficacy of Olfactory Function Test Using Functional Near-Infrared Spectroscopy with Machine Learning in Healthy Adults: A Prospective Diagnostic-Accuracy (Feasibility/Validation) Study in Healthy Adults with Algorithm Development

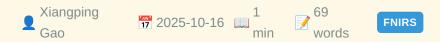


Summary: Background/Objectives: The YSK olfactory function (YOF) test is a culturally adapted psychophysical tool that assesses threshold, discrimination, and identification. This study evaluated whether functional near-infrared spectroscopy (fNIRS) synchronized with routine YOF testing, combined with machin...

https://pubmed.ncbi.nlm.nih.gov/41095653/?

utm_source=BucketBot&utm_medium=rss&utm_campaign=None&utm_content=1JKSd2KF3MGnV7oFV D2g6PNu7rHRFDsLyCNjKkkf4KHBUA3c8P&fc=None&ff=20251019144508&v=2.18.0.post9+e462414

Enhanced Activation in the Dorsolateral Prefrontal Cortex and Inferior Parietal Lobule During Recovery from Body Dissatisfaction



Summary: Previous studies have examined the neural mechanisms of body dissatisfaction. This study aimed to investigate the neural basis of recovery from body dissatisfaction. Sixty-seven young women participated in this study, engaging in a fat talk-a conversation known to induce body dissatisfaction-followe...

https://pubmed.ncbi.nlm.nih.gov/41099370/?

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Immediate modulation effects of Tongue Tri-needle on brain functional networks in infratentorial stroke patients with dysphagia: a randomized controlled trial







Summary: CONCLUSION: Infratentorial stroke patients with dysphagia exhibit disrupted functional connectivity within the fronto-temporo-sensorimotor network, which is associated with clinical impairment. Tongue Tri-needle multi-stage, selective reconfiguration of brain functional networks, particularly by mod...

⊗ Read full article:

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Riemannian geometry boosts functional near-infrared spectroscopy-based brain-state classification accuracy



1 37 min words





FNIRS

Summary: CONCLUSION: To our knowledge, we are the first to demonstrate that the proposed Riemannian-geometry-based classification approach is both powerful and viable for fNIRS data, substantially increasing the accuracy in binary and multi-class classification of brain activation patterns.

Read full article:

https://pubmed.ncbi.nlm.nih.gov/41104354/?

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Sensitive and specific fNIRS-based approach for awareness detection in disorders of consciousness: proof of principle in healthy adults







Summary: CONCLUSION: This individualized diagnostic approach may have the potential to significantly enhance diagnostic accuracy for DoCs. It provides a noninvasive, efficient, and objective assessment, potentially reducing the rate of misdiagnosis rates. The practicality and minimal technical requirements o...

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Neural and Behavioral Dynamics of Dyadic Rhythm Coordination across Limb Pairings











Summary: Interpersonal motor synchronization relies on precise neural coordination, yet its underlying brain mechanisms remain incompletely understood. Guided by mutual prediction theory, we investigated how temporal structure and effector-specific constraints shape dyadic coordination. Using functional near...

Read full article:

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Motor imagery in individuals with congenital aphantasia



1 71 min words

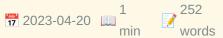
FNIRS

Summary: Individuals who experience aphantasia have an inability to create sensory mental images, what lead to a range of cognitive and behavioral differences compared to the general population. However, little is known about how this phenomenon affects the creation of motor imagery. Our study aims to check ...

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Continuous affect responses to a large diverse set of unfamiliar music: Bayesian time-series and cluster analyses.





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 ...

Read full article:

http://doi.org/10.1037/pmu0000295

Psychomusicology: A resounding closing cadence.

1 256 min words



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 2024-09-09 min 261 words





CLINICAL NEUROSCIENCE

Summary: In implicit cognition research generally, one standard strategy is to measure the conscious status of knowledge on each trial (e.g., with confidence, structural knowledge attributions, visual clarity ratings) and then subselect the trials where the knowledge is measured to be unconscious. If the acc...

Read full article:

http://doi.org/10.1037/cns0000399

Anomalous experiences are associated with high subconscious connectedness.

