THE 17th

International Conference on Brain Informatics (BI 2024)

Brain Science meets Artificial Intelligence

13 - 15 December 2024, Bangkok, Thailand

CONFERENCE PROGRAM

Sponsors & Organizers

Preface

The International Conference on Brain Informatics (BI) has established itself as the premier global event in the field of brain informatics, an emerging interdisciplinary domain that integrates cognitive science, neuroscience, medical science, data science, machine learning, artificial intelligence (AI), and information and communication technology (ICT). BI 2024 provided an international platform for researchers and practitioners from diverse fields to present original findings, exchange innovative ideas, and share insights into the latest developments in brain informatics. The central theme of the conference, "Brain Science Meets Artificial Intelligence," encompassed five core tracks: Cognitive and Computational Foundations of Brain Science, Human Information Processing Systems, Brain Big Data Analytics, Informatics for Brain and Mental Health, and Brain-Machine Intelligence and Brain-Inspired Computing.

The Brain Informatics conference series began in 2006 with the WICI International Workshop on “Web Intelligence Meets Brain Informatics” in Beijing, China. As one of the first conferences to explore the application of informatics to brain science, it laid the foundation for subsequent BI events. Over the years, the conference evolved, with the 2nd to 5th BI conferences held in Beijing (2009), Toronto (2010), Lanzhou (2011), and Macau (2012), respectively. In 2013, the conference shifted focus to Brain Informatics and Health (BIH), emphasizing real-world applications of brain research in human health and well-being. BIH conferences were held annually from 2013 to 2016 in Maebashi (Japan), Warsaw (Poland), London (UK), and Omaha (USA). In 2017, the conference returned to its original vision, focusing on brain informatics and its role in advancing information technologies, and the conference title reverted to Brain Informatics. BI 2024 continued this tradition, held in Bangkok, Thailand, from December 13-15, in a hybrid format.

BI 2024 featured a range of high-quality papers, world-class keynote speeches, workshops, poster sessions, and special sessions. The event attracted leading experts in brain research and informatics technologies from nearly 30 countries and regions, including Europe, Africa, Asia, Australia, North and South America. The conference program included 35 full papers, 17 workshop papers, and 58 abstract presentations, covering the latest advancements in brain informatics, spanning methodologies, frameworks, techniques, applications, and case studies. These papers reflect the cutting-edge progress in the field, bridging scales from molecular biology to cognition and behavior.

Five distinguished keynote speakers presented at BI 2024:

- Professor Kenji Doya, Okinawa Institute of Science and Technology, Japan
  Title: Brain/MINDS 2.0 and the Digital Brain Project
- Professor Hanchuan Peng, SEU-ALLEN Joint Center, Southeast University, China
  Title: Toward Building a Whole Brain Connectome at Single Neuron Resolution
- Professor Ramesh Srinivasan, University of California Irvine, USA
  Title: Graphical Modeling of Brain Networks
- Professor Lucina Q. Uddin, University of California Los Angeles, USA
  Title: Neuroinformatics and Cognitive Ontologies
- Professor Allison Sekuler, Baycrest Health Sciences, McMaster University & University of Toronto, Canada
  Title: Predictive Neuroscience for Precision Aging: Dementia Prevention, Detection, Treatment, and Care

We extend our sincere gratitude to the BI 2024 organizing committee, whose dedicated efforts were essential to the success of the conference. Our deepest appreciation goes to the Program Committee members for their meticulous review of submitted papers, as well as to our generous sponsors, including King Mongkut's University of Technology Thonburi (KMUTT), IEEE, the Web Intelligence Consortium (WIC), the International Neural Network Society, IEEE Computational Intelligence Society (CIS) Brain Informatics Task Force, IEEE-CIS Thailand Chapter, Asia-Pacific Neural Network Society (APNNS), the Chinese Association for Artificial Intelligence, the Chinese Society for Cognitive Science, Thailand Convention & Exhibition Bureau, Wuhan OE-Bio Co.,Ltd., PsychTech, BRAIN–X Holding Co.,Ltd., Biosemi AWTC, Inc., Solumate Co. Ltd. Professional Computer Co., Ltd, Forth Co., Ltd, Innoviz Solutions Co., Ltd, YIP IN TSIO Co., Ltd. We also wish to acknowledge the invaluable support from the local organizing teams at the Neuroscience Center for Research and Innovation, Learning Institute, the School of Information Technology at KMUTT, and the Research and Innovation Sustainability Center in Thailand. Our thanks extend to Springer's LNCS team for their continued partnership in publishing this special volume. We are grateful to Prof. Ning Zhong, chair of the Steering Committee and Advisory Board, for his leadership and vision in organizing and promoting BI 2024. Lastly, we would like to express our profound appreciation to all contributors, presenters, and volunteers who made BI 2024 a resounding success, even in the face of ongoing challenges.

