

Workshop Towards the Next-Generation BCI-MedTech Platform



Date: 31 October 2018

Time: 12.00pm to 5.30pm (Lunch is provided from 12.00pm to 1.00pm)

Venue: Multipurpose Hall 2, Innovis, 2 Fusionopolis Way 138634 ([Map](#))

Registration: Click [here](#)

Non-invasive Brain-Computer Interface (BCI) technology has emerged as a ubiquitous and promising non-drug approach in the diagnosis and treatment of neurological disorders and mental illnesses, empowered by non-invasive sensing devices, machine learning and artificial intelligence. Extensive research, development and clinical trials have demonstrated the enormous potential of BCI technologies for stroke rehabilitation, ADHD treatment, cognitive training, and mental health. Despite the extraordinary progress in this field, there are still technological obstacles in the way. To unleash the full potential of BCI and to achieve greater breakthroughs, we need to conduct in-depth research by capitalizing on the advanced technical developments, promising clinical studies, large datasets, and strong multidisciplinary technical-clinical collaborations in Singapore. We wish to build a next-generation BCI- MedTech platform to bridge the technological gaps and develop world-class BCI capabilities with research talents in Singapore.

In this workshop, we wish to bring together academics, researchers and engineers, who are passionate to contribute to this initiative and aspired to make breakthroughs, to exchange ideas, brainstorm, and define the scope of the program.

Invited Speakers



Prof Guan Cuntai
School of Computer
Science and
Engineering, NTU



Dr Quek Boon Kiat
Institute of High
Performance
Computing, A*STAR



Dr Kat Agres
Institute of High
Performance
Computing, A*STAR



A/Prof Justin Dauwels
School of Electrical &
Electronic Engineering,
NTU



Asst Prof Helen Zhou
Neuroscience and
Behavioural Disorders
Programme, Duke-NUS



A/Prof Yow Wei Quin
Humanities Arts and
Social Sciences, SUTD



Asst Prof Tan U-Xuan
Engineering Product
Development, SUTD



Dr Neethu Robinson
School of Computer Science
and Engineering, NTU

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Workshop Programme

- 12.00pm** **Registration and Lunch**
- 1.00pm** **Opening Address**
*Prof Tan Sze Wee, Executive Director, Science and Engineering Research Council, A*STAR*
- 1.10pm** **Overview of BCI research and future directions**
Prof Guan Cuntai, Professor, School of Computer Science and Engineering, NTU
- 1.40pm** **Psychological model and motivation in BCI**
*Dr Quek Boon Kiat, Senior Scientist, Institute of High Performance Computing, A*STAR*
- 2.00pm** **Challenges and opportunities in BCI based motor rehabilitation**
Dr Neethu Robinson, Research Fellow, School of Computer Science and Engineering, NTU
- 2.20pm** **Neuroimaging studies towards evidence based BCI therapy**
A/Prof Helen Zhou, Associate Professor, Neuroscience and Behavioural Disorders Programme, Duke-NUS
- 2.40pm** **Tea Break**
- 3.10pm** **Challenges and opportunities in BCI for mental health**
A/Prof Justin Dauwels, Associate Professor, School of Electrical & Electronic Engineering, NTU
- 3.30pm** **Music research and its potentials for BCI medtech research**
*Dr Kat Agres, Scientist, Institute of High Performance Computing, A*STAR*
- 3.50pm** **Estimation of cognitive load level and physical performance as feedback loop to BCI analysis**
Asst Prof Tan U-Xuan, Assistant Professor, Engineering Product Development, SUTD
- 4.10pm** **Deep learning in Brain-Computer Interfaces**
Prof Guan Cuntai, Professor, School of Computer Science and Engineering, NTU
- 4.30pm** **Potential BCI applications in children and the elderly in cognitive functioning and social cognition**
Prof Yow Wei Quin, Associate Professor and Associate Head, Humanities, Arts and Social Sciences, SUTD
- 4.50pm** **Discussion and Wrap-Up**
Facilitated by Prof Guan Cuntai, Professor, School of Computer Science and Engineering, NTU

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