



LSGI & RCAIG RESEARCH SEMINAR

Forecasting Societal Disruptions from Social Media Time Series: Models, Systems, and Insights

 **17 JUN 2025 (TUE)**

 **3:30 - 4:30 PM**

 **Z414, POLYU**

 **ENGLISH**

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ABSTRACT

This talk highlights AI techniques for modeling social media time series to forecast societal events and public health trends. It first introduces EMBERS, a predictive system that analyzes open-source data using Dynamic Query Expansion to generate real-time civil unrest forecasts. Case studies from Latin America illustrate how time-aware modeling and evaluation metrics such as lead time and precision enable actionable insights. The second part presents SimNest, a deep learning framework that fuses computational epidemiology with social media data for real-time flu surveillance. A multi-task learning approach is also discussed for spatiotemporal forecasting across diverse regions. Together, these methods show how AI enhances early warning, situational awareness, and crisis response.

BIOGRAPHY

Chang-Tien Lu is a Professor of Computer Science, Curriculum Lead at the Innovation Campus, and Associate Director of the Sanghani Center at Virginia Tech. An ACM Distinguished Scientist and IEEE Fellow, he received his Ph.D. from the University of Minnesota in 2001. His research in spatial informatics, urban computing, AI, and transportation systems has led to 250+ publications and funding from NSF, NIH, DoD, and DoE. He is Associate Editor for multiple journals and has held key leadership roles in major conferences, including General Co-Chair of ACM SIGSPATIAL, SSTO, IEEE Big Data, and ICDM. He also served as Secretary and Vice Chair of ACM SIGSPATIAL, contributing actively to the computing community.

Moderator: Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence, LSGI

All are welcome! Please register now to join us on-site!

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