

CHHS Webinar Series:

Infectious Disease Forecasting with Digital Data Streams: Comparing AI Transformers with Classical Statistical Methods

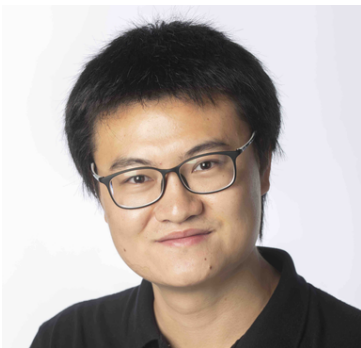
May 4, 2026 | 10:00 AM

Accurate and timely forecasting of infectious diseases is critical for public health decision-making. Over the past decade, digital data streams such as internet search queries, electronic health records, and pharmacy sales data have emerged as powerful supplements to traditional surveillance systems. In this talk, I will present a synthesis of my research journey in leveraging these data sources for infectious disease prediction, spanning from classical statistical approaches to modern AI architectures. On the statistical side, I will discuss a family of models that combine autoregressive time series structure with penalized regression on Google search data, and their extensions to spatial-temporal modeling, multi-disease settings, and COVID-19 adaptation. On the AI side, I will present recent work on attention-based transformer architectures for time series forecasting, including methods for multivariate dependency modeling, in-context learning, and efficient linear attention. Drawing from our ongoing participation in the CDC FluSight forecasting initiative, I will compare the strengths and limitations of both paradigms and share practical lessons learned from real-time deployment. The talk aims to offer perspective on when and how statistical rigor and deep learning flexibility each contribute to reliable disease forecasting.

Register here



https://gatech.zoom.us/webinar/register/WN_rGkOsJm9QLq2T4KXVZ1Mcw



Dr. Shihao Yang

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Dr. Shihao Yang is the Harold E. Smalley Early Career Professor and Assistant Professor in School of Industrial & Systems Engineering at Georgia Tech. He completed his PhD in statistics and post-doc in Biomedical Informatics at Harvard University. Dr. Yang's research focuses on data science, with special interest in time series, dynamical systems, and applications in infectious disease transmission forecasting.

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