

DO&IT Seminar Series

Speaker: Sinan Aral
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Date: Friday, October 23, 2009

Time: 10:30 - 12 noon

Location: VMH 3330H

Title: Distinguishing Influence Based Contagion from Homophily Driven Diffusion in Dynamic Networks

Abstract: Node characteristics and behaviors are often correlated with the structure of social networks over time. While evidence of this type of assortative mixing and temporal clustering of behaviors amongst linked nodes is used to support claims of peer influence and social contagion in networks, homophily may also explain such evidence. Here we develop a dynamic matched sample estimation framework to distinguish influence and homophily effects in dynamic networks, and apply this framework to a global instant messaging network of 27.4 million users, using data on the day-by-day adoption of a mobile service application and users' longitudinal behavioral, demographic and geographic data. We find that previous methods overestimate peer influence in product adoption decisions in this network by up to 700% and that homophily explains over 50% of the perceived behavioral contagion. These findings and methods are essential to both our understanding the mechanisms that drive contagions in networks and our knowledge of how to propagate or combat them in domains as diverse as epidemiology, marketing, development economics and public health.

Bio: Sinan Aral obtained his PhD in Information Systems from MIT. He is a faculty member in the Information, Operations and Management Sciences department of the NYU Stern School of Business and affiliated faculty at MIT. He is an expert in measuring and managing knowledge worker productivity; the economic impacts of information diffusion in massive social networks; and the role of information and information technology in the productivity and performance of firms.

His research has won the ICIS Best Overall Paper Award (2006, 2008), the ICIS Best Paper in IT Economics Award (2006), the ICIS Best Paper in IT Business Value Research Award (2006), the

ACM SIGMIS Best Dissertation Award (2007) and an IBM Faculty Award (2009). Sinan is a Phi Beta Kappa graduate of Northwestern University and holds masters degrees from the London School of Economics and Harvard University. He has been a Fulbright Scholar and is currently on the Academic Advisory Board of the Institute for Innovation and Information Productivity.

Sinan's research interests include 1) how organizational information flows impact information worker productivity, 2) how information diffusion in massive online social networks influences demand patterns, consumer e-commerce behaviors and word of mouth marketing, and 3) how investments in IT capital and complementary intangible assets combine to create productivity and business value benefits for firms.

His work has been published in leading journals such as Science, Organization Science and the Sloan Management Review, and has been mentioned in popular press outlets such as the Economist, the New York Times, Businessweek and CIO Magazine.