NYU Stern School of Business
Department of Information, Operations & Management Sciences
INFORMATION SYSTEMS RESEARCH SEMINAR

TOPIC: The "Top N" News Recommender: Count Amplification and Manipulation Resistance
SPEAKER: Balaji Padmanabhan (University of South Florida)
DATE: Thursday, April 18th, 2013
TIME: 4:00-5:30pm
PLACE: Tisch 201

ABSTRACT

The broad motivation for our research is to build manipulation resistant news recommender systems. In this research we will focus on a common method used on the front page by many media sites of recommending the most popular (or viewed) articles (e.g. New York Times, BBC, CNN, Wall Street Journal all prominently use this). Through simulation results we show that whereas recommendation of the most read articles is easily susceptible to manipulation, a simple probabilistic variant is more robust to common manipulation strategies. Further, for the " most popular" recommender, probabilistic selection has other desirable properties. Specifically, the article, which may have "just" missed making the cutoff, is unduly penalized under common user models. Small differences initially are easily amplified – an observation that can be used by manipulators. Probabilistic selection on the other hand, creates no such artificial penalty. We use classical results from urn models to derive theoretical results for special cases and study specific properties of the probabilistic recommender. Data from Digg and several local news Web sites brings up interesting evolution patterns lending some empirical support to some of the effects of promotion studied in this research. Finally, we extend this approach using feedback models that offer editors practical algorithmic control to balance short term revenue optimization with fairness and manipulation resistance.

BIO

Balaji Padmanabhan is Anderson Professor of Global Management and Associate Professor of Information Systems & Decision Sciences at the University of South Florida. His research addresses data analytics for business applications, algorithms for online news recommender systems, service quality and customer churn, behavioral profiling and pattern discovery from customer databases. His work has been published in both computer science and information systems journals including Management Science, Information Systems Research, MIS Quarterly,

INFORMS Journal on Computing, Decision Support Systems, IEEE TKDE and ACM TMIS. He received a B.Tech in Computer Science from Indian Institute of Technology (IIT) and a PhD in Information Systems from New York University (NYU). His professional service includes work as Associate Editor and Program Committee Member of several academic journals and conferences. He has worked with several firms on technical, strategic and educational issues related to business and data analytics and has also created and taught undergraduate, MBA/MS and doctoral courses in fields related to business/data analytics, computational thinking and electronic commerce.