



2021/7/19

## IJCNN 2021

# Constructing a practical framework of multi-modal imaging for personalized brain-based interventions

### Organizers and their short bio:

#### Organizer:

Dr. LU Hanna

Research Assistant Professor, Department of Psychiatry, The Chinese University of Hong Kong

Core Member, Neuroimaging and Brain Stimulation Lab, The Chinese University of Hong Kong

Honorary Professor, The Affiliated Brain Hospital of Guangzhou Medical University

**Short bio:** Dr. LU received her PhD degree in Medical Sciences from the Chinese University of Hong Kong (CUHK) in 2015. She worked as postdoctoral scientist in Neuroimaging and Brain Stimulation Lab at CUHK and visiting scholar in at Beijing Normal University and Chinese Academy of Sciences. Dr. LU currently works as and core member of Neuroimaging and Brain Stimulation Lab at the Chinese University of Hong Kong. She is also a Honorary Professor at the Affiliated Brain Hospital of Guangzhou Medical University. Her research interests mainly focus on individualized brain stimulation and its potential neural mechanisms in healthy ageing and neurodegenerative diseases. Meanwhile, based on clinical data, the neuroinformatics approach to brain science in psychiatry is also the field of interest. She has published more than 25 papers in neuropsychology, non-invasive brain stimulation and neuroimaging journals, including JNNP, Journal of NeuroEngineering and Rehabilitation, Journal of Alzheimer's Disease, etc.

#### Co-organizer:

Prof. ZHANG Zhiguo

Director, School of Biomedical Engineering, Health Science Center, Shenzhen University

**Short bio:** Prof. ZHANG received his Ph.D. degree from the Department of Electrical and Electronic Engineering, The University of Hong Kong, in 2008. He worked as an Assistant Professor in Nanyang Technological University, Singapore and a Professor in Sun Yat-sen University, China. Currently, he is a Professor with Shenzhen University. His research interests include brain signal and image analysis, neuromodulation, and brain-inspired computation. He has published more than 70 papers in brain imaging and engineering journals, including several IEEE Transactions, NeuroImage, Journal of Neuroscience, etc. His research is now focused on the diagnosis and intervention of brain disorders using advanced data analytical tools.

## **Brief description of the scope and impact of the workshop**

The theme of this workshop focuses on the applications of multi-modal brain imaging and advanced analytic methods in the diagnosis and prognosis of brain disorders. As such, this workshop will address the recently discovered neurophenotypes from large-scale neuroimaging studies with multi-modality imaging methods, as well as the potential utilities and workflows when using these findings to guide brain-based interventions (i.e., personalized medicine).

In this workshop, we will endeavor to foster exchange and collaboration between researchers working at different fields, including cognitive psychology, neuroinformatics, computational and clinical neuroscience. By fostering exchange between neuroscientists, engineers and clinicians, this workshop will address four topics and Young Researcher's Forum for the collaborations between researchers working on related research, and to draw inspiration for interdisciplinary and intermodal interactions during the workshop. This workshop will be ideal for junior researchers to discuss their work with the experts from different fields, in either Lightning Round Presentations or interactive Q&A sessions, which allows this workshop to provide a unified framework for educating and promoting new ideas and in-depth collaborations.

**Timeliness of the topic:**

Presentation 1:

Challenges and promises of translational applications of clinical neuroimaging researches (30 minutes)

Presentation 2:

Deep learning and neuroimaging in brain sciences (30 minutes)

Q&A (10 minutes)

Presentation 3:

The predictive role of network-based functional connectivity in TMS trial (30 minutes)

Presentation 4:

The impact of cortical complexity on brain stimulation in neurodegenerative diseases (30 minutes)

Q&A (10 minutes)

Lightning Round Presentation (Young Researcher's Forum) (30 minutes, 10 minutes per speaker)

Q&A and summary (10 minutes)

**Confirmed and/or potential speakers:**

Speaker 1: Prof. ZHANG Zhiguo

Speaker 2: Dr. LOU Wutao

Speaker 3: Dr. Helene Hopman

Speaker 4: Dr. LU Hanna

Speaker 5: Dr. TANG Shi

Speaker 6: Dr. CHE Xianwei

Speaker 7: Dr. TU Yiheng

**Half day (3 hours)****Link to organizer's web page and/or workshop web site (optional)**

Dr. LU Hanna: <http://www.psychiatry.cuhk.edu.hk/department-staff/teachers/dr-hanna-lu>

Prof. ZHANG Zhiguo: <http://www.zgzhang-lab.net/>