【校級神經醫學研究中心 109 年 6 月份月會】

會議紀錄

時　　間：109年7月1日(星期三) 12:10-13:30

地　　點：Google Meet 視訊會議

主　　席：蔣永孝 主任 (由陳震宇副校長代理)

主 持 人：陳震宇 副校長

TMU Neuroscience Research Center Monthly Meeting Minutes

Chair: Director Y. C. Chiang (represented by Vice President C. Y. Chen)

Host: Vice President C. Y. Chen

Recorded by: Professor J. Y. Wang, Secretary C. N. Huang

Time: 2020/7/1 (Wednesday) 12:10-13:30

Place: Net meeting via Google Meet

Meeting Agenda (議程) :

1. Opening by director Chiang
2. Team progress report presented by the "Neural Rehabilitation" Team
   1) " Cognitive Impairment in Mild Traumatic Brain Injury: A Connectomic Approach" presented by Dr. Syu-Jyun Peng 彭徐鈞助理教授
   2) " Motor and Disease Assessment in Idiopathic Normal Pressure Hydrocephalus-Using Advanced MRI and AI " presented by Dr. Rennie Yung-Chieh Chen 陳永介醫師

1. Opening by Director Chiang

This monthly meeting, we invited the NeuroImage Team which is led by Vice President C. Y. Chen. Vice President Chen will host the meeting today.

本中心六月份月會由神經影像團隊進行報告，團隊召集人為陳震宇副校長。

2. Team progress report presented by the research team group of "NeuroImage"

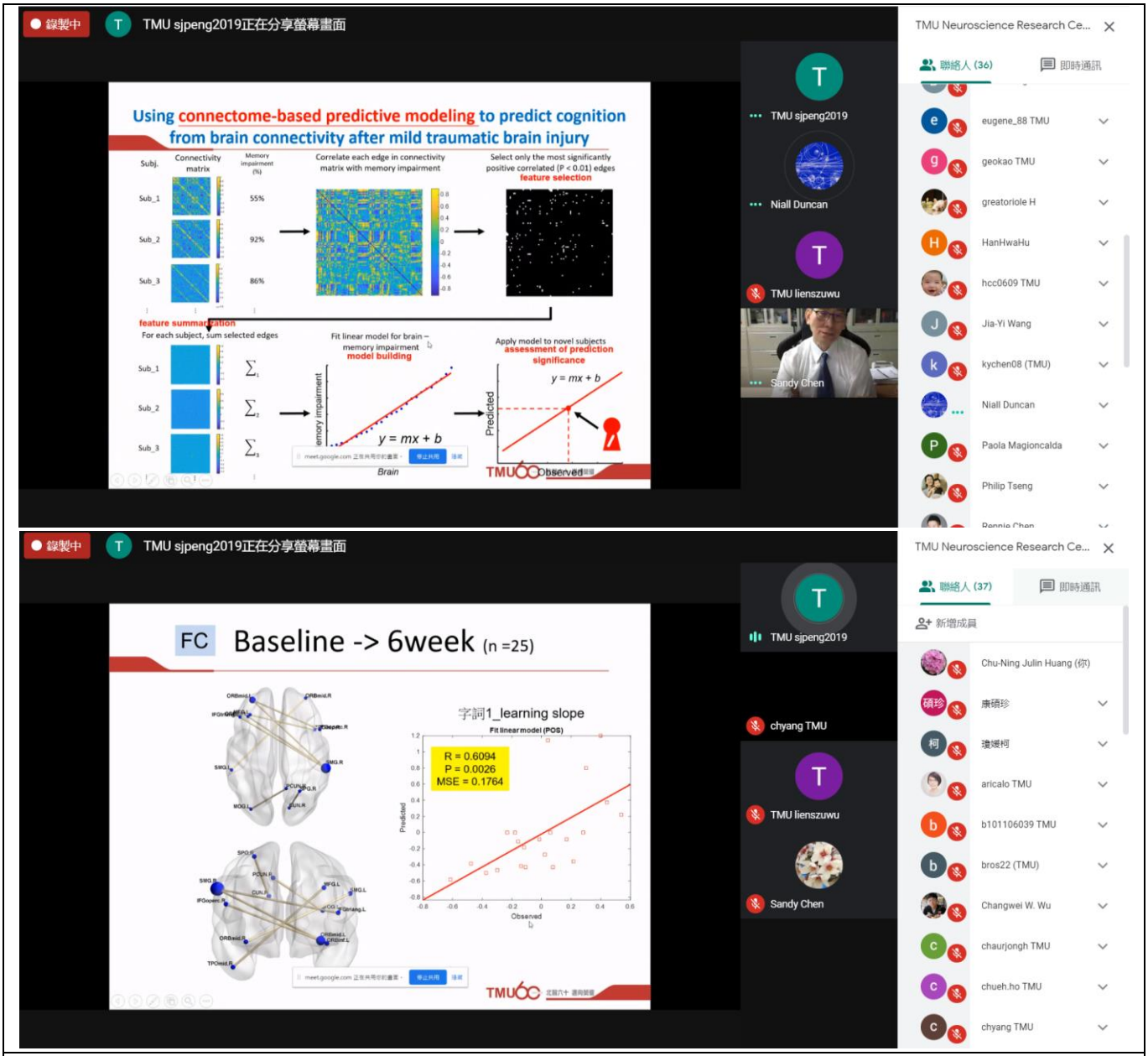
1) " Cognitive Impairment in Mild Traumatic Brain Injury: A Connectomic Approach" presented by Dr. Syu-Jyun Peng (彭徐鈞助理教授)

