

8th Global Conclave on

NEUROLOGY AND NEUROLOGICAL DISORDERS

Theme: "Advancing Neurological Care:
Innovations in Early Detection and
Treatment for Nervous System Disorders"



2027

JUNE 21-22

SINGAPORE

SUB THEMES

- Gene Therapy for Neurological Disorders
- Advances in Minimally Invasive Neurosurgery
- Neuroimaging Biomarkers in Neurodegenerative Diseases
- Cutting-Edge Approaches to Stroke Prevention and Rehabilitation
- AI and Machine Learning in Neurology
- Neuroplasticity and Rehabilitation Techniques
- Emerging Therapies for Brain Tumors
- Innovations in Epilepsy Management
- Sleep Disorders and Neurological Health
- Advancements in Treating Autoimmune Neurological Disorders
- Wearable Neurotechnology for Monitoring and Treatment
- Robotics and Virtual Reality in Rehabilitation

WHY TO ATTEND?

What you take

Attending the Neurology Conference provides a valuable opportunity to connect with leading neurologists, neuroscientists, researchers, clinicians, and healthcare professionals while exploring the latest advancements in neurology and neuroscience. The conference offers insights into cutting-edge research, emerging technologies, innovative therapeutic approaches, and evolving clinical practices that shape the future of neurological science and patient care.

The event also serves as a collaborative platform that brings together academia, healthcare institutions, biotechnology, pharmaceutical, and medical technology organizations to encourage knowledge exchange and foster meaningful partnerships.

125
+



**EDUCATIONAL
SESSIONS**

60
+



**INTERNATIONAL
SPEAKERS**

20
+



**HOURS OF
NETWORKING
EVENTS**

12
+



**INNOVATIVE
FEATURED SPEAKERS**

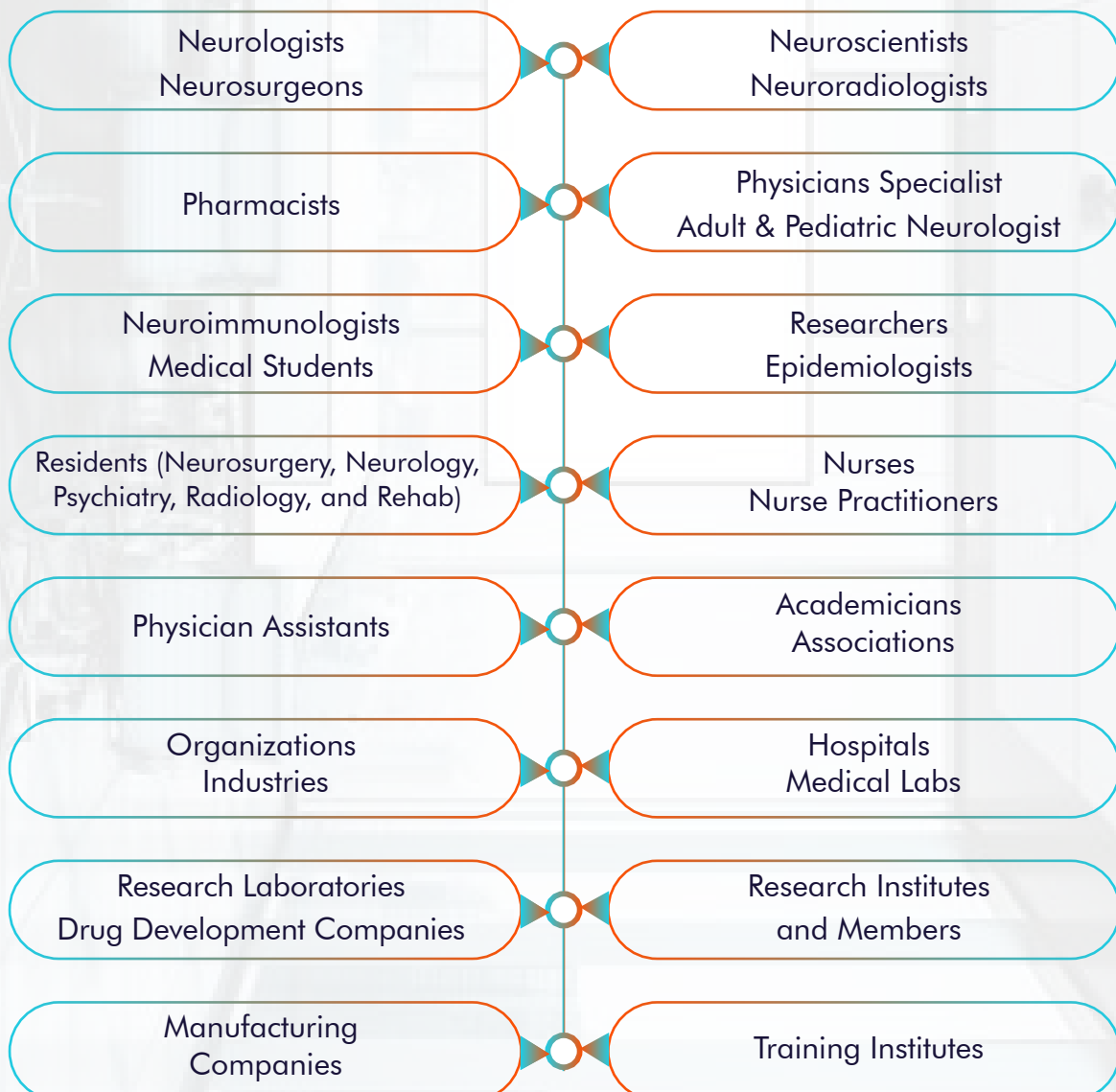
02



**02 Day
Conference**



WHO SHOULD ATTEND?



Welcome Message



Luiz Moutinho

*Member of the Academia Europaea, University of Suffolk, UK
The Neuro Conclave 2027 Organizing Committee*

Dear Esteemed Participants and Distinguished Colleagues,

It is with great pleasure that we welcome you to the **8th Global Conclave on Neurology and Neurological Disorders** (NEURO Conclave 2027) taking place on **June 21-22, 2027** in **Singapore**. This conference brings together world-renowned experts and thought leaders in neurology, I really found the conference both enriching and insightful and providing an excellent platform for collaboration and knowledge exchange.

After the incredible success of the **7th Global Conclave on Neurology and Neurological Disorders (NEURO Conclave 2026)**, held during **June 22–23, 2026**, the event showcased robust academic research and insightful scientific discussions. The conference was designed to analyse future developments and explore insights into recent advancements, emerging technologies, innovative techniques, and unpublished research findings, while providing opportunities to learn from thought leaders and network with an outstanding lineup of distinguished speakers. Speakers from USA, Italy, China, Portugal, Spain, Thailand, Taiwan, India, Egypt, Belgium, Colombia, Germany, Brazil, UK, Turkey, France, Indonesia, Canada, Kuwait, Australia, Singapore, Malaysia, Georgia, Hungary and Latvia Many speakers from the USA....

I am here honestly endorsing the next conference. Whether you are sharing groundbreaking research, facilitating an engaging workshop, or contributing to dynamic conversations, your knowledge and dedication are vital to driving our shared vision forward.

We look forward to welcoming you to Neuro Conclave 2027!

With best regards,

Luiz Moutinho, BA, MA, Ph.D., MAE, FCIM

Member of the Academia Europaea, University of Suffolk, UK

The Neuro Conclave 2027 Organizing Committee

Welcome Message



Sheng-He Huang

*Guangdong Nanshan Medicine Innovation Institute (NSMI), China
University of Southern California, USA*

Dear Valued Colleagues and Friends,

Translating purpose and mindset into positive impact through shared vision, compassion, and collaborative spirit established at Neuro Conclave 2026 in Singapore—where neurologists, clinicians, researchers, educators, advocates, public health leaders, and policymakers from around the world came together to advance evidence-based care, promote equity, foster innovation, and combat stigma—we are delighted to invite you to the **8th Global Conclave on Neurology and Neurological Disorders (Neuro Conclave 2027)**, to be held on **June 21-22, 2027** in **Singapore**.

Neuro Conclave 2027 will bring together distinguished experts and emerging leaders from across the globe to: 1). Advance Knowledge and Discover Solutions; 2) Build bridges between disciplines; 3) Highlight innovative models of care and policy initiatives; and 4) Promote the Health of Vulnerable Populations.

Looking into the future, let us build on the momentum generated in Singapore and reaffirm our commitment to advancing the fields of neurology, neurological disorders, addiction medicine, and mental health. By combining our expertise, fostering innovation, and strengthening global partnerships, we can accelerate scientific progress, improve patient outcomes, and help redefine the future of brain health worldwide.

We look forward to welcoming you to **Neuro Conclave 2027** for another inspiring gathering dedicated to scientific excellence, collaboration, innovation, and meaningful global impact.

With Best regards,

Sheng-He Huang, PhD

The Neuro Conclave 2027 Organizing Committee

Welcome Message



Kirsten Callesen

Clinical Psychologist, Denmark

Dear Esteemed Participants and Distinguished Colleagues,

Welcome to **NEURO Conclave 2027**!

It was a pleasure to participate in **NEURO Conclave 2026** and to meet colleagues from many different countries, all working to improve our understanding of neurological and neurodevelopmental conditions. What I appreciated most was the opportunity to exchange knowledge, discuss new ideas, and build international connections across research and clinical practice. I left the conference inspired by the diversity of perspectives and the openness to collaboration. If you are considering attending **NEURO Conclave 2027**, I would warmly encourage you to join us. It is an excellent opportunity to learn about current research, share your own work, meet colleagues from around the world, and become part of an inspiring international community.

