5 December, 2020   9 am BDBC-2020-Finale – Introduction,

by N. Nan Chu, Co-Chair, and Global Chair of BDBC-2020.

Ladies and Gentlemen:

I am Nan Chu, an IEEE Senior Life Member among other volunteering positions. On behalf of the IEEE Brain and the Organizing Committee of the 2020 Brain Data Bank Challenge, we are privileged to have your attention on a Saturday, for a program that consists of 3 parts: The first part is a Keynote about resources from the American National Institute of Aging. The 2nd part, the core part, has 5 Selected BDBC presentations. The last, but not the least, is a special Panel on Neurotechnology designing for the End-User.

The Core part BDBC is also facilitated by 5 distinguished judges, each with their recognized expertise to offer comments and critiques to the 5 invited teams. These 5 teams went through 3 respective, preliminary runs, in September and November of this year; on topics specific to brain degeneration with Alzheimer's Disease, and study of the Aging Brain data analytics and experiments.

We are facing a pandemic which has steered everything virtual and imposed many inconveniences, yet we have also taken advantage of some flexibility in terms of finance and participation around the world. We are glad that we reach the BDBC-Finale in 2020 now, and we are eager to listen to the 5 teams about what their experience with neuroimaging data analytics to help Alzheimer's Disease diagnosis and to seek for potential treatments. The time these teams have devoted to the subject matter is in years, not days or months.

So, what does BDBC bring to you? It brings brain data to the forefront of neurotechnology, hoping for accelerated benefit to consumers. The goal is to seek for trust, durability, comprehension in open source brain data, using prevalent technologies such as digital signal processing of brain wave and image, computer vision, convolutional neural network, etc., all of these approaches have potential leading to the improvement of aging physiological reactions, as soon to be manifested in today's pursuit.

A little bit of the background about BDBC: my involvement in the BDB Challenge within IEEE Brain can be dated to 2016. We have had 11 Challenge/Competition events during the last 4 years around the globe, most co-located with

international Technical Conferences taking advantage of their rich programs, as the concept of Brain Data Bank is still fluid, requiring extensive interdisciplinary collaboration and guidance, in terms of both knowledge domain and zeal. However, to my delight, certain in country pioneers, e.g., from Russia, Taiwan, China and UK, joined and promoted the call for brain data bank usability. It is recognized, based on historical medical technology milestones, that not until brain data are cultivated to create tangible values - analogous to standard currency in a bank, would neurotechnology be positioned to benefit consumers at large. Experiences have projected roughly 20 years from data sharing in large quantity for a medical discovery to reach the consumer market. So when we learned that the Alzheimer's Disease NeuroImaging data, ADNI, was originated in 2004, could we be hopeful that the year 2024, literally 4 years that effective treatments combating neuro degeneration would be ready for Alzheimer's Disease, or Motor Neurone Disease? With all of us working toward this concerted goal, we sure hope so.

Today's keynote, and the special Panel, will sure increase our confidence, following the 5 teams' efforts in driving neurotechnology closer to benefiting the global aging population of 150 million.

A few reminders of logistics:

We are pleased to receive 88 registrants from 10 countries for today's event.

Participants, please turn off your video. Speakers, please turn on your video when your talk is up, in addition to sharing your slides. Judges, please turn on your video when the 5 teams present. You are also reminded of the availability of closed caption today. As IEEE is keen to such request, we would also encourage the audience to be generous in typing your comments in the Chat box. Together with the visual slides, hopefully we could better accommodate the hearing impaired.

Audience, please click on "raise your hand" next to your name in the participant list, if you would like to ask a question. Please also turn on your video when you get the chance to ask. We wish to increase as much personal interaction as possible. However, we are pressed for a tight schedule. But let us not hesitate information exchange within the allocated time slots.

This virtual conference is being recorded, with speaker's consent. Our plan is to post the slides and permitted segments of the video recording on the IEEE Brain BDBC webpage shortly after today's event.

Without further due, let me introduce my Co-Chair, Joseph Wei, a Leader from the IEEE Santa Clara Valley Section and Chapters, among other IEEE posts.