Vice President Chen introduced the first speaker, Dr. Syu-Jyun Peng. Dr. Peng is an Assistant Professor at the Professional Master Program in Artificial Intelligence in Medicine of College of Medicine in TMU. Dr. Peng specialize in electrophysiological processing and analysis, translational medicine, and machine learning. Today he is going to introduce the cognitive impairment in mild traumatic brain injury.

陳震宇副校長介紹第一位講者-彭徐鈞助理教授，目前任職於臺北醫學大學人工智慧醫療碩士在職專班，彭博士的專長在於研究電生理學處理和分析、轉譯醫學和人工智慧。今天他將介紹有關輕微創傷的認知障礙研究。

Brief summary of Dr. Peng's speech:

The underpinnings of human cognition are the interaction of the dynamic patterns of structural and functional connectivity. These complex interconnected networks of neurons as a whole are known as connectome. The human connectome project (HCP) was launched in 2011 aiming at studying connectome in order to decode the neural networks that form the cognitive functions, such as memory and behaviors. HCP is building human connectome map through super high-resolution MRI and advanced diffusion tensor imaging (diffusion spectrum imaging) that requires high gradient scanner and long scanning time not available in a clinical environment. Moreover, not all patients can tolerate long scan times while remaining still, resulting in significant motion artifacts in the images. This project proposes approaches to brain connectivity and memory impairment by establishing a clinically accessible connectome model, i.e. a combination of structural and functional connectivity maps, along with an advanced quantitative analysis method in a hospital-based scanner. Our proposed clinical connectome would enable assessment of memory impairment in traumatic brain injury patients using rapid acquisition and high-quality image reconstruction technology.