I look forward to returning to Singapore and hope to meet many of you there.

Warm regards,

Kirsten Callesen

Clinical Psychologist, Denmark

PRESENTATION FORUM

01

KEYNOTE FORUM / MINI-PLenary SESSIONS

Presentations under Keynote Forum or Mini-Plenary Sessions includes abstracts with remarkable research value selected by the program committee. These significant speeches are delivered by globally recognized honorable speakers and it is open to all registrants.

DISTINGUISHED SPEAKERS FORUM (ORAL ABSTRACT SESSIONS)

In this forum, speakers and experts of the research field gets an opportunity to showcase their noble research work that involves comprehensive research findings. These formal oral presentations include a wide range of talks covering basic research to advanced research findings in accordance to the theme and scientific sessions of the conference.

02

03

STUDENT FORUM / POSTER SESSION

This session is particularly introduced to encourage more number of student participation at international conferences, however it is not restricted only to students since it is also available for the participants with language barrier. There are specific guidelines to be followed to prepare the poster. Poster topic should be selected only from relevant scientific sessions with in-depth technical details.

YOUNG INVESTIGATORS FORUM

An exclusive opportunity for students and young investigators to present their research work through a formal oral presentation. Young Investigators Forum provides a global platform for young researchers and scholars to showcase their valuable contribution to the scientific world and to get acknowledged by the global scientific community of experts. It is an excellent opportunity to recognize young scientific assets with promising research ideas. These oral presentations are of shorter time duration with 10-15 minutes of informative and precise presentations in relevant scientific sessions.

04



05

EDUCATIONAL WORKSHOPS/RESEARCH WORKSHOPS/ CORPORATE WORKSHOPS/MINI- SYMPOSIA

With an aim of transferring knowledge among the participants, workshops are introduced as a part of international conferences. These interactive and occasionally practical sessions gives an opportunity for participants to engage in detail discussion. Workshops are mostly scheduled for 60 to 90-minutes. It may range from learning about a specific topic relevant to international education, products and research which sometimes involves practical demonstration. It helps in enhancing skills, knowledge and understanding of the research field in depth through interactive discussions.

HIGHLIGHTS OF THE DAY SESSIONS

"Highlights of the Day Sessions" is introduced to discuss and focus a ray upon previous day ORAL ABSTRACT presentations by experts to summarise the key findings. It helps in getting better insights into the various dimensions of the topic.



06



07

MEET THE PROFESSOR @ NETWORKING SESSIONS

This session involves open discussion between the experts and session attendees, it gives enough time for getting answers to specific questions and doubts. It is an opportunity for attendees to increase their professional networking, sometimes also leads to an excellent collaboration opportunity.

EDUCATIONAL SESSIONS/ TRAINING PROGRAMS

Educational Sessions or training programs are specifically designed for a better understanding of the latest findings and technologies. These are generally 45-minute sessions that gives an exposure to the multidisciplinary field, that provides in-depth learning experiences and address educational needs.



08

ACADEMIC REGISTRATIONS

BUSINESS REGISTRATIONS

01

Speaker Registration

COMBO A

(Registration +
2 Night Accommodation)

COMBO B

(Registration +
3 Night Accommodation)

Delegate Registration

02

Speaker Registration

COMBO A

(Registration +
2 Night Accommodation)

COMBO B

(Registration +
3 Night Accommodation)

Delegate Registration

STUDENT REGISTRATIONS

ADDITIONAL REGISTRATIONS

Registration

YIF

COMBO A

(Registration +
2 Night Accommodation)

COMBO B

(Registration +
3 Night Accommodation)

Posters

Accompanying Person

E-Poster

Virtual Presentation

Workshops

Start-Ups

03

04



REGISTER & PARTICIPATE

NEURO CONCLAVE 2027



CONCURRENT EDUCATIONAL SESSIONS



MONDAY - JUNE 21, 2027



- Neuroscience
- Neuropsychiatry
- Pain Disorder and Management



- Central Nervous System
- Pediatric Neurology
- Neuro-Oncology and Brain Tumors

GROUP PHOTO | COFFEE BREAK



- Neurophysiology
- Neuroimmunology
- Neuropathology



- Neuroimaging
- Neurodegenerative disease and Neurodegeneration

LUNCH BREAK



- Sleep Disorder
- Stroke
- Movement Disorders



- Parkinsons Disease
- Epilepsy
- Multiple Sclerosis

GROUP PHOTO | COFFEE BREAK



- Alzheimers Disease and Dementia
- Neuromuscular Disease



- Case Studies and Clinical Trials
- Neurological Disorders



CONCURRENT EDUCATIONAL SESSIONS



TUESDAY - JUNE 22, 2027



- Novel Treatment Strategies
- Speech Disorders
- Demyelinating Disorders



- Cerebrovascular Disorders
- Autoimmune and Inflammatory Disorders
- Neuropathy

GROUP PHOTO | COFFEE BREAK



- Headache and Facial Pain
- Diagnosis and Screening of Neurological Disorders



- Stem Cells and Neuroregeneration
- Cognitive Neuroscience
- Motor System Disorders

LUNCH BREAK



- Behavioral Neurology
- Computational Neuroscience
- Neurogenetics



- Spinal Neurosurgery
- Pediatric Neurosurgery
- Stereotactic and Functional Neurosurgery

GROUP PHOTO | COFFEE BREAK



- Neurovascular Surgery
- Intraoperative Neurophysiology
- Peripheral Nerve Surgery



- Robotics in Neurosurgery
- Latest advancement in Brain Surgery
- Neuropharmacology and Neurochemistry



**Title: Bridging Neuroplasticity and Addiction: Examining Awareness Integration Theory as a Promising Treatment Approach****Speaker Name: Nicole Jafari****Affiliation: The Chicago School at Los Angeles, USA****Abstract:**

Objectives: To examine the role of adult neuroplasticity in addiction recovery by reviewing current evidence on how mindfulness-based interventions and Awareness Integration Theory (AIT) promote adaptive neuroplastic changes that enhance emotional regulation, cognitive functioning, and long-term recovery from substance use disorders.

Scope: This review examines adult neuroplasticity, addiction-related brain changes, mindfulness, Cognitive Behavioral Therapy (CBT), Awareness Integration Theory (AIT), and neurogenesis. It explores the neurobiological mechanisms underlying addiction and evaluates psychological interventions that facilitate neural recovery and sustainable treatment outcomes.

Methods Used: A qualitative literature review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) screening framework to enhance transparency, rigor, and reproducibility. Literature searches were performed in PubMed and Scopus using the keywords neurogenesis, adult neuroplasticity, mindfulness, Cognitive Behavioral Therapy (CBT), and Awareness Integration Theory. The search identified 65 articles, of which 41 met the inclusion criteria and were included in the final analysis.

Results: The reviewed literature demonstrates that addiction produces maladaptive yet reversible changes in brain function through neuroplastic mechanisms. Evidence indicates that mindfulness-based practices, CBT, and AIT promote adaptive neuroplasticity by reducing amygdala reactivity, strengthening executive functioning, improving emotional regulation, enhancing hippocampal function, and fostering intentional behavioral change. Emerging neurotechnologies, including quantitative electroencephalography (qEEG) and functional near-infrared spectroscopy (fNIRS), provide objective evidence of measurable neurobiological improvements associated with these interventions. (See Table 1).

Conclusion: Addiction should be understood as a treatable brain condition characterized by maladaptive neuroplasticity rather than diminished willpower. Psychological interventions, particularly AIT, which integrates mindfulness, cognitive restructuring, emotional processing, and somatic awareness, demonstrate considerable potential to facilitate lasting neural reorganization, reduce relapse risk, and improve overall well-being. Although pharmacological interventions may provide short-term symptom stabilization, neuroplasticity-based psychotherapies offer greater promise for sustained recovery. Further empirical research is warranted to validate AIT and advance neuroplasticity-informed treatment models for substance use disorders.

**Title: Treatment-Associated Thermal Changes During Immunotherapy and Chemotherapy Across Multiple Murine Tumor Solid Tumor Models****Speaker Name: Sina Meisamy and Reza Meisamy****Affiliation: Breast-Med Inc, USA and The University of Texas at Austin, USA****Abstract:**

Early detection of treatment-associated physiologic changes remains an important challenge in oncology, as conventional methods, such as imaging, often require weeks before meaningful therapeutic effects can be identified. Delays in recognizing ineffective treatment may postpone therapeutic modification and expose patients to unnecessary treatment-related toxicities which may allow continued disease progression. This study investigated treatment-associated thermal changes using telemetric temperature monitoring in multiple murine solid tumor models receiving immunotherapy and chemotherapy.

Miniature implantable wireless temperature sensors were used to obtain serial measurements of tumor and body temperature in murine models of melanoma, breast cancer, and colon cancer treated with TRP-2 immunotherapy, AC-Taxol chemotherapy, and anti-PD-1 immunotherapy, respectively. Longitudinal tumor-body temperature differentials were analyzed to determine whether treatment-associated thermal patterns emerged during therapy. Temporal thermal profiles were evaluated using longitudinal mixed-effects modeling together with complementary statistical analyses.