December 2024
Sirawaj Itthipuripat
Giorgio Ascoli
Anan Li
Narun Pat
Hongzhi Kuai

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Keynote Speakers

Brain/MINDS 2.0 and the Digital Brain Project

Professor Kenji Doya

Okinawa Institute of Science and Technology (OIST) Graduate University, Japan

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Abstract

Following the conclusion of the Brain/MINDS project (2014-2024), a new six-year program Multidisciplinary Frontier Brain and Neuroscience Discoveries (Brain/MINDS 2.0) has started. A remarkable feature of this program is that the Digital Brain plays a central role in integrating structural and dynamic brain data from multiple species for understanding brain functions and tackling neuropsychiatric disorders. This talk will present what is the Digital Brain of Brain/MINDS 2.0, how we can build that, and how we can use that. The primary aims of the Digital Brain Project are to develop open-source software tools for data-driven model building by integrating anatomical, genetic, physiological, and behavioral data from mice, marmosets, macaques and humans and to provide cloud-based platform for cross-species data search, data-driven model building, and simulation analyses. By utilizing those tools and platforms, we aim to build models that realize brain functions like reinforcement learning and Bayesian inference and reproduce neurodegenerative disorders like Parkinson's disease and psychiatric disorders like schizophrenia to help early diagnosis and exploration of

therapeutic and preventive strategies. This ambitious project requires fresh talents from math, computation, AI and brain sciences, as well as broad international collaborations. Through this conference, we hope to extend our network with researchers and research projects with overlapping interests and technologies.

Biography

Kenji Doya is a Professor of Neural Computation Unit, Okinawa Institute of Science and Technology (OIST) Graduate University. He studies reinforcement learning and probabilistic inference, and how they are realized in the brain. He took his PhD in 1991 at the University of Tokyo, worked as a postdoc at U. C. San Diego and the Salk Institute, and joined Advanced Telecommunications Research International (ATR) in 1994. In 2004, he was appointed as a Principal Investigator of the OIST Initial Research Project and as OIST established itself as a Graduate University in 2011, he became a Professor and served as the Vice Provost for Research till 2014. He served as a Co-Editor in Chief of Neural Networks from 2008 to 2021 and the Chairperson of Neuro2022 in Okinawa, and currently serves as the President of Japanese Neural Network Society (JNNS). He received INNS Donald O. Hebb Award in 2018, JNNS Academic Award and APNNS Outstanding Achievement Award in 2019, and the age-group 2nd place at Ironman Malaysia in 2022.

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Toward Building a Whole Brain Connectome at Single Neuron Resolution

Professor Hanchuan Peng

SEU-ALLEN Joint Center, Southeast University, China

Abstract

In this talk I will discuss our work of a large-scale study of whole-brain morphometry, analyzing 3.7 peta-voxels of mouse brain images at the single-cell resolution, producing one of the largest multi-morphometry databases of mammalian brains to date. We annotated 3D locations of cell bodies of 182,497 neurons, modeled 15,441 dendritic microenvironments, characterized the full morphology of 1,876 neurons along with their axonal motifs, and detected 2.63 million axonal varicosities that indicate potential synaptic sites. Our analysis covers six levels of information related to neuronal populations, dendritic microenvironments, single-cell full morphology, sub-neuronal dendritic and axonal arborization, axonal varicosities , and sub-neuronal structural motifs, along with a quantification of the diversity and stereotypy of patterns at each level. Overall, our study provides an integrative description of key anatomical structures of neurons and their types, covering a wide range of scales and features, and contributes a large-scale resource to understanding neuronal diversity in the mammalian brain. With this dataset, we start to formulate a possible whole brain scale connectome at the single neuron resolution for mouse brains.

