Preliminary Agenda for BDBC – Silicon Valley : A Finale of BDBC -2020

December 5, 2020 – A Global Virtual Conference

9:00 – 9:15  Introduction – Joseph Wei (IEEE Santa Clara Section, etc.), Santa Clara, USA  
Nan Chu (IEEE Brain), Los Angeles, USA

9:15 – 10:00  Keynote – Yuan Luo, Division of Neuroscience, National Institute on Aging, 
Bethesda, MD, USA
Title - “Neurotechnology for Aging Brain – Funding and Resources from NIA”

Dr. Yuan Luo is a Program Director of the Clinical Interventions and Diagnostics branch in the Division of Neuroscience at NIA. She oversees the Division’s technology portfolio, such as using technology for early detection, monitoring and interventions for aging brain, MCI, AD, and other dementias. Dr. Luo also oversees some of the Branch’s career development and Fellowship programs, and initiatives on plasma biomarkers.

Before coming to NIA, Dr. Luo was a Scientific Review Officer at the Center for Scientific Review managing the Emerging Technology and Training in Neuroscience study sections, including the Drug Discovery for Aging, Neuropsychiatric and Neurologic Disorders study section. She also served as a member of multiple trans-NIH committees.
Dr. Luo received her BS and MS in Biochemistry & Toxicology from Peking University in China. After a one-year UNESCO-sponsored training in Hungary Academy of Sciences, she obtained Ph.D. in Neuroscience from SUNY Upstate Medical University in 1994. She then accepted two postdoctoral fellowships at Massachusetts Institute of Technology and Harvard Medical School. Prior to joining NIH in 2010, Dr. Luo spent more than 10 years as a NIH-funded principal investigator and an Associate Professor at The University of Southern Mississippi, and the University of Maryland School of Pharmacy. Her laboratory research interest was on neuroprotection in relation to aging and Alzheimer’s disease using animal models and human study. She supervised more than a dozen Ph.D. students and postdoctoral fellows and author/co-authored over 50 research articles and book chapters.

10:00 – 10:15 Coffee Break

10:15 – 12:45 Winners from Preliminary Runs
- First Place from BDBC- Taiwan, Team MINE Professor Brain - NCU
- First Place from BDBC- Boston, to be selected on Nov. 5, 2020
- First Place from BDBC- Saint Petersburg, to be selected on Nov. 9, 2020
- Team from University of Wollongong, and/or
- Team from Arizona State University

12:45 – 13:30 Lunch Break

13:30 – 14:45 Panel – Moderator: Troy McDaniel, Arizona State University, USA
- Justin Yerbury, University of Wollongong, Australia
- Rebecca Monteleone, University of Toledo, OH, USA
- Katina Michael, ASU, USA & UoW, Australia

Title – “Codesigning with the End-user: An Emerging Neurotechnological Research Paradigm!”

Abstract: The development and application of neurotechnologies for the conditions of aging - from age-related memory loss to neurodegenerative conditions - have accelerated at a rapid pace in recent years due in part to cybernetic advancements in practice. In this keynote, presented by three scholars with diverse personal, academic, and activist positions relating to disability, we will tackle the critical questions of accessibility, usability, and desirability of increasingly high-tech neurological interventions. We will consider the value of technologies modifying environments as opposed to bodies, the experiential expertise of people living with disability and chronic disease, the disparities in access to assistive technologies, and the challenges and possibilities of co-design ‘with users’ as opposed to ‘for users’. We close by advocating for creative technological, political, and social approaches that center both the needs and desires of intended users.

1st Speaker: Justin Yerbury
Justin Yerbury is a Professor in Neurodegenerative Disease at the University of Wollongong. Yerbury’s Lab focuses on the understanding of the molecular processes underpinning the Motor Neurone Disease (MND) Amyotrophic Lateral Sclerosis (ALS) with a particular emphasis on protein misfolding, protein aggregation and inclusion formation. The team that Justin leads is part of the Proteostasis and Disease Research Centre at the University of Wollongong and is housed in the Illawarra Health and Medical Research Institute. Yerbury was diagnosed with MND himself in 2016 but continues to research.

**Speech Title:** To be supplied.

**2nd Speaker: Rebecca Monteleone**

Rebecca Monteleone is an Assistant Professor of Disability and Technology at the University of Toledo. Her work focuses on the experiential expertise of people with disabilities in the design and use of everyday, medical, and assistive technologies. She has earned recognition as a Fulbright Scholar, Mirzayan Science and Technology Policy Fellow with the National Academy of Engineering, and an NSF IGERT Fellow.

**Speech Title: Leveraging Experience as Expertise in Design**
In this section, Dr. Monteleone will discuss the social, political, and ethical implications of research for rather than with, highlighting issues of mismatched priorities, usability, and affordability as barriers to access. She will offer examples of the experiential knowledge of people with disabilities - especially those experiencing multiple marginalizations - being leveraged in both formal and informal design practices, arguing for a broader and more inclusive definition for research and design expertise.

3rd Speaker: Katina Michael

Katina Michael is a professor at Arizona State University, holding a joint appointment in the School for the Future of Innovation in Society and School of Computing, Informatics and Decisions Systems Engineering. She is also the director of the Society Policy Engineering Collective (SPEC) and the Founding Editor-in-Chief of the IEEE Transactions on Technology and Society. Katina is a senior member of the IEEE and a Public Interest Technology advocate who studies the social implications of technology. She is the Senior Editor of the socio-economic impact section in IEEE Consumer Electronics Magazine and was the editor in chief of the award-winning IEEE Technology and Society Magazine. In 2019 she took on the role of working group chair for the IEEE P2089 standard. In 2017, she received the Brian M. O'Connell SSIT Distinguished Service Award. Katina Michael received her PhD, Master’s in Transnational Crime Prevention from the Law School at the University of Wollongong, and Bachelor of Information Technology from the University of Technology Sydney.

Speech Title: Empowering the End-User in the Development and Operation of Brain Implant Technologies: The Case for Co-Design

Co-designing brain implants with end-users means that the end-user is not simply “participating” in the biomedical development process, they are integral to defining the requirements and design of the implant, and then providing qualitative feedback related to usability. Once the device is embedded in the end-user’s body and the device is in the clinical testing phase or operation, communications between the supplier and end-user must remain open, beyond the quantitative data gathered from the implant automatically. Thus co-design emphasises that in this context implant recipients work hand-in-hand with biomedical developers, engineers, and associated stakeholders to build more robust products. When end-users are ignored, there are demonstrated examples that they take matters into their own hands. We focus here on the need for open source code, consumer protection, access to the embedded device and its corresponding data streams, among other issues.

14:45 – 15:00
- BDBC Finale Awards – Judge Panel Announcement (Judges to be confirmed: John Hsiao, NIH/NIA, Arthur Toga, USC, Joaquin Anguera, UCSF)
- Acknowledgment of Impactful Contribution to BDBC, 2017 ~ 2020
- Closure of BDBC-2020