Distinct thermal profiles were observed among the therapeutic regimens, consistent with differences in their underlying biologic mechanisms. Tumors treated with immunotherapy demonstrated progressive increases in tumor temperature relative to untreated controls, whereas chemotherapy produced a different thermal profile characterized by reductions in body temperature relative to tumor temperature. Although the thermal patterns differed between treatment modalities, measurable treatment-associated temperature dynamics were observed across all treatment groups, indicating that telemetric temperature monitoring may capture physiologic changes occurring during therapy.

These thermal responses are consistent with biologic processes associated with anticancer treatment, including immune activation, inflammation, alterations in tumor metabolism, and changes in vascular perfusion. Collectively, these findings support the concept that telemetric temperature monitoring may capture treatment-associated physiologic changes. This warrants further investigation to determine whether characteristic thermal profiles may ultimately complement existing imaging and laboratory assessments by providing earlier, objective physiologic information to support personalized cancer care.

**Title: The Stellate Ganglion Block for the Treatment of PTSD: A Retrospective Clinical Case Series from 579 Veterans****Speaker Name: Rostam Khoshsar****Affiliation: BioHealth Pain Management, USA****Abstract:**

Background: Posttraumatic stress disorder (PTSD) is a chronic, disabling disorder associated with substantial psychiatric, medical, and societal burden. Although pharmacologic and psychotherapeutic treatments benefit many patients, responses are often incomplete. Stellate ganglion block (SGB) is a promising neuromodulatory intervention that may rapidly alleviate PTSD symptoms through sympathetic nervous system modulation. We evaluated SGB outcomes in a multidisciplinary Veterans Health Administration (VHA) program and examined whether repeated treatments were associated with sustained reductions in PTSD severity.

Methods: We retrospectively analyzed 579 Veterans who underwent 1,251 fluoroscopy- and ultrasound-guided SGB procedures between September 2018 and February 2024. PTSD symptoms were assessed with the PTSD Checklist for DSM-5 (PCL-5), and anxiety with the Generalized Anxiety Disorder-7 (GAD-7), at baseline, one week, and one month. Outcomes following initial and repeated SGBs were analyzed using general linear models.

Results: After the initial SGB, mean PCL-5 scores decreased by 36% at one week and 30% at one month (both $p < 0.001$). Clinically meaningful improvement (≥ 10 -point PCL-5 reduction) occurred in 67.7% of patients at one week and 60.1% at one month, while reliable improvement (≥ 5 -point reduction) was observed in 78.4% and 71.3%, respectively. Mean GAD-7 scores improved by 41.1% and 32.7% at one week and one month. Notably, Veterans receiving repeated SGBs demonstrated progressively lower baseline PTSD severity before subsequent procedures, suggesting sustained benefit beyond the acute treatment response.

Conclusions: In the largest Veterans Health Administration clinical case series reported to date, SGB was associated with rapid, clinically meaningful improvement in PTSD and anxiety symptoms. The progressive reduction in baseline PTSD severity with repeated SGBs suggests durable neuromodulation beyond the immediate therapeutic effect and supports prospective studies to determine whether repeated SGB can modify the long-term course of PTSD.

**Title: From Insight to Integration: How Awareness Integration Therapy Transforms Core Beliefs, Identity, and Action—Supported by qEEG Evidence****Speaker Name: Foojan Zeine****Affiliation: International Awareness Integration Institute, USA****Abstract:**

Background: Many clients can explain their psychological patterns yet remain emotionally and behaviorally organized by them. Awareness Integration Therapy (AIT) addresses this gap by moving systematically from insight to integration, intentional identity, and sustained action. AIT is a structured, six-phase, multimodal psychotherapy that examines present perceptions, assumptions about others, self-defining beliefs, emotional and somatic responses, formative experiences, values, goals, and behavioral commitments. The model is adaptable across clinical, educational, telehealth, and digital settings.

Objective: This presentation examines AIT as a psychological model of change and illustrates how quantitative electroencephalography (qEEG) can provide objective supporting evidence for psychological and emotional regulation following treatment.

Clinical Application: A 28-year-old woman presenting with anxiety and relational dependency completed one comprehensive AIT session. The intervention helped her identify fear-based assumptions about abandonment, recognize a self-concept organized around dependency, connect current distress to early attachment disruption, process unresolved emotional pain, and develop a more compassionate and autonomous identity. She then translated this new position into values-based relational boundaries and specific behavioral commitments.

Supporting Findings: The participant reported increased clarity, emotional relief, self-compassion, personal agency, and readiness to act independently. These psychological shifts were accompanied by measurable qEEG changes. Central alpha peak frequency increased from 8.72 to 9.69 Hz, while the frontal high-beta/beta ratio decreased from 0.84 to 0.66. Low-frequency overactivity and interregional overcoupling also moved toward more organized patterns. These findings are consistent with improved attentional readiness, reduced hyperarousal, and stronger cognitive-affective regulation, although they remain preliminary.

Conclusion: AIT offers a coherent psychological pathway for transforming awareness into emotional integration, revised self-identity, and intentional behavior. The qEEG findings do not independently establish efficacy; rather, they objectively corroborate the participant's clinical and subjective changes. This case supports further controlled research examining AIT's psychological outcomes alongside neurophysiological measures, standardized symptom scales, and longitudinal follow-up across culturally diverse populations.

**Title: Markerless Augmented Reality Registration for Surgical Guidance: From Technical Validation to Multi-Anatomy Clinical Accuracy****Speaker Name: Yue Yang****Affiliation: Stanford University School of Medicine, USA****Abstract:**

Augmented reality head-mounted displays can place patient-specific imaging directly within the surgeon's field of view, but clinical adoption remains limited by registration methods that depend on fiducials, external trackers, or rigid fixation. This lecture presents a depth-only, markerless registration pipeline implemented on Microsoft HoloLens 2. The system aligns head-mounted-display depth data with CT-derived surface models using depth-bias correction, brief human-guided initialization, and global-to-local registration. We first validated an augmented-reality surface-tracing accuracy measure against CT ground truth in leg and foot models. We then evaluated the pipeline in seven intraoperative trials involving the foot, ear, and lower leg during fibula free-flap harvest and mandibular reconstruction, collecting more than 500 measurements per trial. Preclinical errors were approximately 1 mm RMSE, while the clinical median pointwise error was 3.9 mm. Anatomy-specific median errors were 3.2 mm for the foot, 4.3 mm for the ear, and 5.3 mm for the lower leg. These findings demonstrate the feasibility of fiducial-free augmented-reality registration in live surgical settings and highlight anatomy-dependent considerations for translating markerless augmented reality into image-guided surgical workflows.

**Title: Obstructive Sleep Apnea in Critically Ill Patients: Implications for Extubation Failure, Diagnosis, and Management****Speaker Name: Madhu Varma****Affiliation: California University of Science and Medicine, USA****Abstract:**

Obstructive Sleep Apnea in Critically Ill Patients: Implications for Extubation Failure, Diagnosis, and Management Madhu Varma MD California University of Science and Medicine Obstructive sleep apnea (OSA) is a common yet frequently unrecognized disorder associated with substantial cardiopulmonary, metabolic, and neurocognitive morbidity. Its major risk factors—including obesity, advanced age, cardiovascular disease, and diabetes mellitus—are highly prevalent among critically ill patients, resulting in a disproportionately high burden of OSA in the intensive care unit (ICU). Despite its high prevalence, OSA often remains undiagnosed in the ICU, where conventional diagnostic testing is frequently impractical and clinical manifestations may be obscured by critical illness, sedation, and mechanical ventilation. Consequently, unrecognized OSA may contribute to adverse clinical outcomes, increased healthcare utilization, and challenges in the management of critically ill patients. This structured narrative review synthesizes the current evidence on the prevalence, diagnostic challenges, and clinical implications of obstructive sleep apnea (OSA) in critically ill adults admitted to intensive care units (ICUs). A comprehensive literature search was conducted using PubMed, EMBASE, and Scopus with the keywords "obstructive sleep apnea," "ICU," and "critical illness." The available evidence indicates that OSA may affect up to 60–70% of ICU patients, yet only approximately 5% are formally diagnosed during hospitalization. Unrecognized OSA has been associated with prolonged mechanical ventilation, extubation failure rates approaching 30%, a twofold increase in perioperative complications, cardiovascular instability, a 1.8-fold higher risk of 30-day ICU readmission, and a 2.2-fold increase in mortality. Conventional OSA screening tools have limited utility in critically ill patients because of altered physiology, sedation, and mechanical ventilation. Although emerging diagnostic approaches—including overnight oximetry, portable polygraphy, and machine learning-based prediction models—show promise, they have not been adequately validated for routine ICU use. Overall, the evidence suggests that current strategies for diagnosing and managing OSA are not well suited to the critical care setting. Incorporating systematic OSA risk assessment and ICU-specific diagnostic and therapeutic approaches into routine critical care may improve patient outcomes, reduce readmissions, and decrease mortality.

**Title: AI-Driven Brain-Computer Interface for Analysis of EEG Rhythms During Motor Imagery for Standing and Sitting Tasks****Speaker Name: Nayid Triana-Guzman****Affiliation: Universidad Nacional Abierta y a Distancia (UNAD), Colombia****Abstract:**

Background: Restoring fundamental mobility functions, specifically transitions between sitting and standing, is crucial for improving independence in patients with severe motor impairments. Brain-Computer Interfaces (BCIs) offer a promising neurotechnological intervention by translating endogenous cortical signals into actionable commands for rehabilitative devices, actively promoting cortical plasticity.

Objective: This study aimed to develop a robust BCI system capable of accurately interpreting the Motor Imagery (MI) of standing up and sitting down using electroencephalography (EEG) signals and artificial intelligence (AI) techniques.

