

# Computer Science Distinguished Seminar Agent-based Modeling Approaches for Simulating Infectious Diseases

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Disease spread is major health concern around the world and it is compounded by the increasing globalization of our society. As such, epidemiological modeling approaches need to account for rapid changes in human behavior and community perceptions. Social media has recently played a crucial role in informing and changing people's response to the spread of infectious diseases. I will describe an agent based modeling framework that simulates the movements, activities, and social interactions of millions of individuals, and the dynamics of infectious diseases. The simulation allows for agents' behaviors to be influenced by social media (i.e., Twitter) as well as by their neighbors. This feedback loop allows us to inject emergent attitudes in response to epidemics and quantify their impact.

**Bio:** Sara Del Valle is a scientist at Los Alamos National Laboratory. She earned a PhD in Applied Mathematics and Computational Sciences from the University of Iowa in 2005. Her research focuses on using mathematical and computational approaches to improving our understanding of human behavior and its impact on disease spread. She has developed models for many diseases including smallpox, anthrax, HIV, pertussis, MERS-CoV, malaria, influenza, Ebola, and zika. Her research interests also include developing and analyzing large-scale agent-based discrete event simulations for disease dynamics and social networks. Most recently, she's been investigating the role of Internet data on monitoring and forecasting disease spread and disease-related behaviors.

**If you can't attend in person:**

**Join from PC, Mac, Linux, iOS or Android:** <https://zoom.us/j/375148594>

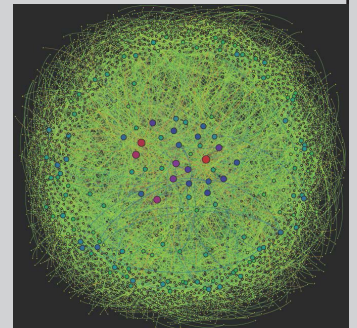
**Or iPhone one-tap (US Toll):** +14086380968,375148594# or +16465588656,375148594#

**Or Telephone:**

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**Meeting ID:** 375 148 594

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**Date: April 24, 2017**

**Time: 10:00 am**

**Place: 209 Computer Science Building**

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