



Michigan AI Symposium

RESPONSIBLE AI

October 17 | 9am-5pm

North Campus, Beyster Building 1670 & Tishman Hall

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AI LAB



AI for Public Health: Epidemic Forecasting Through a Data-Centric Lens

Invited Speaker | Alexander Rodriguez

Abstract: Epidemic forecasting is a crucial tool for public health decision making and planning. There is, however, a limited understanding of how epidemics spread, largely due to other complex dynamics, most notably social and pathogen dynamics. With the increasing availability of real-time multimodal data, a new opportunity has emerged for capturing previously unobservable facets of the spatiotemporal dynamics of epidemics. In this regard, my work brings a data-centric perspective to public health via methodological advances in AI at the intersection of time series analysis, spatiotemporal mining, scientific ML, and multi-agent systems. Toward realizing the potential of AI in public health, I addressed multiple challenges stemming from the domain such as data scarcity, distributional changes, and issues arising from real-time deployment to enable our support of CDC's COVID-19 response. This talk will overview our developments to address these challenges with novel deep learning architectures for real-time response to disease outbreaks and new techniques for end-to-end learning with mechanistic epidemiological models—based on differential equations and agent-based models—that bridge ML advances and traditional domain knowledge to leverage individual merits.



Realizing AI for Impact: Human-AI Collaboration in Public Health and Conservation

Invited Speaker | Elizabeth Bondi-Kelly

Abstract: AI is now being applied widely in society, including to support decision-making in important, resource-constrained efforts in conservation and public health. Such real-world use cases introduce new challenges, like noisy, limited data and human-in-the-loop decision-making. In addition to addressing these algorithmic challenges, we must also work with all stakeholders in this research, including by making our field more inclusive.