Scope: The scope of this study was to analyze EEG rhythms during motor imagery for standing and sitting tasks, and to identify discriminative features in subjects with no prior experience with EEG.

Methods: A robust baseline was established using a comprehensive task paradigm involving 32 healthy participants (16 female, 16 male) and 17 active EEG electrodes. Each participant completed six randomized experimental blocks driven by visual cues. The signal processing workflow encompassed rigorous pre-processing using Morlet Wavelet transforms targeted within the 4-40 Hz bands. Feature extraction was evaluated across temporal, spectral, space-frequency, and time-frequency domains. The Filter Bank Common Spatial Pattern (FBCSP) approach proved most effective in isolating signals across six specific bands (Theta to High Beta), capturing distinct spatial and spectral signatures (ERD/ERS) of motor intention over the centro-parietal cortex. These features were subsequently fed into Regularized Linear Discriminant Analysis (RLDA) and Support Vector Machine (SVM-RBF) classifiers.

Results: The proposed FBCSP-RLDA pipeline demonstrated exceptional performance. Real-time online classification scenarios outperformed offline baselines, achieving average accuracies above 94% for sit-to-stand transitions and 96% for stand-to-sit transitions.

Conclusion: These findings validate the pipeline's robustness for real-time applications and establish its feasibility for future clinical integration with robotic standing frames for paralyzed patients.

**Title: Evaluation of a Mixed Reality Navigation Simulator for Training of Minimally Invasive Interventions of the Spine: A Pilot Didactic Plan****Speaker Name: Felipe Miguel Camarillo-Juárez****Affiliation: General Hospital of Mexico “Dr. Eduardo Liceaga”, Mexico****Abstract:**

Abstract Purpose Minimally invasive interventions of the spine (MISP) involve high-risk procedures. Lack of accuracy in infiltrations or poor screw placement can lead to severe neurological, vascular, and visceral injuries. This requires better training methods for residents, including surgical simulation, to reduce patient risk and lead to more efficient surgeries with lower error rates and improved clinical outcomes. **Methods** A mixed-reality simulator for training in MISP procedures was evaluated. The simulator combines two navigation modalities: (1) virtual reality fluoroscopy simulation and (2) mixed reality with augmented and virtual reality scenes. Two interventions were selected for simulation: pure facet infiltration and transpedicular screw placement. A pilot training program was designed and implemented, comparing the two navigation modalities: fluoroscopy simulation vs. mixed-reality navigation. Ten orthopedic residents participated in the study. Their performance was evaluated by using simulator metrics. Their perceived experience was assessed through a specifically designed questionnaire. **Results** Residents improved overall execution times during mixed reality navigation. In particular, greater success in screw placements with shorter execution times during mixed reality navigation compared to fluoroscopy simulation. Similarly, they also achieved greater accuracy in the infiltration procedure. The questionnaire reveals that residents have a positive evaluation of the simulator and find it valuable for training purposes. **Conclusion** Compared to fluoroscopy simulation, residents found it easier to perform tasks with the mixed reality guide in perceiving and understanding anatomy, safe pathways, and correct target locations. Overall, the simulator was deemed valuable for training. This motivates further research on stratified programs and their benefits, possibly starting with mixed reality, followed by fluoroscopy simulation. Also provides useful information for improving the simulation, including better visual feedback and patient-specific cases.

**Title: Neuropsychological Impacts of Psychoactive Substance Use in Medical Students: A Mental Health Vulnerability****Speaker Name: Ana Júlia Melo Safe****Affiliation: University Centro Universitário do Planalto Central Aparecido dos Santos (UNICEPLAC), Brazil****Abstract:**

Psychoactive substance use among medical students has emerged as a growing public health concern, particularly due to its potential neuropsychological consequences and long-term impact on mental health. The academic environment of medical training is characterized by high workload, intense psychological pressure, competitiveness, and the need for social adaptation during early adulthood. These factors place medical students in a vulnerable biopsychosocial context and may contribute to the initiation and maintenance of substance use. Many psychoactive substances act directly on the central nervous system (CNS), leading to alterations in neurotransmission and cognitive functioning, which may compromise academic performance, emotional regulation, and future professional practice.

This study aimed to analyze the neuropsychological impacts of psychoactive substance use among medical students and to identify the main precipitating factors associated with substance consumption within the academic environment.

A descriptive and qualitative literature review was conducted using the PubMed, SciELO, and LILACS databases. Studies published between 2012 and 2024 were included. Manual searches of reference lists were also performed to identify additional relevant articles. Eligible studies were published in English or Portuguese, had clearly described methodologies, full-text availability, and focused specifically on psychoactive substance use among medical students. The study selection process followed the PRISMA guidelines, including the stages of identification, screening, eligibility, and inclusion.

The reviewed studies consistently demonstrated a high prevalence of psychoactive substance use among medical students. Alcohol was the most frequently consumed substance, followed by tobacco, cannabis, anxiolytics, and stimulants such as amphetamines. Substance use was strongly associated with academic stress, excessive workload, anxiety, depressive symptoms, peer influence, and the pursuit of improved academic performance. From a neurobiological perspective, alcohol enhances GABAergic neurotransmission and inhibits glutamatergic NMDA receptors, resulting in cognitive impairment and reduced psychomotor coordination. Nicotine activates nicotinic acetylcholine receptors, stimulating dopaminergic pathways involved in reward and dependence. Cannabis primarily acts on CB1 receptors, leading to deficits in memory, attention, and executive function. Amphetamines increase synaptic concentrations of dopamine, serotonin, and noradrenaline, producing temporary improvements in alertness and cognition, followed by rebound fatigue, emotional instability, and increased risk of dependence. Collectively, these neurochemical alterations contribute to impairments in cognition, emotional regulation, and psychomotor performance, as well as increased vulnerability to substance use disorders and psychiatric comorbidities.

Psychoactive substance use among medical students is highly prevalent and multifactorial, reflecting the academic, psychological, and social stressors inherent to medical training. The neuropsychological effects associated with these substances pose significant risks to mental health, cognitive functioning, and professional development. Institutional strategies focused on mental health promotion, psychological support, early identification of at-risk students, and preventive education are essential to reduce neuropsychological harm and prevent substance dependence in this population.

**Title: Geometry-Aware Sensitivity Analysis for Transcranial Electrical Stimulation: Categorical Structuring and Topological Derivatives****Speaker Name: Jairo Rocha de Faria****Affiliation: Federal University of Paraíba (UFPB), Brazil****Abstract:**

This talk presents a practical framework that combines categorical structuring with topological derivatives to analyze and reduce geometric sensitivity in finite-element models for transcranial electrical stimulation (tES). I will describe how pipeline stages—image segmentation, volumetric meshing, tissue property assignment, electrode placement, and FEM solution—can be encoded as objects and morphisms within a category to enable modular composition and systematic generation of pipeline variants. The mapping from head geometries to simulation outputs is treated as a functor whose topological derivative quantifies the influence of localized geometric features (skull thickness, sulcal geometry, electrode displacement) on quantities of interest such as electric field magnitude in target regions. I will present results from a focused proof-of-concept using subject-derived meshes and open FEM tools that demonstrate: (i) sensitivity maps that guide adaptive mesh refinement and electrode-placement optimization, (ii) improved robustness of estimates across anatomical variability, and (iii) computational gains through targeted model reduction. The talk will also briefly address methodological considerations for model/AI validation and uncertainty assessment. The objective is to offer actionable strategies to increase modularity, reproducibility, and interpretability in tES modeling workflows relevant to the Neuroinformatics community.

**Title: The Nature of Brain Degenerative Diseases****Speaker Name: Ari Barzilai****Affiliation: Tel Aviv University, Isreal****Abstract:**

Brain structure and function are determined by four mega-networks: the neuronal, the glial, the immune, and the vascular systems. These four networks are intimately interconnected and continuously interact with one another. Brain degenerative diseases affect the dynamics and stability of a given network, altering its organization, topology, cell viability, cell numbers, cellular functionality, intra-network connectivity, and interactions with other networks. Impaired dynamics and network instability beyond certain thresholds result in clinical symptoms. A key protein capable of regulating the dynamics of all these brain mega-networks is the serine/threonine kinase Ataxia-Telangiectasia Mutated (ATM), which is deficient in ataxiatelangiectasia (A-T) patients. The hallmarks of A-T include severe neuromotor dysfunction (emanating primarily from progressive cerebellar atrophy), telangiectasia (dilation of blood vessels, observed primarily in the eyes), general immunodeficiency, thymic and gonadal dysgenesis, a striking predisposition to malignancies (mainly lymphoreticular), and extreme sensitivity to ionizing radiation. Additionally, some patients exhibit growth retardation, premature aging, and insulin resistance. In this presentation, I will describe the nature of these brain meganetworks and explore how they are regulated by ATM.

**Title: Treatment of Needle Phobia with Hypnosis****Speaker Name: Ágnes Csiby****Affiliation: Nap-Kör Mental Health Foundation, Hungary****Abstract:**

A young female patient sought psychological treatment due to an intense fear of pregnancy and childbirth, despite her desire to have a child.

During the exploration of the underlying sources of her fear, it became apparent that the patient had never undergone a gynecological examination and had also avoided laboratory testing for many years because of an intense fear of needles.

Following an assessment of the underlying factors contributing to her anxiety, systematic desensitization was applied under hypnosis to treat the needle phobia. This intervention enabled the patient to overcome her fear sufficiently to schedule a laboratory examination and successfully undergo a blood draw.

