

# Frontiers of bioinformatics and its clinical application

Feb. 8 [Thu], 2024 - Osaka University, Japan

Venue : Convention Center, Osaka University Suita Campus

Access



Sponsorship : Global Center for Medical Engineering and Informatics, Osaka University

Integrated Frontier Research for Medical Science Division,

Institute for Open and Transdisciplinary Research Initiatives (OTRI), Osaka University

Integrated Frontier Research for Medical Science Division, Osaka University

Onsite  
Only

Free

## PROGRAM

9:30-9:40 Opening remarks

**Takao Onoye**, Executive Vice President of Research, Osaka University

**Kohji Nishida**, Department of Ophthalmology, Osaka University, Graduate School of Medicine

Premium Research Institute for Human Metaverse Medicine (PRIME)

Integrated Frontier Research for Medical Science Division, Institute for Open Transdisciplinary Research Initiatives (OTRI)

Session 1

### Frontiers in sensing and controlling of the Brain function

**Chair** **Takufumi Yanagisawa**, Institute of Advanced Co-Creation studies, Department of Neurosurgery at Osaka University.

9:40-10:25 Investigation of Speech Imagery for Brain-Computer Interfaces

**David Grayden**, Neural Engineering in the Department of Biomedical Engineering, Faculty of Engineering & Information Technology, and the Graeme Clark Institute for Biomedical Engineering.

10:25-10:40 Break

10:40-11:25 Neural decoding and manipulation of metacognition

**Aurelio Cortese**, ATR Institute International Computational Neuroscience Laboratories

11:25-12:10 Neural mechanisms of anxiety responses to psychological stress

**Atsushi Kasai**, Graduate School of Pharmaceutical Sciences Drug Innovation Center, Osaka University

12:10-13:30 Lunch break

Session 2

### Big data and AI, and its applications

**Chair** **Haruhiko Kishima**, Department of Neurosurgery, Osaka University Graduate School of Medicine & MEI center

13:30-14:15 Ambitions of the Moonshot Project: Bridging Minds and Machines

**Ryota Kanai**, ARAYA Inc.

14:15-14:30 Break

14:30-15:15 Mapping diverse perceptual and cognitive functions in the human brain

**Shinji Nishimoto**, Graduate School of Frontier Biosciences, Osaka University

15:15-16:00 DNA event recording system through advanced DNA engineering

**Hideto Mori**, Premium Research Institute for Human Metaverse Medicine, Osaka University

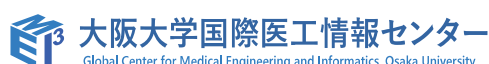


Registration Form

<https://forms.gle/x7g3QG6yufi8qadEA>

Contact information

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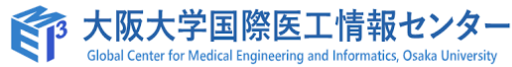


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大阪大学先進的学際研究機構 (OTRI)  
生命医科学融合フロンティア研究部門



Institute for Open and Transdisciplinary Research Initiatives, OTRI



Integrated Frontier Research for Medical Science Division, Osaka University

# Frontiers of bioinformatics and its clinical application

**Feb. 8 – 9, 2024 – Osaka University, Japan**

## **Day 1 (Thursday, Feb. 8) “International Symposium”**

### **Venue: Convention Center, Osaka University Suita Campus**

[https://www.osaka-u.ac.jp/ja/access/files/campus\\_map\\_suita\\_A4\\_202002.pdf/@download/file](https://www.osaka-u.ac.jp/ja/access/files/campus_map_suita_A4_202002.pdf/@download/file)

#### **9:30-9:40 Opening remarks**

**Takao Onoye**, Executive Vice President of Research, Osaka University

**Kohji Nishida**, Department of Ophthalmology, Osaka University, Graduate School of Medicine  
Premium Research Institute for Human Metaverse Medicine (PRIME)  
Integrated Frontier Research for Medical Science Division,  
Institute for Open Transdisciplinary Research Initiatives (OTRI)

#### **Session 1**

### **Frontiers in sensing and controlling of the Brain function**

**Chair; Takufumi Yanagisawa**, Institute of Advanced Co-Creation studies/ Department of Neurosurgery at Osaka University

#### **9:40-10:25**

**David Grayden**, Neural Engineering in the Department of Biomedical Engineering, Faculty of Engineering & Information Technology, and the Graeme Clark Institute for Biomedical Engineering.