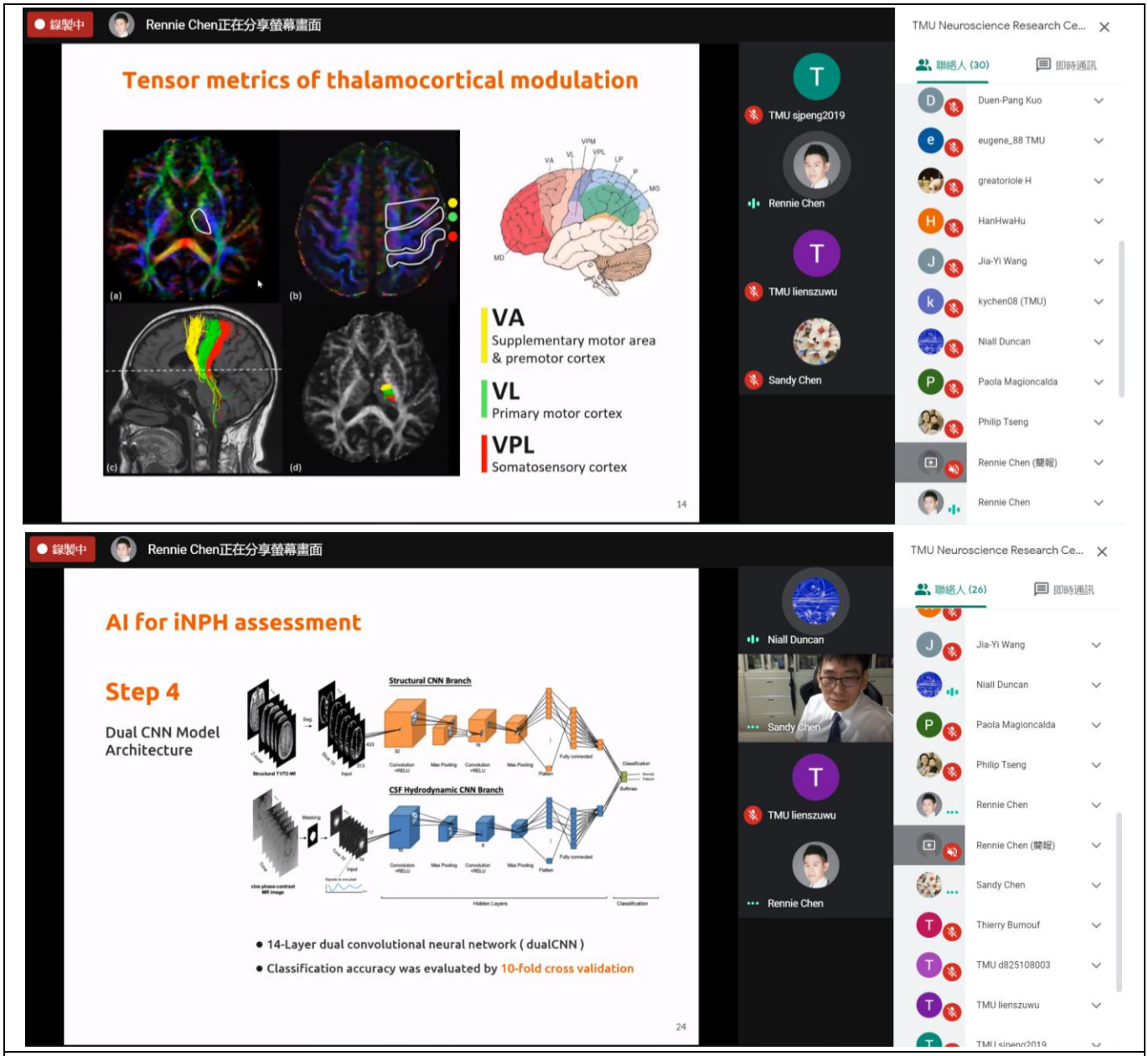


Cognitive Impairment in Mild Traumatic Brain Injury: A Connectomic Approach presented by Dr. Syu-Jyun Peng (7/1)

2) " Motor and Disease Assessment in Idiopathic Normal Pressure Hydrocephalus- Using Advanced MRI and AI " presented by Dr. Rennie Yung-Chieh Chen (陳永介醫師)

The second speaker is Dr. Chen. He completed his doctor's degree in the Graduate School of Biomedical Science and Engineering at National Yang-Ming University and now is a 2nd-year radiological resident physician of the Department of Medical Imaging at Taipei Medical University Hospital. Dr. Chen won the Magna Cum Laude in the 104th Radiological Society of North America (RSNA) Scientific Assembly and the 16th Asia-Oceanian Congress of Neuroradiology (AOCNR). Today he is going to give a talk about motor and disease assessment in idiopathic normal pressure hydrocephalus.
第二位講者為陳永介醫師，陳醫師於陽明大學生物醫學影像暨放射科學研究所完成博士學位，目前在臺北醫學大學附屬醫院擔任第二年住院醫師。陳醫師曾在第 104 屆 Radiological Society of North America (RSNA) Scientific Assembly 以及第 16 屆 Asia-Oceanian Congress of Neuroradiology (AOCNR)均獲得 Magna Cum Laude 獎。今天他將介紹原發性常壓性水腦症的研究成果。

Brief summary of Dr. Chen's speech:
Idiopathic normal pressure hydrocephalus (iNPH) is a disease of the elderly population that is considered to be caused by the perturbed cerebrospinal fluid (CSF) flow dynamics within the cerebral ventricles, which lead to ventricular dilatation, compression of the functional white matter tracts, and accumulation of CSF in the basal cisterns, ultimately leading to the development of various symptoms that may mimic other common neurodegenerative diseases of different etiology, thereby making it difficult for clinicians to effectively diagnose this debilitating condition. Previously, the symptomatic assessment of patients was based on clinical examinations only, while imaging correlates and the associated qualitative assessments were lacking. On the other hand, while conventional diagnostic approaches such as lumbar drainage tests had proven valuable in the appropriate clinical context, such methods are both invasive and time-consuming. Recently, non-invasive imaging techniques such as structural magnetic resonance imaging (MRI), diffusion-weighted imaging (DWI), diffusion tensor imaging (DTI) and phase contrast MRI has allowed for quantitative assessment of symptom-related neuronal tracts as well as characteristic imaging features of iNPH. Furthermore, the application of machine learning and deep learning techniques in the development of novel image diagnostic tools has shown promise in accelerating clinical efficiency and reducing medical costs. In this talk, we will introduce a new approach to the assessment and diagnosis of iNPH by conjoining the power of advanced medical imaging and deep learning, and provide insight to the new possibilities of disease management of iNPH in the era of artificial intelligence in neuroimaging.



Motor and Disease Assessment in Idiopathic Normal Pressure Hydrocephalus- Using Advanced MRI and AI presented by Dr. Rennie Yung-Chieh Chen (7/1)

After the presentations, many people discussed with two speakers, particularly Dr. Niall Duncan.
會議結束時間為 13:30。