1 2025-04-17 min 264 CLINICAL NEUROSCIENCE

Summary: A series of three studies in the United States, collectively involving 2,216 research participants and including two nationwide Internet surveys, examined the relationship of anomalous experiences with the psychological trait of subconscious connectedness, as well as with several other psychological...

http://doi.org/10.1037/cns0000428

When the unconscious contents are expressed in both Rorschach Performance Assessment System (R-PAS) and dreams: An experimental study.



Summary: The Rorschach cards may elicit components of personality functioning that escape consciousness but which may influence observable performance during the test. Similarly, the manifest content of dreams may contain unconscious experiential elements that contribute to the formation of the content that ...

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...

http://doi.org/10.1037/cns0000435

Testing the theoretical position that subconscious phenomena are conscious but not self-conscious.

1 98 min words





CLINICAL NEUROSCIENCE

Summary: Building on Fechner's theory of subliminal perception (perception below the absolute threshold for self-conscious apperception) and Morton Prince's theory that subconscious experiences are conscious but not self-conscious, source-monitoring theory attributes the generic self-conscious inference ...

Read full article:

http://doi.org/10.1037/cns0000414

Influence of context on extinguished appetitive conditioning in male and female rats.

1 230 min words

BEHAVIORAL NEUROSCIENCE

Summary: Extinction is fundamental to adaptive behavior in that it allows organisms to alter previously conditioned behaviors based on the prevailing environmental contingencies. Extinguished responses, however, will renew when the conditioned stimulus is presented outside the extinction context. There has b...

http://doi.org/10.1037/bne0000626

Gonadectomy maintains goal-directed responding in female rats and accelerates habit formation in male rats.

1 2025-04-07 min 271 words





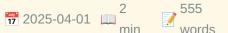
BEHAVIORAL NEUROSCIENCE

Summary: We have previously demonstrated that gonadally intact female rats become habitual following around 120 response-outcome (R-Os) exposures during operant training. This rapid development of habit does not occur in gonadally intact male rats, which remain goal-directed up to at least 320 R-Os. The pres...

Read full article:

http://doi.org/10.1037/bne0000622

Monthly Updates [April]





FMHY

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



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

The Internet Archive needs your help.









Summary: A coalition of major record labels has filed a lawsuit against the Internet Archive—demanding \$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]





FMHY

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

Monthly Updates [June]







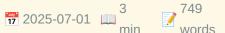


Summary: <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our https://github.com/fmhy/FMHYedit/commits/ main" rel="noreferrer" target=" blank">Commits Page on ...



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

Monthly Updates [July]







FMHY

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Monthly Updates [August]







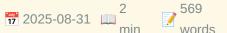


Summary: <div class="info custom-block">INFO These update threads only contains major updates. If you're interested in seeing all minor changes you can follow our https://github.com/fmhy/FMHYedit/commits/ main" rel="noreferrer" target=" blank">Commits Page on ...



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

Monthly Updates [Sept]







FMHY

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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

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

Data- and Physics-Driven Deep Learning Based Reconstruction for Fast MRI: Fundamentals and Methodologies





REVIEWS BIOMEDICAL ENGINEERING

Summary: Magnetic Resonance Imaging (MRI) is a pivotal clinical diagnostic tool, yet its extended scanning times often compromise patient comfort and image quality, especially in volumetric, temporal and quantitative scans. This review elucidates recent advances in MRI acceleration via data and physics-drive...

Read full article:

http://ieeexplore.ieee.org/document/10729663

Neural network topologies supporting individual variations in vividness of visual imagery

NEUROIMAGE

Summary: Publication date: 1 November 2025Source: NeuroImage, Volume 321Author(s): Timo L. Kvamme, Massimo Lumaca, Claude J. Bajada, Signe Dall Gregersen, Justyna Hobot, Dunja Paunovic, Michal Wierzchon, Blanka Zana, Juha Silvanto, Kristian Sandberg

https://www.sciencedirect.com/science/article/pii/S1053811925005233?dgcid=rss_sd_all

