



Causal Inference Program Opening Workshop December 9-11, 2019

SPEAKER TITLES/ABSTRACTS

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“Causal Discovery in Neuroimaging Data”

Many different measurement techniques are used to record neural activity in the brains of different organisms, including fMRI, EEG, MEG, lightsheet microscopy and direct recordings with electrodes. Each of these measurement modes have their advantages and disadvantages concerning the resolution of the data in space and time, the directness of measurement of the neural activity and which organisms they can be applied to. For some of these modes and for some organisms, significant amounts of data are now available in large standardized open-source datasets. I will report on our efforts to apply causal discovery algorithms to, among others, fMRI data from the Human Connectome Project, and to lightsheet microscopy data from zebrafish larvae. In particular, I will focus on the challenges we have faced both in terms of the nature of the data and the computational features of the discovery algorithms, as well as the modeling of experimental interventions.