**Lecture title:** Investigation of Speech Imagery for Brain-Computer Interfaces

**Break**

**10:40-11:25**

**Aurelio Cortese**, ATR Institute International Computational Neuroscience Laboratories

**Lecture title: Neural decoding and manipulation of metacognition**

**11:25-12:10**

**Atsushi Kasai**, Graduate School of Pharmaceutical Sciences Drug Innovation Center, Osaka University

**Lecture title: Neural mechanisms of anxiety responses to psychological stress**

**Lunch Break**

## **Session 2**

### **Big data and AI, and its applications**

**Chair; Haruhiko Kishima**, Department of Neurosurgery, Osaka University Graduate School of Medicine & MEI center

**13:30-14:15**

**Ryota Kanai**, ARAYA Inc.

**Lecture title: Ambitions of the Moonshot Project: Bridging Minds and Machines**

**Break**

**14:30-15:15**

**Shinji Nishimoto**, Graduate School of Frontier Biosciences, Osaka University

**Lecture title: Mapping diverse perceptual and cognitive functions in the human brain**

**15:15-16:00**

**Hideto Mori**, Premium Research Institute for Human Metaverse Medicine, Osaka University

**Lecture Title: DNA event recording system through advanced DNA engineering**

**16:00-18:30**

**Lab tour**

**Yanagisawa Lab., Neurosurgery, Osaka University Hospital**

## **Day 2 (Friday, Feb 9) “MEI Winter School Day”**

**Venue: CoMIT - Multimedia Hall at Osaka University Medical School**

<http://www.comit.med.osaka-u.ac.jp/en/access.html>

### **9:30-10:20 (lecture)**

**John Sam**, Department of Biomedical Engineering, School of Chemical and Biomedical Engineering, Faculty of Engineering and Information Technology, The University of Melbourne

**Lecture title: Efficacy of the Endovascular Neural Interface for Neural Recording and Stimulation**

### **10:20-11:10 (lecture)**

**Masami Tatsuno**, University of Lethbridge

**Lecture title: Replay of explicit and implicit memory and its functions**

### **Break**

### **11:20-12:00 (lecture)**

**Aurelio Cortese**, ATR Institute International Computational Neuroscience Laboratories

**Lecture title: How do we build metacognition in our brains --measuring, decoding and manipulating subjective experience**

### **12:00-12:30 (lecture)**

**Hajime Nakamura**, Department of Neurosurgery, Osaka University Graduate School of Medicine

**Lecture title: Development of intravascular electrode to realize minimally invasive BMI system**

### **Lunch Break**

### **13:50-14:10 (lecture)**

**Hui Ming Khoo**, Department of Neurosurgery, Osaka University Graduate School of Medicine

**Lecture title: SEEG -- the New Frontier in Localization of Epileptic Foci**

### **14:10-15:10**

**Brief introduction of participants**

**15:10-15:40 (lecture)**

**David Grayden**, Neural Engineering in the Department of Biomedical Engineering, Faculty of Engineering & Information Technology, and the Graeme Clark Institute for Biomedical Engineering.

**Lecture title: Epileptic seizure forecasting using mobile and wearable devices**

**Break**

**15:50-16:35 (lecture)**

**Takufumi Yanagisawa**, Institute of Advanced Co-Creation studies, Department of Neurosurgery at Osaka University

**Lecture title: Decoding of Thought and application for BCI**

**16:35-16:55 (lecture)**

**Naoki Tani**, Graduate School of Medicine, Osaka University

**Lecture title: LFP as Biomarkers of Parkinson's Disease Motor Symptoms and its application to Adaptive DBS**

**16:55-17:10**

**Greetings and Closing remarks from the Director of the MEI center**

**Haruhiko Kishima**, Department of Neurosurgery, Osaka University Graduate School of Medicine & MEI center