

**Indiana University-Purdue University  
Indianapolis**  
**Department of Mathematical Sciences**

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, August 29, 2023  
Zoom Meeting: Meeting ID: 845 0989 4694

**Speaker:** Shaoyang Ning

*Department of Mathematics & Statistics ,  
Williams College*

**Title:** Using Google search data for localized flu tracking

**Abstract:**

Big data from the Internet has great potential to track social and economic events at multiple geographical levels. Focusing on localized (regional, state-level) tracking the seasonal influenza epidemics within U.S., I will introduce a statistical model that efficiently combines publicly available Google search data at different geographical resolutions with traditional influenza surveillance data from the Centers for Disease Control and Prevention. Our method outperforms time-series-based influenza tracking methods. Our model is robust and easy to implement, with the flexibility to incorporate additional information from other sources and/or resolutions, making it generally applicable to tracking other social, economic or public health events (such as COVID-19) at the regional or local level.

**Bio:**

Dr. Shaoyang Ning is Assistant Professor of Statistics in the Department of Mathematics & Statistics at Williams College. He received his Ph.D. in Statistics from Harvard in 2018 (advised by Jun S. Liu), and his B.S. in Probability and Statistics from Peking University, China in 2013. His research focuses on the study and design of statistical methods for integrative data analysis, in particular, to address the challenges of increasing complexity and connectivity arising from “Big Data”. He’s interested in innovating statistical methods that efficiently integrate multi-source, multi-resolution information to solve real-life problems. Instances include tracking flu activities (and other infectious diseases) with Google search data and predicting cancer-targeting drugs with high-throughput multi-omics data.