

Presents the Fall 2013 EECS Seminar Series

Dr. Kiran Lakkaraju
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“Agent Based Models, Social Phenomena and Massively Multiplayer Online Games”
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At Sandia National Labs, Agent Based Modeling (ABMs) allows for scientists to explore how political, technological, or natural events shift social behavior in ways that impact national security. Severe challenges exist in creating these models due to problems in allocating high-volumes of data from the real-world to inform and validate these models.

Massively Multiplayer Online Games (MMOGs) have recently emerged as a tractable way to acquire data on social phenomena, because these virtual environments are able to capture a great amount of data and at high-fidelity, often tracking the actions of many individuals at a time resolution of seconds. As well, the social structures expressed in MMOGs may reflect those employed in the real-world, leading to mirroring behaviors that make MMOGs an attractive data source.

In this talk, I will provide an overview of recent results from studies on a two year MMOG dataset. I will talk about how we can predict membership in groups based on public information (such as interaction in public domains). I will also highlight work (in collaboration with Prof. Gita Sukthankar and Hamid Alvari at UCF) to apply community detection techniques to this data.

Finally, I will go on a slight tangent and describe a model of attitude diffusion that incorporates multiple attitude that interact through cognitive consistency. In this model, we can study the impact of "agenda setting", where media sources influence the saliency of certain topics. I show that agenda setting can decrease diffusion in a variety of social network topologies.

BIOGRAPHY

Dr. Kiran Lakkaraju is a Senior Member of the Technical Staff with a background in artificial intelligence, multi-agents systems and computational social science. He holds a M.S. and Ph.D. in Computer Science from the University of Illinois. Kiran's primary research interests lie in developing computational models of behavior change in society such as the creation and propagation of linguistic behavior within a population. More recently he has focused on developing models that explore the link between social structure (social networks, roles/hierarchy) and cognitive structure (how concepts are interrelated, cognitive consistency, confirmation bias) with respect to problems of information dissemination and attitude change. A critical issue in making models useful is validation - how well the model corresponds to reality.

To this end, he has been studying how to run large, online, experiments on attitude and behavior change using existing crowdsourcing tools (such as Amazon Mechanical Turk) and how to derive relevant knowledge from Massively Multiplayer Online Games.