Biography

Hanchuan Peng (Fellow, IEEE, AIMBE, Founding Director – Institute for Brain and Intelligence; Founding Director – SEU-ALLEN INSTITUTE Joint Center) develops technologies to generate, manage, visualize, analyze, and understand massive-scale structure and function data related to brains and other biomedical applications. Peng was the Director – Advanced Computing, Allen Institute for Brain Science, and also an Affiliate Professor with University of Washington, University of Georgia, among others). Peng was also a PI with Janelia, HHMI. Peng's original work include the widely cited mRMR feature selection algorithm, APP1/APP2 neuron reconstruction algorithms, Virtual Fingers, Vaa3D, TeraFly, TeraVR, etc. His workwas cited about 30,000 times, in a number of fields. Peng founded Bioimage Informatics conferences in 2005, and iconized Bioimage Informatics as a new field in major bioinformatics journals including Bioinformatics, BMC Bioinformatics, Nature Methods, Nature Biotechnology, etc. He was the co-Editor-in-Chief of Brain Informatics (2016-2020) and a Section Editor of BMC Bioinformatics (2011-2018), and Bioinformatics (2021-2024).

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Predictive Neuroscience for Precision Aging: Dementia Prevention, Detection, Treatment, and Care

Professor Allison Sekuler

Baycrest Health Sciences, McMaster University & University of Toronto, Canada

Abstract

The world is aging faster now than ever before, and as we age the risk of dementia is growing. Brain changes linked to Alzheimer's Disease (AD) and related dementias begin years before the onset of clinical symptoms. However, we lack sufficient tools to accurately identify individuals during preclinical stages of dementia, which limits our ability to implement interventions that could prevent or slow disease progression. Although memory loss is one of the most common symptoms of dementia, visual perceptual and attention can also be impacted at the early stages of disease, but can be difficult to assess throughout disease progression. I will describe some of the ways in aging affects visual perception (including behavioural assessments and electrophysiological markers of face processing and contour integration), how those changes differ in healthy aging and neurodegeneration, and how tools from vision science can probe function in individuals living with dementia and beyond. The results of the work I will discuss are important for developing rapid, non-verbal assessments of visual function that could be used as early screening tools for dementia and assessment throughout disease progression. I also will share other examples of Baycrest's approach to predictive neuroscience for precision aging, including a range of collaborative opportunities spanning dementia prevention, detection, treatment, and care.

Biography

Dr. Allison Sekuler (FSEP, FPS, FAPS) is the Sandra A. Rotman Chair in Cognitive Neuroscience and Vice-President Research at Baycrest Health Sciences. A graduate of Pomona College (BA, Mathematics and Psychology) and the University of California, Berkeley (PhD, Psychology), Dr. Sekuler holds faculty positions in the Department of Psychology, Neuroscience & Behaviour at McMaster University and the Department of Psychology at the University of Toronto. Her research uses behavioural and neuroimaging approaches to understand how the brain processes visual information, with specific interests in face perception, motion processing, perceptual learning, neural plasticity, aging, and neurotechnology. Her research was the first to show conclusively that older brains "rewire" themselves to compensate for functional changes. Her clinical and translational research aims to develop methods to prevent, detect, and treat age-related sensory and cognitive decline. She has scientific and industry collaborations across North America, the EU, and Asia, and her work has been published in leading international journals, including Nature, Current Biology, and the Journal of Neuroscience.

She Chairs the Natural Science and Engineering Research Council's Public Impact Value Proposition committee; serves on the Board of Governors for Hamilton Health Sciences and Brains can and the scientific advisory board for VISTA; and is a founding steering committee member of the Canadian Brain Research Strategy. She also is a longstanding and passionate supporter of research communication and public outreach, serving, for example, as the only scientist on founding committee of the the Science Media Centre of Canada; and a sought-after speaker, podcaster, and commentator in national and international media. Co-founder of FoVea (Females of Vision et al.),

an international organization to advance women in vision science, and co-Executive Champion of the Ontario Hospital Association's Research and Innovation Anti-Racism Taskforce, Dr. Sekuler is a highly respected advocate for women and underrepresented groups in science, engineering, and technology. Dr. Sekuler has won numerous national and international awards for research, teaching, and leadership -- including serving as the country's first Canada Research Chair in Cognitive Neuroscience and recently being named one of WXN's Top 100 Most Powerful Women in Canada (2019). In her spare time, she is proving that you're never too old to learn: she picked up her first drumsticks a few years ago, joined a band, and recently earned her Drum Professional Certificate from the Berklee College of Music.