Following the course of treatment, the patient felt ready for pregnancy and conceived shortly thereafter. Her pregnancy was uncomplicated and she was able to experience and enjoy it without significant fear. She subsequently gave birth to a healthy child. Since then, the patient has continued to undergo examinations and medical procedures involving needles without avoidance.

This case highlights the potential of hypnosis as a rapid and effective intervention for needle phobia that has persisted for decades, with therapeutic benefits that may remain stable over the long term.

**Title: Omega 3 Fatty Acids Mitigate Monosodium Glutamate (MSG)-Induced Developmental Toxicity via Hepcidin/NF- κ B Pathway Modulation and Iron Homeostasis Restoration in Male Rats****Speaker Name: Eman Mohamad El Nashar****Affiliation: King Khalid University, Saudi Arabia****Abstract:**

BACKGROUND: Maternal nutrition during critical developmental windows is increasingly recognised as a key determinant of offspring health, a concept central to the developmental origins of health and disease paradigm. Monosodium glutamate (MSG), a common food additive and neuroendocrine stimulant, warrants investigation in this context.

METHODS: The impact of maternal MSG exposure (120 mg/kg) during gestation and/or lactation on metabolic programming in

first-generation male rat offspring. Metabolic, hormonal, and molecular parameters in pups following maternal MSG administration, body weight, food intake, adiposity, glucose homeostasis (insulin sensitivity and resistance), lipid profiles, oxidative stress markers, and inflammatory mediators were measured. Furthermore, we analyzed microRNA expression profiles in relevant tissues.

RESULTS: Maternal MSG exposure resulted in significant metabolic perturbations in offspring. Key findings included a reduced

survival index, impaired glucose homeostasis (manifesting as decreased insulin sensitivity and increased insulin resistance),

increased body weight, and elevated adiposity. We observed elevated oxidative stress, dyslipidemia, altered lipid peroxidation, and hormonal imbalances. Quantitative PCR analysis revealed altered expression of metabolic and inflammatory genes in both adipocytes and the hypothalamus. MicroRNA expression analysis identified significant alterations in miR-27a, miR-34a, miR-335, and

miR-30a, suggesting potential regulatory roles in adipogenesis and metabolic control.

CONCLUSIONS: Maternal MSG exposure during gestation and lactation induces profound and adverse metabolic effects in male offspring. The observed alterations in metabolic indices suggest an increased risk of metabolic disease later in life. This study underscores the critical importance of maternal nutrition during sensitive developmental periods and has implications for public health recommendations and nutritional guidelines.

**Title: Dysregulated circRNA Expression in Juvenile Myoclonic Epilepsy****Speaker Name: Fatma Soylemez****Affiliation: Mersin University, Turkey****Abstract:**

Juvenile myoclonic epilepsy (JME) is one of the most common genetic generalized epilepsy syndromes, but the molecular mechanisms underlying its development remain incompletely understood. Circular RNAs (circRNAs) are stable non-coding RNAs with important regulatory roles and increasing relevance in neurological disorders. In this study, we investigated for the first time the association between selected circRNAs (hsa_circ_0000218, hsa_circ_0000229, hsa_circ_0000249, hsa_circ_0002010, and hsa_circ_0000143) and JME. Total RNA was isolated from peripheral blood samples of 41 patients with JME and 41 healthy controls, followed by RNase R treatment and quantitative real-time PCR analysis. Expression levels of hsa_circ_0002010 and hsa_circ_0000143 were significantly upregulated in patients with JME compared with controls (both $p < 0.001$), whereas hsa_circ_0000249 was significantly downregulated ($p < 0.001$). No significant differences were observed for hsa_circ_0000218 or hsa_circ_0000229. Sex-specific analyses revealed differential expression patterns, and hsa_circ_0002010 and hsa_circ_0000249 were associated with drug resistance. Our findings suggest that certain circRNAs may be involved in molecular pathways related to JME and may provide preliminary information to inform future studies exploring their potential relevance in JME.

**Title: Variational Integration of Epistemic, Utilitarian, and Normative Interactions for Mental Wellbeing****Speaker Name: Edouard Siregar****Affiliation: Seji Labs, Spain****Abstract:**

Mental wellbeing emerges from the continuous integration of perception, decision-making, and social regulation. We propose a unified mathematical framework based on the Field Theory of Representation (FTR), in which these interacting processes are modeled as a variational field defined over a learned semantic manifold. Within FTR, an agent's cognitive state evolves according to a Lagrangian density whose potential term $V(E, U, N)$ captures the coupled influence of epistemic evidence (E), utilitarian objectives (U), and normative constraints (N). These three components represent complementary forces that jointly shape adaptive cognition and behavior. Inference is formulated as trajectories on a latent manifold $M \subset \mathbb{R}^d$, where the geometry encodes the semantic organization of experience. Mental wellbeing corresponds to stationary solutions of the associated action functional, balancing representational efficiency (minimal cognitive complexity) with accurate environmental modeling, goal-directed behavior, and normative coherence. FTR therefore provides a geometric framework for studying how healthy cognitive systems maintain stable representations while continuously adapting to changing sensory, behavioral, and social demands. The theory generates quantitative hypotheses for large-scale neurocognitive dynamics, cognitive resilience, stress adaptation, and dysregulation associated with neurological and psychiatric disorders. By expressing these phenomena within a common variational formalism, FTR offers a principled bridge between mathematical models of cognition, computational neuroscience, and future AI systems whose adaptive behavior remains aligned with human wellbeing.

**Title: Venous Hypertensive Encephalopathy Presenting as Rapidly Progressive Dementia and Parkinsonism Secondary to a Torcular Herophili Dural Arteriovenous Fistula****Speaker Name: Hamza Maqbool and Gao Yang****Affiliation: Yancheng Clinical College of Xuzhou Medical University, China****Abstract:**

Background/Objective: Torcular Herophili dural arteriovenous fistulas (DAVFs) are rare intracranial vascular malformations that can produce venous hypertensive encephalopathy (VHE), closely mimicking neurodegenerative or cerebrovascular disease. We report a case illustrating the diagnostic pitfalls of this condition and the reversibility of VHE following endovascular treatment.

Methods/Case: A 70-year-old woman developed subacute, progressive motor slowing, gait instability, and cognitive decline over three months, initially attributed to lacunar ischaemia. Serial MRI showed progressive bilateral white-matter hyperintensity (Fazekas grade 2). Comprehensive investigation — CSF analysis, autoimmune encephalitis panel, MOG-IgG antibodies, oligoclonal bands, and toxicological screening — was unremarkable, and high-dose corticosteroids produced no benefit. She progressed to aphasia and inability to stand. Repeat contrast-enhanced MRI revealed early opacification of the left transverse sinus during the arterial phase, prompting digital subtraction angiography (DSA), which confirmed a torcular Herophili DAVF fed by the left middle meningeal artery and bilateral occipital arteries, draining into the torcular, straight sinus, left transverse sinus, and bilateral deep cerebral veins with retrograde deep venous reflux.

Results: Transarterial embolization with ONYX achieved complete fistula obliteration. At one-month follow-up, MMSE improved from untestable to 23/30, with recovery of speech and mobility, and follow-up MRI demonstrated marked reduction in white-matter signal abnormality, confirming reversal of venous congestion.

Conclusion: Torcular Herophili DAVFs can present as rapidly progressive dementia and Parkinsonism mimicking common neurodegenerative and cerebrovascular syndromes. A disproportionately progressive, treatment-refractory course — particularly the triad of cognitive decline, gait failure, and incontinence — should prompt neurovascular imaging. Early venous opacification on MRI is a key diagnostic clue, and DSA remains essential for diagnosis and treatment planning. Timely endovascular embolization can achieve substantial neurological recovery even after prolonged symptomatic deterioration, underscoring the value of maintaining a broad differential in atypical progressive encephalopathy.

**Title: Autophagy induction: genes transcription and ultrastructure in brain cells of db/db mice in ageing and neurodegeneration****Speaker Name: Tatiana Korolenko****Affiliation: Scientific Research Institute of Neurosciences and Medicine, Russia****Abstract:**

The aim of this work was to assess the transcription of autophagy genes in comparison with structural disorders in brain cells (neurons and glial cells) in ageing male and female *db/db* mice and the development of neurodegeneration.

Methods: Animals. All experiments on laboratory animals were carried out taking into account the Recommendations of the Declaration of Helsinki on Animals and the 8th edition of the Rules for the Maintenance and Handling of Laboratory Animals, which are approved by the Ethics Committee of the Research Institute of Neurosciences and Medicine. 5-month-old *db/db* male and female mice (BKS. CgDock7m +/+ *Leprdb/J* stock 000642; Jackson Laboratory; Bar Harbor, ME, USA) were used. The samples were obtained from the SPF vivarium of the Institute of Cytology and Genetics of the Siberian Branch of the Academy of Sciences (Novosibirsk, Russia). The mouse line (with leptin receptor mutation) is a model of early obesity and type 2 diabetes mellitus, with a significantly reduced lifespan of *db/db* 169 ± 30 days, (less than 6 months), significantly fewer healthy control mice. Mice of 5 months of age used in work are referred to as age (aging) *db/db* mice. The first group included *db/db* mice (5 males and 5 females) with free access to food and drank water *ad libitum* for 30 days. The second group included *db/db* mice (5 males and 5 females) that had free access to food and drank trehalose solution (3% solution) *ad libitum* for 30 days. The third group (control) included 14 wild-type C57Bl/6 mice fed standard laboratory food and *ad libitum* water for 30 days.

