Keynote Title: Challenges in Exploration of Neuroscience for Consumer Neurotechnology – by 朱南玉 N. Nan Chu, IEEE Brain Initiative Representative & CWLab International, California, USA

- **Abstract:**

IEEE Brain Initiative has sponsored hackathons, challenges and competitions in a manner of quick exploration about brain computer interface and brain data bank, also employing neural network modeling and deep learning in the realm of artificial intelligence, multi-modal physiological signal interactions, games to improve multi-tasking performance, epilepsy detection in mobile devices, all contributing to consumer usage of neuroscience/technology. This presentation will summary some open-source research we have engaged since 2016, identify gaps of brain image data collection and certain deficiency associated with neural network analytics, for future improvements.

Keynote Speaker: Dr. N. Nan Chu's Biography

Dr. N. Nan Chu, 朱 南 玉, worked in AT&T Bell Labs, Rockwell International, Tellabs International, Comcast/Motorola/Verizon and Thomson Multimedia before 2009. She retired from the industry as an Executive Program Manager, responsible for a $500M product line of Digital Set Top Box manufacturing and deployment. Her technical contributions have grown along the transformation from digital voice, Internet data, to digital video distribution and processing, where she engineered the 1st digital STB standard.

While primarily engaged with the telecom and consumer electronics industry, Dr. Chu has forged collaboration with the academia by corporate grant management and adjunct teaching in Universities from the East Coast to the West Coast in the USA and in Taiwan. Most notably, she was the Director of Research & Services at California State University – Northridge. She has started 2 companies and currently running CWLab International, among other entrepreneurial activities in Chicago, Southern California, and overseas.

She has published more than 80 papers in areas related to digital communication/networking technologies, and edited 2 books. She has been credited as the co-author of Digital Set-top Box Standards in the national SCTE and international CCITT Study Group 9, receiving Corporate awards for the early digital cable conversion standardization. Her interests in research and product development continue to evolve along social networking, cloud computing, data security, Internet connectivity to e-Healthcare, with the latest global involvement in brain communication.

Dr. Chu has volunteered in IEEE professional services since the 1980's, and she is a Life Senior Member, having served on Board of Governors in Consumer Electronics Society, RFID, and Sensors Council, and executed General and/or Industry Chair duties for AAEA, BICS, GLOBECOM, IGIC, SPCN, etc. For the last 4 years, she has been the Founding Chair of the IEEE Brain Initiative Brain Data Bank Challenges, an extension from her earlier role in Brain Computer Interface Hackathons.

She received B.S. from National Tsing Hua University, M.S. from Iowa State University, and Ph.D. from Northwestern University, major in Nuclear Engineering, in 1972, 1973, and 1977, respectively. Her career in the nuclear industry was short-lived. Her R&D career in Communications, Networking Systems and eHealth Consumer Electronics has continued for more than 40 years in the exploration of multi-disciplinary knowledge associated with high technologies.