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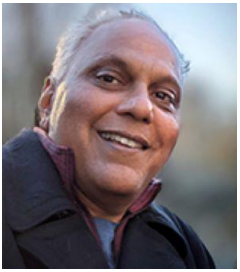

Graphical Modeling of Brain Networks

Professor Ramesh Srinivasan

University of California, Irvine, USA

Abstract

Much of our understanding of human brain function is developed from the analysis of statistical relationships between brain signals and behavior. Graphical models of brain signals are generative models that potentially provide causal insight into brain signals and their relationship to behavior and disease. I will discuss different studies in graphical modeling that we have used to (1) model structure-function relationships, (2) model the relationship between brain injury and function, (3) develop new approaches to hyperscanning based on symbolic dynamics, (4) model joint latent space to link cognitive parameters to both neural signals and behavioral measures. To study structure-function relationships we incorporate anatomical knowledge of brain networks to build a graphical model of brain signals and demonstrate in fMRI data that we can predict the effects of disconnection due to injury in stroke (Wodeyar et al., 2021). These graphical models capture the dynamic effects of injury in a manner not apparent in anatomy or in the raw signals. Measures of network properties in structurally informed graphical models of EEG reflect how efficient signal routing is essential to maintain motor functional status after stroke(Zhou et al., 2024). Graphical modeling also provides an entirely new approach to hyperscanning in coordination and other

forms of social cognitive neuroscience. We modeled the joint state of two individuals performing coordinated motor tasks with simultaneous EEG recordings, as a transition network in a symbol space defined by the graphical models, i.e., a graph of graphs. The symbolic dynamics over this graphical model capture the different coordination modes in a manner not possible by statistical analysis of correlations between brain signals. Graphical modeling can also be useful for formulating the link between brain activity and latent cognitive processes. Behavioral measures, such as accuracy and speed of motor responses, reflect latent cognitive processes underlying decision making. We have developed a novel approach that allows a theoretical account of the cognitive process of decision-making, and artificial neural networks to estimate a joint latent space to link cognitive parameters to both neural signals and behavioral measures (Vo et al., 2024). This joint latent space model is a valuable new framework for computational cognitive neuroscience, allowing for new forms of inference and hypothesis generation. The power of graphical modeling can allow for a more comprehensive understanding of the triplet relationship between behavior, brain activity, and cognitive processes.

Biography

Ramesh Srinivasan is a Professor of Cognitive Sciences and Biomedical Engineering at the University of California, Irvine. The primary focus of Srinivasan's research is on developing signal processing and computational modeling to relate brain networks to cognitive functions. This foundational signal processing research has broad impact in clinical and cognitive neuroscience research. Dr Srinivasan's PhD training in Biomedical Engineering at Tulane University was on the development of theoretical models of electroencephalography (EEG) largely contributed to the book (with Paul Nunez) Electric Fields of the Brain: The Neurophysics of EEG, 2nd ed., Oxford UP . He developed cognitive science and neuroscience expertise through postdoctoral training at the University of Oregon and at the Neurosciences Institute in San Diego. He joined the faculty in Cognitive Sciences and Biomedical Engineering at the University of California, Irvine in 2000 and was Chair of the Cognitive Sciences department from 2012 to 2022. He was appointed a Senior Fellow of the US Army Research Lab in 2022. He has published more than 100 papers in EEG/MEG signal processing, theoretical computational neuroscience, cognitive neuroscience applications in perception, attention, and decision making, and clinical research especially focused on motor functions and stroke. His recent work is focused on graphical models of EEG, MEG, and fMRI signals that incorporate structural and functional modeling to develop probabilistic generative models of brain networks linked to behavior and clinical status.

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Neuroinformatics and Cognitive Ontologies

Professor Lucina Q. Uddin

University of California Los Angeles, USA

Abstract

Decades of cognitive neuroimaging work has identified distinct patterns of brain activation that occur during performance of different tasks, as well as revealed patterns of task-general activation and deactivation. These data can in principle be used to provide the basis for constructing biologically informed, data-driven taxonomies of psychological processes. This talk will highlight some of the progress and challenges associated with the construction of cognitive ontologies based on functional neuroimaging data.