Biochemical studies were carried out using the methods described earlier (Korolenko et al, 2021, 2025). The following indicators were analyzed in neurons and glial cells: genes – *Atg8*, encoding the protein marker E3 LC3-II (microtubule associated proteins 1A/1B light chain 3B); *Becn1*, which encodes the Becn1 protein associated with autophagy; the *Park2* gene, coding parkin (the ubiquitin ligase E3 protein associated with mitophagy); the *Insr* gene encoding the insulin receptor; and the *Igf1* gene encoding insulin-like growth factor 1. For statistical data analysis, Statistica 10.0 software (StatSoft, USA) was used. The significance level was determined as $p < 0.05$ in all experiments. Results and Discussion: The use of *db/db* mice of 5 months of age makes it possible to classify them as aged (old) animals. It is known that the average lifespan of *db/db* mice (a genetic model of type 2 diabetes) in the absence of treatment is 169 ± 30 days (about 5–6 months), which is significantly less than healthy mice of other strains.

We have shown that body weight is significantly increased ($p < 0.01$) in old *db/db* mice of both sexes as a result of obesity. At the same time, brain weight is significantly reduced in *db/db* mice of both sexes compared to the control ($p < 0.01$), and drinking trehalose (autophagy inducer) in *db/db* mice of both sexes had no effect on the rate remaining reduced. Serum glucose and cholesterol concentrations were significantly elevated ($p < 0.01$) in male and female *db/db* mice compared to controls, and drinking trehalose did not affect these indicators, which remain elevated. These results indicate significant disorders of carbohydrate and lipid metabolism in old *db/db* mice of both sexes, typical in patients with type 2 diabetes.



Title: Development of Neuropsychological Assessment and Mental Health Neurosciences in El Salvador: Emerging Opportunities Through Digital Transformation and Artificial Intelligence

Speaker Name: Carlos Marcel Weil Cruz

Affiliation: Dr. José Matías Delgado University, Salvador

Abstract:

The development of psychological and neuropsychological assessment in El Salvador reflects a broader transformation occurring across emerging health systems in Latin America. Historically, mental health services and specialized neuropsychological resources have faced significant challenges, including limited access to standardized assessment instruments, insufficient local psychometric validation, workforce shortages, and unequal service distribution. Despite these barriers, the country has experienced progressive advances in psychology education, scientific research, professional regulation, and the incorporation of neuroscientific perspectives into mental health practice.

This presentation examines the evolution of psychological assessment and the gradual integration of neuropsychology and applied neurosciences within the Salvadoran health and academic sectors. Drawing on historical developments, current institutional initiatives, and recent public health reforms, the analysis highlights how interdisciplinary collaboration has strengthened evidence-based assessment, cognitive evaluation, clinical decision-making, and mental health promotion.

Particular attention is given to emerging digital opportunities that are reshaping healthcare delivery in El Salvador. Recent investments in digital health infrastructure, telemedicine, electronic health records, and artificial intelligence-supported systems, including a national telehealth platform, illustrate how technological innovation can expand access to specialized services and improve continuity of care. These developments are supported by a growing legal and policy framework that promotes modernization, digital transformation, patient-centered care, and responsible technological adoption.

The Salvadoran experience provides a valuable case study for understanding how countries with constrained resources can progressively integrate neuroscience, mental health, and digital innovation. The lessons discussed offer practical implications for clinicians, researchers, educators, and policymakers seeking to strengthen equitable, culturally responsive, and technology-enhanced mental health systems in developing regions.

**Title: Pediatric Acute Encephalitis: Lessons Learned from 17 Years in a Neurocritical Care Unit****Speaker Name: Amal Elleuch****Affiliation: University of Sfax, Tunisia****Abstract:**

Background: Acute encephalitis is a life-threatening neurological emergency in children and remains associated with substantial mortality and long-term neurological disability despite advances in diagnostic techniques and intensive care management.

Objectives: To describe the etiological spectrum of pediatric acute encephalitis admitted to a tertiary Pediatric Intensive Care Unit over a 17-year period and to identify factors associated with mortality and neurological sequelae.

Methods: We conducted a retrospective cohort study including children admitted with acute encephalitis between 2008 and 2024. Clinical characteristics, laboratory findings, neuroimaging, electroencephalography, etiological investigations, therapeutic management, and outcomes were analyzed according to the International Encephalitis Consortium criteria.

Results: Fifty-eight children were included. An etiological diagnosis was established in 81% of cases, with infectious encephalitis representing the predominant cause, followed by immune-mediated encephalitis. Seizures, fever, and altered consciousness were the most frequent presenting manifestations. Mortality reached 20.7%, while nearly one-fifth of survivors developed persistent neurological sequelae. Younger age, abnormal neuroimaging, and the requirement for advanced intensive care support were associated with poorer outcomes on univariate analysis.

Conclusions: This long-term single-center experience highlights the clinical heterogeneity of pediatric acute encephalitis and emphasizes the importance of rapid diagnosis, comprehensive etiological investigations, neuroimaging, and specialized pediatric neurocritical care. Early recognition of severe disease may improve outcomes and reduce long-term neurological disability. The findings also support strengthening surveillance systems and preventive vaccination programs while encouraging multicenter prospective studies to optimize prognostic stratification and management strategies.

**Title: Debunking Western-oriented positive psychology: Budding line of research on new PP waves****Speaker Name: Elnaz Oladrostam****Affiliation: Shahid Beheshti University, Iran****Abstract:**

Since the inception of positive psychology (PP), teachers and educators emerged as early adopters of this fledgling science. While lines of first wave as well as second wave research are still branching out and form the bulk of the present-day PP research, new waves can be discovered and their viability and practicality can be tested. In this conceptual paper, it is expounded that positive psychology encapsulates a multidisciplinary, a fourth, as well as a fifth wave and the verisimilitude of Western version of PP science in all contexts and settings must be scrutinized and it is construed that instead of relying on nomothetic averaging, tautological assertions, and circular reasoning, PP science needs to be context-sensitive and to consider ecological and social contexts as well as control-value appraisals which can affect positive education (PE) and how it can be pursued and implemented in different milieus. This study will have manifold theoretical and practical implications for researchers and educators. It will also be concluded that emotions do not exhibit the same 'neural fingerprint' and they tend to be shaped with the surrounding context. Finally, instead of considering PP and PE as 'Trojan Horses' or 'silver bullets', several other disciplines, their tenets, and new waves must be embraced to address criticisms leveled at the Western form of positive psychology.

**Title: Mitochondrial enzyme dysfunction in Alzheimer's disease: a systematic review of human metabolic evidence****Speaker Name: Saina Hasany****Affiliation: Islamic Azad University Tehran Medical Sciences, Iran****Abstract:**

Alzheimer's disease (AD) is characterized by progressive cognitive decline accompanied by profound disturbances in cerebral energy metabolism. Mitochondrial dysfunction has long been implicated in AD pathophysiology, but the specific contribution of mitochondrial enzymes in human disease remains fragmented across heterogeneous studies. Enzymes regulating carbon entry into the tricarboxylic acid cycle, oxidative phosphorylation, and redox balance represent key metabolic control points whose dysfunction may contribute to neuronal vulnerability. This systematic review synthesized human evidence on mitochondrial enzyme alterations in Alzheimer's disease. Fifteen studies met the eligibility criteria. The most frequently investigated targets were mitochondrial enzymes involved in carbon entry into the tricarboxylic acid cycle, oxidative phosphorylation, redox regulation, and neurotransmitter-linked mitochondrial metabolism. Direct enzyme-activity evidence consistently implicated selected metabolic control points, particularly PDHC and α KGDHC, while additional studies demonstrated mitochondrial impairment through protein and post-translational modification changes, respiratory dysfunction, redox imbalance, and RNA-regulatory mechanisms. Overall, human evidence consistently implicates mitochondrial enzyme dysfunction as a central metabolic feature of Alzheimer's disease. However, the literature remains limited by heterogeneous assay methodologies, variable normalization strategies, and inconsistent reporting of enzyme activity outcomes. Standardized measurement and reporting of mitochondrial enzyme alterations are essential to strengthen mechanistic understanding and support future biomarker discovery and therapeutic target validation.

**Title: Developing Emotional Intelligence in Leaders and Teams****Speaker Name: K. Jayasankara Reddy****Affiliation: Christ University, India****Abstract:**

Organizational performance is driven by both strategic intelligence and the quality of its relational architecture. The ability to recognize, manage, and leverage emotions affects how well leaders manage conflict, unite teams, and maintain group motivation, even if traditional leadership frameworks prioritize technical proficiency. This session examines the neurological underpinnings of emotional intelligence and its real-world applications in high-achieving companies.

We investigate how emotion regulation circuits, particularly the prefrontal-amygdala connection, can be systematically enhanced by integrating concepts from positive neuropsychology and affective neuroscience.

This seminar covers practical frameworks for fostering emotional agility in leaders and creating neurobiologically based psychological safety in teams, going beyond self-awareness as a passive quality. Participants will learn how to transform emotional control into a quantifiable leadership skill that promotes trust, team cohesiveness, and long-term success.

