Computational Epidemiology for Healthcare Associated Infections

Sriram Pemmaraju

Healthcare-associated infections (HAIs), such as those caused by Clostridioides difficile (C. diff) and methicillin-resistant Staphylococcus aureus (MRSA) pathogens, affect about two million patients in American hospitals each year. Of particular concern are multi-drug resistant organisms (MDROs) that can be amplified in hospitals, transmitted to other hospitals, long-term or skilled-care facilities, and then, eventually, exported to the community at large.

The Computational Epidemiology (CompEpi) group at the University of Iowa, an inter-disciplinary group of researchers, has been using mathematical modeling and simulations, optimization and algorithms, sensor network and camera deployment, statistical models and inference, graph mining and network science, and machine learning, to understand the spread of HAIs. An important theme running through our work is the use of multiple spatial scales for the understanding of HAI spread. This talk will describe some our recent projects, while illustrating this theme.

Sriram Pemmaraju is a Professor in the Department of Computer Science at the University of Iowa. His primary research interests are in algorithms, specifically distributed algorithms, but he is quite interested in applying algorithmic ideas to computational epidemiology problems, especially in order to understand the role of space and architecture in the spread of HAIs in healthcare facilities. Sriram's research on HAIs is funded by NIH, NSF, and the CDC and he is one of the Iowa PI's participating in the CDC MInD-Healthcare Network.

GPCE Seminar Series

Thursday, 03/23
11:30am ET
Join by Zoom