Biography

After receiving a Ph.D. in cognitive neuroscience from the Psychology Department at the University of California Los Angeles, Dr. Uddin completed a postdoctoral fellowship in the Child Study Center at New York University. For several years she worked as a faculty member in Psychiatry & Behavioral Science at Stanford University. She recently returned to UCLA where she currently directs the Brain Connectivity and Cognition Laboratory and the Center for Cognitive Neuroscience Analysis Core in the Semel Institute for Neuroscience and Human Behavior. Within a cognitive neuroscience framework, Dr. Uddin's research combines functional and structural neuroimaging to examine the organization of large-scale brain networks supporting the development of social cognition and executive function. Her current projects focus on understanding dynamic brain network interactions underlying cognitive inflexibility in neurodevelopmental conditions such as autism spectrum disorder. Dr. Uddin's work has been published in the Journal of Neuroscience, Cerebral Cortex, JAMA Psychiatry, Biological Psychiatry, PNAS, and Nature Reviews Neuroscience. She was awarded the Young Investigator award by the Organization for Human Brain Mapping in 2017.

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Conference Program

The 17th International Conference on Brain Informatics (BI 2024)

Location: Knowledge Xchange for Innovation (KX) Building,

King Mongkut's University of Technology (KMUTT), Bangkok, Thailand
Dates: 13-15 December 2024

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13 December 2024 (Morning Sessions)
Location: KX 10th Floor

Registration

- **8:00 AM - 9:00 AM**

Opening Ceremony & Keynote Lectures

Local Chair & Moderator: Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, Learning Institute, KMUTT, Thailand

Location: Conference Room X04
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/95452994239
(Zoom Meeting ID: 954 5299 4239)

- **9:00 AM - 9:30 AM: BI24 Opening Ceremony**
  Speakers:
  - **Kanyawim Kirtikara,** Senior Vice President for Research and Innovation, King Mongkut's University of Technology Thonburi (KMUTT), Thailand
  - **Ning Zhong,** Advisory Chair of BI24 and the Director & Chairman of the Web Intelligence Consortium (WIC), Maebashi Institute of Technology, Japan
  - **Sirawaj Itthipuripat,** General Chair of BI24 and the Director of Neuroscience Center for Research and Innovation, Learning Institute, KMUTT, Thailand

- **9:30 AM - 10:15 AM: Keynote Lecture on Brain/MINDS 2.0 and the Digital Brain Project**
  Speaker: **Kenji Doya,** Okinawa Institute of Science and Technology, Japan
  Moderator: **Anan Li** (BI24 General Chair), Huazhong University of Science and Technology, China

- **10:15 AM - 10:30 AM: Coffee Break**

- **10:30 AM - 11:15 AM: Keynote Lecture on Toward Building a Whole Brain Connectome at Single Neuron Resolution**
  Speaker: **Hanchuan Peng,** SEU-ALLEN Joint Center, China
  Moderator: **Giorgio Ascoli** (BI24 General Chair), George Mason University, USA

- **11:15 AM - 12:00 PM: Keynote Lecture on Graphical Modeling of Brain Networks**
  Speaker: **Ramesh Srinivasan,** University of California, Irvine, USA
  Moderator: **Sirawaj Itthipuripat** (BI24 General Chair), King Mongkut's University of Technology, Thailand

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Lunch
Location: KX 9th Floor
Time: 12:00-1:00 pm

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13 December 2024 (Afternoon Sessions)

Location: KX 10th Floor

Conference Symposia

Location: Conference Room X04

Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/95452994239
(Meeting ID: 954 5299 4239)

- **1:00 PM - 1:45 PM: The Symposium on Advanced Methods in Computational Social Neuroscience**
  Chair: **Italo Ivo Lima Dias Pinto,** University of California, Irvine, USA
  Local Chair: Thitaporn Chaisilprungraung**,** Neuroscience Center for Research and Innovation, KMUTT, Thailand

- **2:00 PM - 5:00 PM: The Symposium on Computational and Informatics Frameworks for Studying Cognitive Functions and Neurodegeneration**
  Chairs: **Narun Pat** (BI24 Leading Program Chair), University of Otago, New Zealand & **Daniel Thayer**, University of California, Santa Barbara, USA
  Local Chairs: Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, KMUTT, Thailand & Sittiprapa Isarangura, Mahidol University, Thailand

Workshop Sessions

Location: Conference Room X01

Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/99636493536
(Meeting ID: 996 3649 3536)

- **1:00 PM - 4:00 PM: The International Workshop: Generative AI Empowers Brain Signal Processing (GAIEBSP 2024)**
  Chairs: **Shuqiang Wang,** Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, **Sadia Shaki,** The Chinese University of Hong Kong, Hong Kong & **Baiying Lei,** Shenzhen University, China
  Local Chairs: Titipat Achakulvisit, Department of Biomedical Engineering, Mahidol University, Thailand & Kejkaew Thanasuan, Media Technology Program and Neuroscience Center for Research and Innovation, KMUTT, Thailand