**Title: Ala Attenuates Secondary Brain Injury Through Regulation of S100b/Rage Signaling, Stim, and Glutamate Homeostasis Following Traumatic Brain Injury****Speaker Name: Iqra Mazahir****Affiliation: School of Chemical and Life Sciences, India****Abstract:**

Traumatic brain injury (TBI) is a major cause of cognitive and motor impairments, primarily initiating a series of secondary injury pathways, with glutamate excitotoxicity being a critical factor in neuronal destruction. Overactive glutamate release leads to heightened activation of NMDA and AMPA receptors, causing prolonged Ca^{2+} influx and mitochondrial strain. S100B level increase after TBI activates astrocytes and promotes microglial activation through RAGE (receptor advanced glycation end-product) have been used as a biomarker of progression injury and in this study, we found the expression significantly upregulated by mRNA level and protein level. Alpha lipoic acid, a naturally occurring organosulfur compound, was administered intraperitoneally at a dose of 100 mg/kg bt. wt. following induction of TBI rats. Animals were randomly divided into four groups, viz., sham group I, TBI group II, TBI+vehicle group III, and TBI+ALA group IV. The study investigated the mitigating effects of ALA on neuronal apoptosis, excitotoxicity, inflammation, and memory retention. ALA resulted in downregulation of S100B, STIM, UCHL1, NF- κ B and GFAP expression and reduced the Grin2b mRNA expression after induction of TBI. However, TBI-dependent alteration in EAAT expression was downregulated in the pericontusional cortex of adult TBI rats. In addition, the relative fraction of astrocytes expressing glutamate transporters has been reduced post-trauma. We used a variety of methods, including behavioural (Barnes Maze, Y-maze), histological (H&E, IHC, immunofluorescence), ultrastructural (TEM), transcriptional (RT-PCR), and translational (Western blotting) investigations, to assess the extent of ALA-mediated protection of neurons. A thorough comprehension of the dynamic interaction between glutamate excitotoxicity and neuroinflammation in TBI can result in valuable insights into the formulation of novel therapeutic strategies designed to reduce secondary damage and promote neurodegeneration that target glutamate uptake to reduce excitotoxicity. The results of the present study showed that ALA has a neurotherapeutic effect against post-neurotrauma.

**Title: Delayed clocks, disrupted rest: Sleep mechanics in the night owl****Speaker Name: Priyanka Srivastava****Affiliation: Manav Rachna International Institute of Research Studies, India****Abstract:**

Background: Evening chronotype is often linked with poor sleep quality in young adults, but the psychological mechanism behind this relationship remains incompletely understood. Most prior studies have primarily examined sleep as the mediator, associating chronotype with mental health and emotional outcomes. The study aimed to examine the role of emotional dysregulation, chronotype, and sleep quality among young adults.

Methods: A study was conducted on N= 307 young adults, aged 18–30 years, recruited from Delhi-NCR, India. Participants completed established self-report scales for chronotype (Morningness–Eveningness Questionnaire), emotional dysregulation (Difficulties in Emotion Regulation Scale), and sleep quality (Pittsburgh Sleep Quality Index). Pearson correlations and mediation analysis, using bootstrapped confidence intervals, were tested using Jamovi software.

Results: Evening chronotype report significant relationship with higher emotional dysregulation ($r = -0.23$, $p < .001$) and poor sleep quality ($r = -0.34$, $p < .001$). The mediation analysis revealed a significant indirect effect of chronotype on sleep through emotional dysregulation ($B = -0.04$, $SE = 0.01$, $\beta = -0.08$, 95% CI $[-0.07, -0.02]$, $p < .001$), accounting for approximately 25% of the total effect. Moreover, the direct effect of chronotype on sleep was also significant after controlling for emotional dysregulation ($B = -0.13$, $SE = 0.03$, $\beta = -0.25$, $p < .001$), indicating partial mediation.

Conclusion: These findings report novel evidence that emotional dysregulation at least partly mediates the link between chronotype and sleep for young adults. This implies that the sleep problems associated with being a late chronotype may not only happen because of circadian mismatch, but also due to emotion regulation difficulties.

**Title: Preparation Of Bacoside A Encapsulated PLGA-PEG Nanoparticles for Neuroprotection Against Kainic Acid-Induced Excitotoxicity****Speaker Name: V. Gayathri****Affiliation: Jawaharlal Nehru Tropical Botanic Garden & Research Institute, India****Abstract:**

The inherent challenges posed by the blood-brain barrier (BBB) complicate the effective delivery of neuroprotective drugs. In response to these limitations, plant-based nanoparticle formulations are gaining interest for enhancing patient outcomes while minimizing side effects. Bacoside A (BM3) is a nootropic and neuroprotective saponin found in *Bacopa monnieri*. Owing to its limited permeability across the blood-brain barrier, BM3 is encapsulated within polymeric nanoparticles (NPs) for effective delivery. This study investigates the effects of BM3 encapsulated PLGA-PEG nanoparticles (BM3NPs) on kainic acid (KA)-induced excitotoxicity in a mouse model. It evaluates the protective effects of BM3NPs against neuroinflammation, oxidative stress, overexpression of seizure markers, and dysregulation of the mTOR pathway. BM3NPs exhibited an optimal size of 165.5 nm and a zeta potential of -32.5 mV, ensuring effective drug delivery. TEM studies demonstrated that BM3NPs (4 mg/kg, b.w.) reduced KA-induced brain tissue damage by restoring normal nuclear outline and strengthening brain membrane integrity. BM3NP also suppressed the overexpression of fractalkine, AMPA glutamate receptors and mTORC1 signalling. BM3NP treatment also led to an increase in antioxidant levels while reducing the expression of proinflammatory cytokines. Overall, the findings suggest that BM3NPs could serve as a promising therapeutic option for addressing KA-induced excitotoxicity.

**Title: Machine Learning for Early Alzheimer's Disease Detection: A Comparative Evaluation of Predictive Models****Speaker Name: Komal Sharma****Affiliation: Sri Aurobindo College of Commerce and Management, India****Abstract:**

Alzheimer's disease (AD) is a progressive neurodegenerative disorder and a major cause of dementia, with pathological changes often developing years before prominent clinical symptoms emerge. This presentation evaluates the potential of machine learning (ML) to support early AD detection using routinely available demographic, clinical, cognitive, and lifestyle-related information. Seven ML algorithms—Logistic Regression, Decision Tree, Random Forest, K-Nearest Neighbors, Support Vector Classifier, Gradient Boosting, and XGBoost—were comparatively assessed using an open Alzheimer's disease dataset comprising 2,149 patient records. The data included demographic characteristics, lifestyle factors, medical history, physiological measures, cognitive assessments, and behavioral indicators. Preprocessing involved missing-value handling, categorical encoding, feature scaling, correlation analysis, Variance Inflation Factor-based feature selection, and a 70:30 stratified train-test split. Model performance was evaluated using accuracy, precision, recall, F1-score, and ROC AUC, followed by hyperparameter optimization. Ensemble learning approaches demonstrated the strongest overall performance. Random Forest achieved the highest accuracy of 93.88% and ROC AUC of 96.45%, followed by XGBoost with 93.17% accuracy and 96.27% ROC AUC, while Gradient Boosting achieved 92.81% accuracy and 94.51% ROC AUC. Hyperparameter optimization further improved model performance and the balance between precision and recall. Feature analysis identified age, BMI, family history of Alzheimer's disease, MMSE score, and blood pressure measures among the influential predictors. The findings demonstrate the promise of ML-based risk stratification as a scalable support tool for earlier identification of individuals at elevated risk. However, single-dataset evaluation and the absence of external validation limit generalizability. Future work should emphasize multi-centre datasets, external validation, explainable AI, and integration of clinical, genetic, and neuroimaging information.



Title: Beyond the Clip: Unveiling Residual Aneurysms with CT Angiography Post-Surgical Clipping

Speaker Name: Laiba Yaseen

Affiliation: Punjab Institute of Neurosciences (PINS), Pakistan

Abstract:

Background: Residual aneurysms following microsurgical clipping remain clinically important because they increase the risk of aneurysm regrowth and subsequent hemorrhage. Although digital subtraction angiography is considered the gold standard for postoperative assessment, computed tomography angiography (CTA) offers a rapid, non-invasive alternative with high diagnostic accuracy.

Objective: To evaluate the detection rate of residual aneurysms using early postoperative CTA following microsurgical clipping and determine whether aneurysm neck size and aspect ratio predict incomplete occlusion.

Methods: This prospective single-arm quasi-experimental study was conducted at the Punjab Institute of Neurosciences, Lahore, from December 2024 to June 2025. Seventy-four patients undergoing microsurgical clipping for anterior circulation intracranial aneurysms underwent postoperative CTA within one week of surgery. Demographic characteristics, aneurysm location, neck size, aspect ratio, and Raymond-Roy occlusion classification were recorded. Associations between aneurysm morphology and residual aneurysms were analyzed using chi-square testing.

Results: The mean age of the patients was 47.3 ± 11.1 years, with males comprising 47.3% of the cohort. Residual aneurysms were detected in 8 of 74 patients (10.8%), all classified as Raymond-Roy Class III. Residual aneurysms occurred in 0% of aneurysms with neck size <3 mm, 8.3% with neck size 3–5 mm, and 20.7% with neck size >5 mm ($p=0.020$). Similarly, residual aneurysms were identified in 2.8% of aneurysms with an aspect ratio <1.5 compared with 18.4% of aneurysms with an aspect ratio ≥ 1.5 ($p=0.028$).

Conclusion: Early postoperative CTA effectively detected residual aneurysms following microsurgical clipping. Wide-neck aneurysms (>5 mm) and high aspect ratio aneurysms (≥ 1.5) were significant predictors of incomplete occlusion. Incorporating aneurysm morphology into postoperative surveillance may facilitate earlier detection of residual lesions, guide timely reintervention, and improve patient outcomes.

