

SpatialEpi 2022

Proceedings of the 3rd ACM SIGSPATIAL International Workshop on

Spatial Computing for Epidemiology

(SpatialEpi 2022)

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FOREWORD

The 21st century has seen major epidemics and pandemics caused by infectious diseases like coronaviruses, influenza, and most recently, monkeypox. Infectious disease spread within the human population can be conceptualized as a complex system composed of individuals that interact and transmit viruses via spatiotemporal processes that manifest across and between scales. The complexity of this system ultimately means that infectious disease spread is difficult to understand, predict, and effectively respond to. As spatial data becomes increasingly available at high spatial and temporal resolutions and computing resources can more efficiently handle such data, there have been opportunities for new data science and simulation based-solutions towards improved public health.

The 3rd ACM SIGSPATIAL International Workshop on Spatial Computing for Epidemiology (SpatialEpi'2022) focuses on all aspects of data science and simulation to better understand the spatial processes and patterns of infectious diseases, to predict disease outcomes, and to develop tools that support and guide policy interventions. It is becoming increasingly clear that interdisciplinary collaboration is needed to foster innovation and progress in these areas. Thus, this workshop is a forum to bring together researchers in the SIGSPATIAL community as well as researchers in epidemiology to discuss new methodologies and frameworks that are truly interdisciplinary. This workshop is a forum to bring together researchers in the SIGSPATIAL community as well as researchers in epidemiology to discuss new methodologies and frameworks that are truly interdisciplinary.

This year we received eight submissions, of which we selected five quality papers including four full papers and one short paper for final publication for an acceptance rate of 62.5%. The accepted papers cover a range of topics for better understanding the spread of COVID-19, including:

- Understanding the spatiotemporal heterogeneities in the associations between COVID-19 infections and both human mobility and close contacts in the United States
- Using mobile network data to generate epidemic risk maps
- Proposing new tools for decision-making support in the analyzes of multiple epidemics
- Modeling transmission dynamics across space and time at the microscopic scale
- Leveraging machine learning approaches, specifically contrasting predictive coding, for predicting cases over space and time

SpatialEpi'2022 will feature a keynote talk by Dr. Matthew Scotch, Interim Assistant Dean of Research and Professor of Biomedical Informatics in the College of Health Solutions at Arizona State University.

Taylor Anderson, Amira Roess, Joon-Seok Kim, Andreas Züfle

ACKNOWLEDGEMENTS

We would like to thank the program committee whose reviewing efforts are important for ensuring the quality of the accepted papers. In addition, many thanks to our keynote speaker Matthew Scotch who kindly accepted our invitations and will be sharing their research at SpatialEpi'2022.

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