Location: Conference Room X02

Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/94619238270
(Meeting ID: 946 1923 8270)

- **1:30 PM-4:50 PM: The 4th International Workshop on Environmental Adaptation and Mental Health (EAMH 2024)**
  Chairs (online): **Yang Yang**, **Yidi Chen**, **Zelong Meng**, & **Huixin Hu**, Beijing Forestry University, China
  Local Chairs: Singh Intrachooto & Sarigga Pongsuwan, Research and Innovation Sustainability Center, Thailand & Kanda Lertladaluck, Neuroscience Center for Research and Innovation, KMUTT, Thailand

Zoom links:
(13 December 2024)

The 17th International Conference on Brain Informatics (BI 2024)	
Date and Time	**Friday, Dec 13, 2024 (8.00am-8.00pm Bangkok Time)**
Room : X04	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/95452994239 Meeting ID: 954 5299 4239
Room : X01	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/99636493536 Meeting ID: 996 3649 3536
Room : X02	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/94619238270 Meeting ID: 946 1923 8270

14 December 2024 (KX 11th Floor)

Morning Sessions

Keynote Lecture
Locations: Conference Room X11.7 (main keynote lecture room) **& X11.3** (live broadcast)
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/94600113097
(Meeting ID: 946 0011 3097)

- **9:00 AM - 9:45 AM: Keynote Lecture on Neuroinformatics and Cognitive Ontologies**
  Speaker: **Lucina Q. Uddin,** University of California, Los Angeles, USA
  Chair & Moderator: **Sirawaj Itthipuripat** (General Chair of BI24), Neuroscience Center for Research and Innovation, KMUTT, Thailand
  Local Chair: Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, Learning Institute, KMUTT, Thailand & Tai Chaiamarit, Mahidol University, Thailand

- **9:45 AM - 10:00 AM: Coffee Break**

Workshop Sessions
Location: Conference Room X11.7
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/94600113097
(Meeting ID: 946 0011 3097)

- **10:00 AM - 11:55 AM: The International Workshop on Reconstruction and Modeling of the Brain at the Single-Cell Level (RMBSCL 2024)**
  Chairs: **Yufeng Liu** & **Lijuan Liu,** Southeast University, **Weiyao Lin,** Shanghai Jiao Tong University & **Guoqiang Yu,** Tsinghua University, China

Local Chairs: Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, KMUTT, Thailand & Tai Chaiamarit, Mahidol University, Thailand

Location: Conference Room X11.1
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/95129031089
(Meeting ID: 951 2903 1089)

- **09:00 AM - 11:00 AM: The International Workshop on Elucidation of Mechanistic Information using Neuroimaging for Psychiatric Disorders (EMINPD 2024)**
  Chairs (online): **Xiaofu He, Bin Xu** & **Xi Zhu,** New York State Psychiatric Institute & Columbia University, USA & **Yunyu Xiao,** Cornell University, USA
  Local Chair: Thitaporn Chaisilprungraung, Neuroscience Center for Research and Innovation, KMUTT, Thailand

Location: Conference Room X11.2
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/98337575267
Meeting ID: 983 3757 5267

- **09:30 AM - 12:00 PM: The International Workshop on Computational Tools for Cognition (CTC 2024)**
  Chairs (online): **Stephanie Neilli,** Occidental College, USA, **Ioannis Pappas,** University of Southern California, **Nuttida Rungratsameetaweemana,** Columbia University, USA
  Local Chairs: Titipat Achakulvisit, Department of Biomedical Engineering, Mahidol University, Thailand; Maytus Piriyajitakonkij, The University of Manchester, UK & Agency for Science, Technology and Research (A*STAR), Singapore

Lunch
Location: KX 9th Floor
Time: 12:00-1:00 pm

14 December 2024 (Afternoon Sessions)

Location: KX 11th Floor

Conference Symposia

Location: Conference Room X11.2

Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/98337575267
Meeting ID: 983 3757 5267