A genetically-defined population of amygdalofugal neurons promotes suckling and early postnatal growth







BIORXIV NEUROSCIENCE

Summary: Suckling by newborns is an instinctive behavior defining the mammalian class. Yet, due to experimental difficulty in assessing neural function in the very young, little is known about the neural control of this fundamental behavior. Here we develop moleculargenetic approaches to interrogate neurona...

https://www.biorxiv.org/content/10.1101/2025.10.18.683193v1?rss=1

Pleasant odors specifically promote a soothing autonomic response and brain-body coupling through respiratory modulation



⊗ Read full article:

https://www.nature.com/articles/s41598-025-20422-x

A nap before retrieval reduces false identifications in target absent lineups



https://www.nature.com/articles/s41598-025-20471-2

Cognitive, neuroimaging, and genetic insights on the interthalamic adhesion from a large cohort study of 591 subjects



https://www.nature.com/articles/s41598-025-20469-w

A frugal Spiking Neural Network for unsupervised multivariate temporal pattern classification and multichannel spike sorting



https://www.nature.com/articles/s41467-025-64231-2

Interindividual differences in auditory processing moderate the effect of auditory-motor coupling on paired-associate learning



https://www.nature.com/articles/s41598-025-23360-w

Recurrent issues with deep neural network models of visual recognition



https://www.nature.com/articles/s41598-025-20245-w

Explicit error coding can mediate gain recalibration in continuous bump attractor networks



S Read full article:

https://www.nature.com/articles/s41467-025-63817-0

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

Julius .

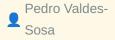
1 72 2024-07-02 min words OOSTENVELD ROBERT

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

https://pubmed.ncbi.nlm.nih.gov/39174725/?

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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...

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...

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

1 74 min words

OOSTENVELD ROBERT

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

Read full article:

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Optimal configuration of on-scalp OPMs with fixed channel counts

Robert Oostenveld

1 69 min words

OOSTENVELD ROBERT

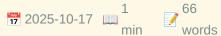
Summary: Recent technological developments have brought optically pumped magnetometers (OPMs) within reach of the larger neuroscientific community. The current state-of-the-art consists of whole-head systems that measure the magnetic field at >100 locations. OPM sensors can be constructed to measure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

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

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Donor Diabetes and 1-Year Descemet Membrane Endothelial Keratoplasty Success Rate: A Randomized Clinical Trial

Diabetes Endothelial Keratoplasty Study Group





LOW VISION

Summary: CONCLUSIONS AND RELEVANCE: The 1-year success rate in eyes undergoing DMEK with successfully prepared tissue was very high regardless of donor diabetes status. These results, supported by the separately reported finding that endothelial cell loss and cornea morphometry after 1 year were not affected...

https://pubmed.ncbi.nlm.nih.gov/41105094/?

JOANet: An Integrated Joint Optimization Architecture Making Medical Image Segmentation Really Helped by Superresolution Pre-processing

Yong-Jie
Li

2025-10-17

min

63

words

Low VISION

Summary: Conventional computer vision pipelines typically treat low-level enhancement and high-level semantic tasks as isolated processes, focusing on optimizing enhancement for perceptual quality rather than computational utility, neglecting semantic task requirements. To bridge this gap, this paper propose...

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Light-induced FTIR spectroscopy of visual rhodopsin microcrystals grown in lipidic cubic phase

Kota Katayama 1 67 min words

LOW VISION

Summary: Time-resolved X-ray crystallographic analysis of mammalian visual rhodopsin has allowed to visualize the cis-to-trans isomerization of the retinal chromophore, a pivotal event in the early stages of vision, in a temporal and atomic resolution. This achievement provides a foundation for visualizing t...

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A reevaluation of the visual phantom illusion and its impact on the motion aftereffect



Frank 1 77
Tong min words

LOW VISION

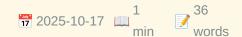
Summary: The constructive nature of motion perception has been highlighted in studies of the visual phantom illusion. Visual phantoms can occur when two low-contrast collinear drifting gratings are separated by a blank gap, leading to the ghostly impression of drifting stripes that extend through the gap. Al...