**Title: Comparative Study Between Laminoplasty and Laminectomy with or Without Fusion in Cervical Spondylotic Myelopathy****Speaker Name: Daniel Tama Boubane****Affiliation: Gamal Abdel Nasser University of Conakry, Guinea****Abstract:**

Background: Degenerative cervical myelopathy (DCM) is the main cause of non-traumatic spinal cord injury in older adults. Surgical treatments like laminoplasty (LP) and laminectomy (LF)—which both expand the spinal canal but have distinct benefits and technical drawbacks—are increasingly used to manage DCM.

Aim: The study assesses the safety and effectiveness of laminoplasty versus laminectomy with or without fusion in treating multilevel cervical spondylotic myelopathy (CSM).

Methods: This prospective study involved 30 patients with CSM who underwent spinal surgery, split into laminoplasty and laminectomy groups. Assessments used the Visual Analog Scale (VAS) and modified Japanese Orthopedic Association (mJOA) systems before and after surgery. Data analysis was done with IBM SPSS version 20.0 (significance at 5%) to compare clinical safety.

Results: This study involved 30 patients who underwent laminoplasty and laminectomy surgery at Alexandria Main University Hospital. Each group was performed in 50% of cases. Among laminectomy patients, 36.7% underwent laminectomy alone, while 13.3% required additional fusion. The laminectomy group had a higher mean age than the laminoplasty group. (61.0 ± 6.01 vs 55.40 ± 6.60 years, with $p=0.022$). Postoperatively, both groups showed significant pain reduction and functional improvement ($p < 0.001$) with no differences in pain or functional outcomes, indicating similar clinical effectiveness. The laminoplasty group experienced lower blood loss (169.3 ± 52.30 vs 235.3 ± 42.74 , $p=0.001$), shorter surgery duration, and hospital stays compared to the laminectomy group. Blood loss was correlated with hospital stay in the laminectomy group ($r_s = 0.747$, $p = 0.001$), suggesting that greater intraoperative bleeding was associated with extended hospitalization.

Conclusion: Laminoplasty and laminectomy are safe surgical options for multilevel DCM management. Laminectomy is preferred for spinal instability, while laminoplasty is better for preserved cervical lordosis, providing pain relief, fewer complications, and lower costs.

**Title: Spinal Cord Schistosomiasis, Case Report****Speaker Name: Abdulsemed Mohammed Yasin****Affiliation: 1. Dire Dawa University School of Medicine****Abstract:**

Background: Schistosomiasis remains a highly prevalent helminthic infection in tropical and subtropical regions, particularly across sub-Saharan Africa, including Ethiopia. While most cases involve the gastrointestinal or genitourinary systems, Neuroschistosomiasis is a rare but potentially devastating complication that can occur at any stage of infection. Delayed recognition often results in irreversible neurological deficits, making early diagnosis and timely therapeutic intervention critical for favorable outcomes.

Case Presentation: A 30-year-old male presented with a two-week history of progressive bilateral lower extremity weakness and urinary retention requiring catheterization. Neurological examination revealed motor strength (4/5), depressed reflexes, and diminished sensation. Laboratory demonstrated mild eosinophilia (5.4%). CSF showed pleocytosis (50 WBCs, predominantly lymphocytes). MRI revealed distal spinal cord and conus medullaris edema, with increased T2 signal and patchy nodular and linear surface enhancement—findings suggestive of inflammatory myelopathy.

Results: The patient was treated with high-dose corticosteroids (prednisone 1 mg/kg), followed by Praziquantel at 40 mg/kg/day initiated on day three and continued for five days. Marked neurological improvement was observed, with restoration of bladder function and removal of the urinary catheter by day seven of therapy.

Discussion: Spinal neuroschistosomiasis remains underdiagnosed due to its nonspecific presentation and overlap with other causes of myelopathy. This case highlights the importance of integrating clinical suspicion, laboratory findings, and advanced imaging for early diagnosis. From a global health perspective, ensuring timely access to effective antiparasitic therapies such as praziquantel is essential, particularly in endemic and resource-limited settings where disease burden is highest.

Conclusion: Spinal cord schistosomiasis should be strongly considered in patients from endemic regions presenting with acute or subacute myelopathy, especially when accompanied by urinary dysfunction. Early initiation of combined anti-inflammatory and antiparasitic therapy can lead to significant neurological recovery. Strengthening access to essential medications and improving diagnostic awareness are key to reducing morbidity associated with this neglected tropical disease.

**Title: Risk of Sylvian Vein Injury in the “Blind Zone” During Resection of Insular Gliomas Through the Transsylvian–Transinsular Approach****Speaker Name: Jakhongirmirzo Yoldoshev****Affiliation: Republican Specialized Scientific and Practical Medical Center of Neurosurgery****Abstract:**

Background: Sylvian venous injury during transsylvian–transinsular resection of insular gliomas is poorly characterized. Deep medial resection may redirect the operating microscope away from superficially located veins, creating a microscope-dependent “blind zone” and loss of direct vascular control.

Objective: To analyze intraoperative venous, arterial, and combined vascular injuries and assess the relationship between Sylvian vein injury and the blind-zone phenomenon.

Methods: This single-center retrospective study included 48 patients with dominant-hemisphere pure insular gliomas or tumors with medial extension treated between March 2021 and January 2025. All underwent transsylvian–transinsular resection with neuromonitoring and Doppler ultrasonography. Vascular events were classified as venous-only, arterial-only, combined, or absent. Venous risk was assessed vein by vein according to entry into the blind zone and changes in tributary confluence angulation. Outcomes included aphasia, motor deficit, brain swelling, deferred bone-flap replacement, and postoperative ischemic changes.

Results: Vascular injury occurred in 19 patients (39.6%): venous-only in 9 (18.8%), arterial-only in 7 (14.6%), and combined in 3 (6.3%). All isolated venous injuries occurred during deep medial resection under blind-zone conditions; 77.8% involved frontosylvian veins. Overall, 78.9% of vascular injuries were associated with the blind zone. Aphasia occurred in 66.7% of the venous-only group, while motor deficit occurred in 57.1% of the arterial-only group. Combined injury caused aphasia, motor deficit, brain swelling, and deferred bone-flap replacement in all patients. Differences were significant for motor deficit ($p=0.041$), brain swelling ($p=0.0004$), and bone-flap non-replacement ($p=0.0004$). Ischemic changes occurred in 66.7%, 71.4%, and 100% of the venous-only, arterial-only, and combined groups.

Conclusion: Sylvian venous injury is a clinically relevant complication of deep medial insular resection. Vein-specific assessment of geometry, angulation, mobility, and blind-zone entry may improve operative planning and intraoperative surveillance.

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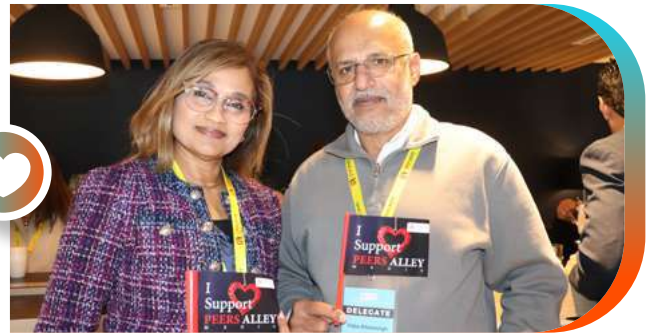
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that in consideration, Neuro Conclave
2027 is scheduled in the Beautiful city
'Singapore'.

SINGAPORE

Singapore, a dynamic city-state nestled in Southeast Asia, beckons travellers with its unique blend of cultural richness, technological advancements, and unparalleled experiences.

Cultural Diversity: In Singapore, cultures converge harmoniously, offering visitors a tantalizing journey through Chinese, Malay, Indian, and Western traditions. Explore vibrant neighbourhoods like Chinatown, Little India, and Kampong Glam to immerse yourself in their distinct flavors, colours, and aromas.

Modern Marvels: Marvel at Singapore's architectural wonders, from the iconic Marina Bay Sands complex to the futuristic Gardens by the Bay. Take a ride on the Singapore Flyer for panoramic views of the city skyline or indulge in thrilling attractions on Sentosa Island.

Culinary Delights: Singapore's food scene is legendary, boasting a kaleidoscope of flavors that tantalize the taste buds. Sample authentic dishes at bustling hawker centers, from savory Hainanese chicken rice to rich and fragrant laksa.

Shopping Paradise: Shopaholics rejoice in Singapore's myriad shopping destinations, from luxury boutiques along Orchard Road to eclectic markets like Bugis Street. Whether you seek designer labels or unique souvenirs, Singapore offers something for every shopper.

Technological Innovation: Experience firsthand Singapore's commitment to technological advancement and innovation.



Marina Bay Sands



Merlion Park



Supertree Grove



Little India And The
Arab Street



Sentosa Island

MUST-SEE DESTINATIONS IN SINGAPORE



Clarke Quay



Cloud-Forest



Flower-Dome



Gardens By the Bay



Jewel Changi Airport



National Gallery



Singapore Botanic
Gardens



Universal Studios



Singapore Art Science
Museum

MUST-SEE DESTINATIONS IN SINGAPORE



Buddha Tooth Relic
Temple and Museum



Asian Civilisations
Museum



National Orchid
Garden



OCBC Skyway



Singapore Botanic
Gardens



Singapore
Oceanarium



Singapore Zoo



The Shoppes at
Marina Bay Sands



Jurong Bird Park



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