Decoding the Brain: Advances in Neuroimaging and Data Fusion

📍 Aula, Commissiekamer 3 (TU Delft, Mekelweg 5, 2628 CC, Delft)

2nd of December, 2024, 13:30-17:00

Schedule

13:30-13:45 Welcome by Borbála Hunyadi

13:45-14:30 Matteo Carandini: Neural activity, brain states, and blood flow

--- Coffee break ---

14:45-15:30 Aybüke Erol: Modeling spatiotemporal variability of brain responses in functional ultrasound

15:30-16:15 Tülay Adalı: Independent Vector Analysis for Data Fusion: Applications in Neuro-imaging, Challenges and Opportunities

--- Drinks ---

Speakers

Matteo Carandini is the GlaxoSmithKline / Fight for Sight Professor of Visual Neuroscience at University College London, where he co-directs the Cortexlab (www.ucl.ac.uk/cortexlab). Carandini's research focuses on the computations performed by large populations of neurons in the mouse brain, the underlying circuits, and the resulting impact on behavior. He is a leader of the Neuropixels consortium, which develops next-generation probes to record from large populations of neurons (www.ucl.ac.uk/neuropixels). He is a founding member of the International Brain Laboratory, a consortium of 21 laboratories in 6 countries who seek to understand the basis of decision-making in the whole mouse brain (www.internationalbrainlab.org).

Aybüke Erol is a Ph.D. candidate in the Signal Processing Systems (SPS) group at Delft University of Technology. She received her B.Sc. in Electrical and Electronics Engineering and M.Sc. in Signal Processing from Middle East Technical University. Her doctoral research focuses on developing advanced signal models and processing algorithms to analyze neuroimaging data. Particularly, she has worked on identifying spatial and temporal characteristics of evoked hemodynamic activity within the mouse brain in response to visual stimuli using functional ultrasound. She currently works as a Mathware Engineer at Sioux Technologies, where she makes use of mathematical models to enhance the performance of existing technologies in data science and machine learning.

Tülay Adalı is a Distinguished University Professor at the University of Maryland Baltimore County (UMBC), Baltimore, MD. Prof. Adali has been active within the IEEE. Her recent roles included, Chair, IEEE Brain Technical Community, 2023, Vice President for Technical Directions for the Signal Processing Society, 2019–2022. She is currently the editor-in-chief of the IEEE Signal Processing Magazine. She is a Fellow of the IEEE, AIMBE, and AAIA, a Fulbright Scholar, an IEEE SPS Distinguished Lecturer, and the UMBC Presidential Research Professor for 2024-2027. She is the recipient of a number of awards including the SPS Meritorious Service Award, Humboldt Research Award, an IEEE SPS Best Paper Award, and the NSF CAREER Award. Her current research interests are in statistical signal processing and machine learning, with applications to neuroimaging data analysis.