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Comprehensive deep learning-assisted multi-condition analysis of knee MRI studies improves resident radiologist performance







LOW VISION

Summary: CONCLUSION: Our deep-learning model performed well across diverse knee conditions and effectively assisted radiology residents. Future work should focus on more fine-grained predictions for subtle or rare conditions to enable comprehensive joint assessment in clinical practice.

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Patient-reported visual difficulties associated with geographic atrophy from age-related macular degeneration

Janet S
Sunness

1 48 min words

Summary: CONCLUSION: Reading, vision in dim illumination, face recognition, locating signs, and driving worsen over 2 years in patients with GA, and may be the appropriate self-reported items to monitor in a clinical trial. These findings highlight the need for therapies addressing both GA enlargement and vi...

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Association between cardiovascular health assessed by Life's Essential 8 and diabetic retinopathy: The mediating role of phenotypic age and biological age



25 Low vision





Summary: CONCLUSIONS: The LE8 scores were negatively associated with the incidence of DR, while PA and BA partially mediated the association between LE8 scores and DR.

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Impact of different electrode materials on the redox properties of extracellular polymeric substances in electroactive mixed biocommunities



Zhuqiu 1 66 Sun min words





LOW VISION

Summary: This study delves deeply into the impact of different electrode materials on the redox properties of extracellular polymeric substances (EPS) within electroactive mixed microbial communities. The experimental results reveal that the redox properties of EPS exhibit significant variations depending on...

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Interventions to Reduce Incidence and Progression of Myopia in Children and Adults



1 76 min words





LOW VISION

Summary: The alarming increase in childhood myopia has emerged as a significant public health concern. Due to its long-term consequences, there is also an expanding interest in adult-onset myopia. This review provides a comprehensive summary of interventions for slowing the onset and progression of myopia an...

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Lamina cribrosa shape in non-human primates is different from that of humans

Summary: Non-human primates (NHPs) are a crucial model for studying glaucoma because of their similarities to humans in anatomy, physiology and pathology. Our goal in this study was to quantify in vivo NHP lamina cribrosa (LC) shapes at low, normal, and elevated intraocular pressures (IOPs), and compare them...

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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



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

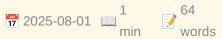
Summary: Vision impairment may delay responses to hazards when driving. In a proof-ofconcept driving simulator study, we evaluated a hazard warning device designed for vision impaired drivers. Three groups participated: 11 persons with central vision loss (CVL; median age 60 years), 12 with homonymous 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 1 222 TACTILE ACUITY Fjeldheim words

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 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

Runar 1 65 Words Words

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



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

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









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

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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...

https://pubmed.ncbi.nlm.nih.gov/40864730/?

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

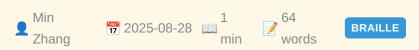


Summary: Electronic skins (e-skins) incorporating island architectures represent a promising platform for strain-insensitive tactile sensing by mechanically decoupling sensing units from deformations. However, conventional island designs encounter stress concentration issues caused by inherent modulus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

Read full article:

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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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Diffusion trajectory of atypical morphological development in autism spectrum disorder



1 68 min words

TDCS TACS TRNS

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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Primary stabbing headache in a tertiary headache centre

1 2025-10-16 min 58

TDCS TACS TRNS

Summary: INTRODUCTION: Primary stabbing headache (PSH) is a short-lasting head pain occurring spontaneously in the absence of underlying structural causes. Although it is a frequent disorder, with a reported lifetime prevalence of 35.2% in the general population, its pathophysiological underpinnings remain i...

https://pubmed.ncbi.nlm.nih.gov/41102620/?

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Understanding the effects of transcranial direct current stimulation on the neurovascular unit: a narrative review



1 63 min words



TDCS TACS TRNS

Summary: Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique that has demonstrated promise both for treating diverse clinical conditions and for enhancing brain function in healthy adults. Despite increasing popularity, the precise physiological mechanisms underlying it...