- **1:00 PM - 4:30 PM: The Symposium on Cognitive and Computational Approaches to Advancing Mental Health Research**
  Chairs: **Mufti Mahmud,** King Fahd University of Petroleum and Minerals, Saudi Arabia & **Narun Pat,** University of Otago, New Zealand
  Local Chair: Thitaporn Chaisilprungraung, Neuroscience Center for Research and Innovation, KMUTT, Thailand & Kanda Lertladaluck, Neuroscience Center for Research and Innovation, KMUTT, Thailand

Location: Conference Room X11.3
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/96563960134
Meeting ID: 965 6396 0134

- **1:00 PM - 2:15 PM: The Symposium on Cognitive and Computational Foundations of Visual Cognition**
  Chair: Kejkaew Thanasuan, Media Technology Program and Neuroscience Center for Research and Innovation, KMUTT, Thailand
  Local Chair: Kanda Lertladaluck, Neuroscience Center for Research and Innovation, KMUTT, Thailand

Workshop Sessions
Location: Conference Room X11.7
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/94600113097
(Meeting ID: 946 0011 3097)

- **1:00 PM - 5:35 PM: The International Workshop on Mesoscopic Brain-wide Connectivity Atlas (MBCA 2024)**
  Chairs: **Anan Li** (BI24 General Chair), Huazhong University of Science and Technology, China, **Junjie Zhuo** & **Zhao Feng,** Hainan University, China
  Local Chairs: Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, KMUTT, Thailand & Tai Chaiamarit, Mahidol University, Thailand

Location: Conference Room X11.1
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/95129031089
(Meeting ID: 951 2903 1089)

- **2:00 PM - 4:45 PM: The 2024 International Workshop on Web Intelligence meets Brain Informatics (WImeetsBI 2024)**
  Chairs: **Jianzhuo Yan**, **Jianhui Chen** & **Jiajin Huang**, Beijing University of Technology, China
  Local Chairs: Kajornvut Ounjai, Neuroscience Center for Research and Innovation, KMUTT, Thailand & Titipat Achakulvisit, Department of Biomedical Engineering, Mahidol University, Thailand

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Riverside Gala Dinner & Award Ceremony
Location: Away Bangkok Riverside Kene Hotel
Address: 1, Soi Charoen Nakhon 35, Charoen Nakhon Rd, Khlong San, Khlong San, Bangkok
Time: 6:30-9:30 pm

Award Presentations

- Best Conference and Student Paper Awards
Chairs: Sirawaj Itthipuripat, Giorgio Ascoli, Anan Li

- WIC Outstanding Service Award
Chair: Ning Zhong

- Springer Awards for Brain Informatics Journal
Chair: Ning Zhong

Announcement of Brain Informatics 2025 in Bari, Italy
Speaker: Angela Lombardi

Zoom links:
(14 December 2024)

The 17th International Conference on Brain Informatics (BI 2024)	
Date and Time	**Sat, Dec 14, 2024 (8.00am-8.00pm Bangkok Time)**
Room : X11.7	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/94600113097 Meeting ID: 946 0011 3097
Room : X11.1	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/95129031089 Meeting ID: 951 2903 1089
Room : X11.2	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/98337575267 Meeting ID: 983 3757 5267
Room : X11.3	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/96563960134 Meeting ID: 965 6396 0134

15 December 2024 (Morning Sessions)

Location: KX 11th Floor

Keynote Lecture

Location: Conference Room X11.7 (main keynote lecture room) & **X11.3** (live broadcast)
Join Zoom Meeting:https://kmutt-ac-th.zoom.us/j/93117861184
Meeting ID: 931 1786 1184

- **9:00 AM - 9:45 AM: Keynote Lecture on Predictive Neuroscience for Precision Aging: Dementia Prevention, Detection, Treatment, and Care**
  Speaker: **Allison Sekuler**, Baycrest Health Sciences, McMaster University & University of Toronto, Canada
  Chair & Moderator: **Chaipat Chunharas** (BI24 Program Chair), Faculty of Medicine, Chulalongkorn University, Thailand
  Local Chair: Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, Learning Institute, KMUTT, Thailand
  Local Chair: Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, Learning Institute, KMUTT, Thailand

- **9:45 AM - 10:00 AM: Coffee Break**

Conference Symposium

Location: Conference Room X11.7

Join Zoom Meeting:https://kmutt-ac-th.zoom.us/j/93117861184
Meeting ID: 931 1786 1184

