Data Science Seminar

Hosted by the Department of Mathematics and Statistics

- Date: Tuesday, February 28, 2023
- Time: 12:00pm – 1:00pm
- Room: Zoom
- Speaker: Dr. James D. Wilson (University of San Francisco)
- Title: The Political Brain: Associations of Tasked-based Functional Connectivity Networks and Political Ideology.

Abstract

Is there a brain basis for political ideology? Are there differences in brain function for conservatives vs liberals? Emerging research examining functional connectivity (i.e, synchrony or correlation of activity between multiple brain regions) has begun investigating the neural underpinnings that drive political ideology, political attitudes, and political actions. This seminar will explore the neurological roots of politics with a large sample, whole-brain analysis of functional connectivity across common fMRI tasks. In this applied talk, I will discuss how to use network-driven and other classic data science techniques (graph-theoretic convolutional neural networks + principal component analysis + penalized regression techniques) to explore functional connectivity associations with political ideology. I show that functional connectivity data can be used to accurately differentiate conservatives from liberals and that functional connectivity augments traditional survey-based predictions of political ideology.

Biography of the speaker: Dr. Wilson is an Associate Professor of statistics and data science at the University of San Francisco (USF) in the Department of Mathematics and Statistics. Before joining USF, James received his Ph.D in the Department of Statistics and Operations Research from the University of North Carolina at Chapel Hill. He has broad interests in statistics, biostatistics, and data science with expertise in the modeling and analysis of complex network data with applications to social and functional neuroimaging data. He is particularly interested in understanding the interplay between social dynamics, neuro-biological systems, aging, behavior, and disease. His research has been partially funded by the National Science Foundation and the National Institutes of Health.