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High-intensity transcranial alternating current stimulation combined with pharmacotherapy for adolescent major depressive disorder: a prospective case report study



Summary: CONCLUSIONS: The combination of HI-tACS and pharmacotherapy demonstrated potential early effects in this small cohort of adolescents with MDD, particularly during the initial phase of treatment. These preliminary findings warrant further investigation through large-scale randomized controlled trials...

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Non-invasive brain stimulation for suicidal ideation: a systematic review and metanalysis of the current literature









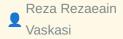
TDCS TACS TRNS

Summary: Data suggests that the available therapeutic tools are still insufficient to deal with suicidality. Non-Invasive Brain Stimulation techniques (NIBS) have entered the recognized guidelines for therapies in psychiatry due to the advantages related to safety and tolerability. The purpose of this review...

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Active and sham transcranial direct-current stimulation (tDCS) plus core stability on the knee kinematic and performance of the lower limb of the soccer players with dynamic knee valgus; two armed randomized clinical trial





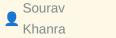


TDCS TACS TRNS

Summary: Dynamic knee valgus (DKV) is a prevalent risk factor for anterior cruciate ligament (ACL) injuries in soccer players, particularly during noncontact mechanisms. Transcranial direct-current stimulation (tDCS) and core stability exercises have shown promise in enhancing motor control and biomechanical...

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Effect of Precision-based HD-tDCS Over Conventional HDtDCS in Young-onset Mania: Protocol for an Active **Comparison fMRI and TMS Study**







TDCS TACS TRNS

Summary: CONCLUSIONS: This study protocol aims to explore the effect of novel precision-based HD-tDCS in young-onset mania compared to conventional HD-tDCS, thereby allowing for the examination of precision neuromodulation in young-onset mania.

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Progress in the combined application of Brain-Computer Interface and non-invasive brain stimulation for post-stroke motor recovery









TDCS TACS TRNS

Summary: Stroke remains one of the leading causes of disability and death among adults globally. Both Brain-Computer Interface (BCI) and Non-invasive Brain Stimulation (NIBS) have shown significant potential in facilitating motor recovery in stroke patients. The combination of BCI and NIBS enhances brain fun...

https://pubmed.ncbi.nlm.nih.gov/41106071/?

Development and Validation of The Agonistic Continuum Scale (TACS)

Raymond A
Knight

TDCS TACS TRNS
words

Summary: Sexual violence includes a wide variety of behaviors, ranging from harassment to coercion, to rape, to sexual homicide. Although the criminal justice system distinguishes these forms of sexual violence, several studies have suggested that they represent different degrees of severity of an underlying...

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Military applications of transcranial direct current stimulation (tDCS) for enhanced multitasking performance

Nathan 1 62
Ward min words

TDCS TACS TRNS

Summary: Effective multitasking in high-stakes military environments is critical yet often compromised by cognitive overload, leading to operational errors. This scoping review explores the potential of transcranial direct current stimulation (tDCS) as a cognitive enhancement tool for improving multitasking ...

https://pubmed.ncbi.nlm.nih.gov/41110029/?

Diffusion trajectory of atypical morphological development in autism spectrum disorder

Xujun 1 68
Duan min words

BRAIN COMPUTER INTERFACE

Summary: Brain development from childhood through adolescence is crucial for understanding autism spectrum disorder (ASD). Yet how functional networks regulate developmental changes in brain morphology remains unclear. Here, we analyzed gray matter volume (GMV) and functional connectivity (FC) in 301 individ...

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A Moratorium on Implantable Non-Medical Neurotech Until **Effects on the Mind are Properly Understood**

2025-10-17 min 67 words





BRAIN COMPUTER INTERFACE

Summary: The development of non-medical consumer neurotechnology is gaining momentum. As companies chart the course for future implanted and invasive braincomputer interfaces (BCIs) in non-medical populations, the time has come for concrete steps toward their regulation. We propose three measures: First, a ...

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Simple Prostatectomy is an Effective Option for BPH Patients With Hypocontractile Bladders









BRAIN COMPUTER INTERFACE

Summary: CONCLUSIONS: This is one of the first studies assessing outcomes of SP in patients with hypocontractile bladders. SP is an effective surgical option for patients with impaired detrusor function including those who are catheter dependent.

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