



Deep Learning Program Opening Workshop August 12-16, 2019

SPEAKER TITLES/ABSTRACTS

Bianca Dumitrascu
SAMS/Princeton

“Domain Adaptation Challenges in Genomics: a deep learning take on medical pathology”

Medical pathology images are visually evaluated by experts for disease diagnosis, but the connection between image features and the state of the cells in an image is typically unknown. To understand this relationship, we describe a multimodal modeling and inference framework that estimates shared latent structure of joint gene expression levels and medical image features. The method is built around probabilistic canonical correlation analysis (PCCA), which is jointly fit to image embeddings that are learned using convolutional neural networks and linear embeddings of paired gene expression data. We finally discuss a set of theoretical and empirical challenges in domain adaptation settings arising from genomics data.

(based on work in collab with Gregory Gundersen and Barbara E. Engelhardt)