Special Issue - Neuroscience

Another Important News from the Neuronman: Malaysia's Neuroscience Group Moves upwards in Terms of Research, Creativity, and Innovation

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Abstract

12 months ago the first Neuroscience special issue of the Malaysia Journal of Medical Sciences was born with the intention to increase the number of local publication dedicated to neurosciences. Since then many events happened in the neuroscience world of Malaysia, those considered major were the establishment of a Neurotechnology Foresight 2050 task force by the Academy of Medicine Malaysia as well as the launching of Malaysia as the 18th member to join the International Neuroinformatics Coordinating Facility on the 9th October 2015 which was officiated by the Deputy Ministers of Higher Education, Datuk Mary Yap.

Keywords: *neuroscience, Malaysia, neuroinformatics*

Neurotechnology research in the United States of America, the European Union, Israel, Australia, Japan, and many other developed countries are growing exponentially as to understand the brain and its functions. Malaysia aiming to be a developed country by 2020 is attempting to catch up with these countries.

The Academy of Science Malaysia established a Task Force to foresight Neurotechnology till 2050 which consisted of these members: Professor Dato' Dr Jafri Malin Abdullah FASc (Chairman), Dato' Dr Zaliha Binti Omar, Dr Chee Kok Yoon, Professor Ir Dr Fatimah Ibrahim, Professor Dr Abdul Wahab Abdul Rahman, Professor Dr Mohd Nasir Taib, Professor Dr Rahmattullah Khan Abdul Wahab Khan and Associate Professor Dr Muzaimi Mustapha (Figure 1). This was just a few months after Malaysia joined the Society for Brain Mapping and Therapeutics end year 2014 (1).

The task force has found out that many issues and hurdles exist and these need to be overcome. The Academy of Science Malaysia report will be ready for public reading first quarter of 2016.

At the present, there is no available research and development needs assessment in the field of neurotechnology pertaining to healthcare specific, and its impacts to an area beyond health



Figure 1: First meeting organised by the Academy of Science Malaysia on the 18th April 2015.
Front row sitting from the right: Professor Dato' Dr Jafri Malin Abdullah FASc (Chairman), Professor Emeritus Datuk Mazlan Othman, Dato' Dr Zaliha Binti Omar, Standing from the right: Mohd Ikhwan Bin Abdullah, Professor Dr Rahmattullah Khan Abdul Wahab Khan ,Dr Chee Kok Yoon, Professor Dr Abdul Wahab Abdul Rahman, Associate Professor Dr Muzaimi Mustapha, Professor Dr Mohd Nasir Taib, Professor Ir Dr Fatimah Ibrahim and Abu Hanipah Jalil at the 20th Floor, West Wing, Matrade Tower.

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care in general (such as arts, sports, humanities, legal and military). Neurotechnology researches conducted thus, far in Malaysia are rather basic and superficial in nature. These are mostly to do with brain-computer interface (BCI), and quite often as one-off trial and error efforts for publication purposes and ended there. In essence, we really do not have a neurotechnology experts in its truest sense, as the ones who are involved in related area are either from broader fundamental and clinical neuroscience backgrounds, psychiatrists, and psychologists or from among a spectrum of engineers and technologies with related interests. Major gaps remain before local neurotechnology research can be realised into real life benefits. There is no common, regular platform for multi- and trans-disciplinary engagement for neurotechnology in Malaysia, and is not championed enough. Acknowledging the global neurotechnology race and addressing the local needs, Malaysia must invest in the leading areas for neurotechnology research that include neurological diagnostics and monitoring system, intervention and therapeutics, and BCI devices.

Hence, the direction of the neurotechnology in Malaysia should focus on two main aspects. The first aspect is on the fundamental, i.e. to introduce various neurosciences related academic courses in the educational institutes to spur genuine interests in this area among the graduate students. Recognition of neuroscientists should be extended to other allied fields such as neuroengineers or neuroarchitects to position them as lead contributors in neurotechnology. Secondly, there is a pressing need to establish a dedicated and specialised neurotechnology research centre to oversee and conduct cutting-edge researches that bear highest relevance to humanities. The initiatives for the centre can range from the development of Brain Computer Interface applications with new designs for Persons With Disability and other indications, signal processing approaches to reduce channels and processing time to multi-centre clinical trials in exploring biomarkers and the effect of the drug or medication inclusive of the cellular and molecular levels (2).

The International Neuroinformatics Coordinating Facility (INCF) enrolled Malaysia on the 9th October 2015 as its 18th member (Figure 2,3,4) (3). We would like to take this opportunity to put on record the involvement of Professor Pedro Valdes Sosa who initiated contact with INCF and gave support for the establishment of a Malaysian node when he was the Visiting Professor to Universiti Sains Malaysia (4). Many thanks to Pedro and our Cuban colleagues from the Cuban Neuroscience Center as well as Professor Sean Hill Scientific Director of the International Neuroinformatics Coordinating Facility (INCF) at the Karolinska Institutet.

Professor Dr Zamzuri Idris followed up the MoU between the Society of Brain, Mapping and Therapeutics (SBMT), USA and Universiti Sains Malaysia (USM) (5) by presenting an oral paper in the 12th Annual World Congress of SBMT in Los Angeles in March 2015 (Figure 5).



Figure 2: Launching of Malaysia as the 18th member to join the International Neuroinformatics Coordinating Facility on the 9th October 2015 which was officiated by the Deputy Ministers of Higher Education, Datuk Mary Yap.



Figure 3: Group photo of Collaborators of the INCF project from at least 5 Universities in Malaysia taken at Le Meridian Hotel, Kuala Lumpur on the 9th October 2015.



Figure 4: INCF Malaysia Node head Profesor Ahmad Fadzil Mohd Hani with INCF executive director Dr Linda Lanyon and Profesor Dato Hj Dr Jafri Malin Datuk Hj Abdullah, Director of P3Neuro, Universiti Sains Malaysia at the opening lauching of the INCF project on the 9th October 2015.



Figure 5: Professor Zamzuri with Professor Dr Jacob Van Zyl heads the Advanced Technology in Aerospace in NASA at the 12th Annual World Congress of SBMT, USA meeting in Los Angeles, California on the 7th March 2015.
Professor Zamzuri gave an oral presentation titled: Brain and Soul Mapping: awake brain surgery and Archimedes microgravity principle which could enhance our understanding on stem cells, brain network and the seat of the soul.

We hope that more research can be done to improve the wellbeing of mankind especially in the field of mental illness and other central nervous system disease by the establishment of the Master of Cognitive Neurosciences as well as the Joint Integrated Program in Psychology between USM-UPSI (Figure 6). The Malaysian neuroscience report card looks better every year as higher quality publications are expected to be cited by the International Neuroscience community.



Figure 6: The MSc Cognitive Neuroscience as well as Joint Universiti Sains Malaysia - Universiti Pendidikan Sultan Idris Integrated Master of Clinical Psychology - Doctor of Psychology/Doctor of Clinical Neuropsychology programs were first presented on the 23th November 2015 at Ministry of Higher Education Putrajaya chaired by the Director General Professor Dr Dato Asma Ismail.
This historical photograph taken from left: Professor Dr Norazmi Mohd Nor, Professor Dato' Dr Hj Jafri Malin Datuk Hj Abdullah, Associate Professor Dr Azizah Othman, Professor Dr Rahmattullah Khan Abdul Wahab Khan, Associate Professor Dr Gurjeet Kaur and Professor Dr Tan Soo Choon outside of the Ibnu Sina Meeting Room, Ministry of Higher Education, 17th Floor, Putrajaya where both courses were approved for the next phase of academic processing.

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