- **10:00 AM - 12:00 PM: The Symposium on Brain Big Data Analytics, Curation, and Management (Note* afternoon session 1:00 PM - 2:00 PM)**
  Chairs: **Liya Ding**, University of Chicago, USA & **Carlos Enrique Gutierrez**, Okinawa Institute of Science and Technology, Japan
  Local Chairs: Itthi Chatnuntawech, National Center of Nanotechnology & Kanda Lertladaluck, Neuroscience Center for Research and Innovation, KMUTT, Thailand

Location: Conference Room X11.3

Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/92154423454
Meeting ID: 921 5442 3454

- **10:30 AM - 12:00 PM: The Symposium on Brain-Computer Intelligence and Brain-Inspired Computing**
  Chair: **Thitaporn Chaisilprungraung**, Neuroscience Center for Research and Innovation, KMUTT, Thailand
  Local Chair: Kejkaew Thanasuan, Media Technology Program and Neuroscience Center for Research and Innovation, KMUTT, Thailand

Workshop Sessions

Location: Conference Room X11.1

Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/98355254203
Meeting ID: 983 5525 4203

- **9:00 AM - 11:30 AM: The 6th International Workshop on Cognitive Neuroscience of Thinking and Reasoning (CNTR 2024)**
  Chairs: **Peipeng Liang**, Capital Normal University, China & **Vinod Goel**, York University, Canada
  Local Chairs: Kajornvut Ounjai, Neuroscience Center for Research and Innovation, KMUTT, Thailand & Titipat Achakulvisit, Department of Biomedical Engineering, Mahidol University, Thailand

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Lunch
Location: KX 9th Floor
Time: 12:00-1:00 pm

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15 December 2024 (Afternoon Sessions)

Location: KX 11th Floor

Conference Symposia

Location: Conference Room X11.7

Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/93117861184
Meeting ID: 931 1786 1184

- **1:00 PM - 2:00 PM: The Symposium on Brain Big Data Analytics, Curation, and Management (Continued)**
  Chair: **Carlos Enrique Gutierrez**, Okinawa Institute of Science and Technology, Japan
  Local Chairs: Itthi Chatnuntawech, National Center of Nanotechnology & Kanda Lertladaluck, Neuroscience Center for Research and Innovation, KMUTT, Thailand

Workshop Sessions

Location: Conference Room X11.1

Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/98355254203
Meeting ID: 983 5525 4203

- **1:00 PM - 3:00 PM: The International Workshop on Multimodal Computational Approaches for Brain Biomarkers Discovery (MCABBD 2024)**
  Chairs: **Hieu Pham**, VinUniversity & **Nguyen The Hoang Anh**, Vietnam – Korea Institute of Science and Technology, Vietnam
  Local Chairs: Titipat Achakulvisit, Department of Biomedical Engineering, Mahidol University, Thailand & Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, KMUTT, Thailand

- **4:00 PM - 5:50 PM: The 4th Special Session on Explainable Artificial Intelligence for Unveiling the Brain: From Black-Box to Glass-Box (XAIB 2024)**
  Chair (online): **Chiara Camastra**, Neuroscience Research Center, Department of Medical and Surgical Sciences, Magna Graecia University of Catanzaro, Italy
  Local Chairs: Titipat Achakulvisit, Department of Biomedical Engineering, Mahidol University, Thailand & Duanghathai Wiwatratana, Neuroscience Center for Research and Innovation, KMUTT, Thailand

Location: Conference Room X11.2
Join Zoom Meeting: https://kmutt-ac-th.zoom.us/j/95093505758
Meeting ID: 950 9350 5758

- **2:00 PM - 3:40 PM: The International Workshop on Application of Artificial Intelligence and Innovative Technologies in Brain Informatics and Health (AAIITBIH 2024)**
  Chair (online): **Zhijiang Wan**, Nanchang University, China
  Local Chairs: Kejkaew Thanasuan, Media Technology Program and Neuroscience Center for Research and Innovation, KMUTT, Thailand & Sittiprapa Isarangura, Mahidol University, Thailand

Zoom links:
(15 December 2024)

The 17th International Conference on Brain Informatics (BI 2024)	
Date and Time	**Sun, Dec 15, 2024 (8.00am-8.00pm Bangkok Time)**
Room : X11.7	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/93117861184 Meeting ID: 931 1786 1184
Room : X11.1	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/98355254203 Meeting ID: 983 5525 4203
Room : X11.2	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/95093505758 Meeting ID: 950 9350 5758
Room : X11.3	Join Zoom Meeting https://kmutt-ac-th.zoom.us/j/92154423454 Meeting ID: 921 5442 3454