

Research Seminar Series

D&IT Seminar Series

Spring 2008

Date: April 28

Location:

Time:

Speaker: Mirko Kremer (Penn State)

Title: Ongoing research in behavior/experimental operations

Host:

Abstract:

Date: April 25

Location: VMH 1505

Time: 3-4:30 pm

Speaker: Avigdor Gal, Technion - Israel Institute of Technology, Israel

Title: On the Stable Marriage of Maximum Weight Royal Couples: The Health problems of Data Integration

Host: Louiqa Raschid

Abstract:

Data integration is the process of combining data residing at different data sources to generate a unified data view of these data. Schema matching generates correspondences between concepts describing the meaning of data in various heterogeneous, distributed data sources. Therefore, schema matching is recognized to be one of the basic operations required by the process of data integration and thus has a great impact on its outcome and on numerous modern applications. In this talk we shall discuss the poor health of data integration and trace it back to inherent uncertainty in the schema matching process. We shall then present two specific research problems. First, we shall compare the use of two matching algorithms, namely Maximum Weight Bipartite Graphs and Stable Marriage, analyze their usage in schema matching and suggest several heuristics that build on these algorithms. Then, we shall propose a new view on the behavior of schema matching heuristics and show the use of this view in improving matching quality.

Bio: Avigdor Gal is an Associate professor at the Faculty of Industrial Engineering & Management at the Technion. He received his D.Sc. degree from the Technion - Israel

Institute of Technology in 1995 in the area of temporal active databases. He has published more than 70 papers in journals (e.g. Journal of the ACM (JACM), ACM Transactions on Database Systems (TODS), IEEE Transactions on Knowledge and Data Engineering (TKDE), ACM Transactions on Internet Technology (TOIT), and the VLDB Journal), books (Temporal Databases: Research and Practice) and conferences on the topics of data integration, temporal databases, information systems architectures, and active databases.

Avigdor is a steering committee member of IFCIS, a member of IFIP WG 2.6, and a recipient of the IBM Faculty Award for 2002-2004. He is a member of the ACM and a senior member of IEEE.

Date: April 23

Location: VMH 3509

Time: 10:30A.M-12:00P.M

Speaker: Philippe Delquie (INSEAD) Decision Sciences area, Boulevard de Constance Fontainebleau F-77300, France

Title: Multiple Expectations, Disappointment, and Risk Measures: A Unifying Model of Decision under Risk

Host:

Abstract:

The Disappointment theory of choice under risk is built on the standard assumption that individuals form a prior expectation about a risky prospect, and they will experience disappointment, hence a reduction in utility, if the outcome obtained falls below the expectation. Here, a different approach to Disappointment will be developed: we abandon the hypothesis of a well-defined prior expectation and we propose instead that disappointment may arise from comparing the outcome received with any of the prospect's missed outcomes. This yields a new, general model of choice under risk, which bridges a number of classic theories that have evolved from distinct intellectual paths. First, our Disappointment without Prior Expectation (DWPE) model leads to Rank Dependent Utility, a popular model based on subjective probability transformation. Second, DWPE produces a general class of Risk-Value models, including Mean-Variance or the Mean-Gini model. This is an appealing structure because managers often seek to rank projects in terms of two criteria: reward and risk. We show the conditions for our risk measure to satisfy first- and second-order stochastic dominance and coherence, key properties required for prescriptive applications, e.g. in Finance, Insurance, or R&D portfolio selection. Results from calibration of the model to

experimental data will be presented. In sum, DWPE provides a unifying, plausible behavioral rationale for a number of landmark theories of choice under risk, and it offers advantages for practical risk management.

This is joint work with Alessandra Cillo (IESE Business School, Barcelona)

Key words: Disappointment theory; Risk-Value models; Mean-Variance; Gini mean difference; Coherent risk measures; Stochastic dominance; Rank-Dependent Utility; Expected Utility violations.

Date: April 17

Location: CSIC 2107

Time: 11:00 A.M

Speaker: Cosma Shalizi, Statistics Department, CMU

Title: Discovering Functional Communities in Dynamical Networks

Host:

Abstract:

Many networks are important because they are substrates for dynamical systems, and their pattern of functional connectivity can itself be dynamic --- they can functionally reorganize, even if their underlying "anatomical" structure remains fixed. However, the recent rapid progress in discovering the community structure of networks has overwhelmingly focused on that constant anatomical connectivity. In this talk, I will lay out the problem of finding functional communities, and describe an approach to doing so. This method combines recent work on measuring information sharing across stochastic networks with an existing and successful community-discovery algorithm for weighted networks. I illustrate it with applications to both simulated and real networks, including email collections. (Joint work with Marcelo Camperi and Kristina Klinkner.)

Bio:

Cosma Shalizi studied physics at Cal-Berkeley (BA, 1993) and Wisconsin-Madison (Ph.D., 2001). He was a graduate fellow and post-doc at the Santa Fe Institute, and a post-doc at the University of Michigan's Center for the Study of Complex Systems. Since 2005 he has been an assistant professor of statistics at Carnegie Mellon University.

Date: April 11

Location: VMH 1411

Time: 2:30-4:00pm

Speaker: Pinar Keskinocak, School of Industrial and Systems Engineering, Georgia

Institute of Technology

Title: Two Applications of OR/MS in Health Care

Host:

Abstract:

In this talk I will give an overview of my ongoing work in two applications in health care.

Catch-up Scheduling for Childhood Vaccination: The Centers for Disease Control and Prevention (CDC) recommends a vaccination schedule for every child between ages 0 and 6. While parents and health care providers try to follow this schedule to the extent possible, it is estimated that as high as 50% of the children miss the recommended schedule some time during their first six years. We developed a tool that generates a personalized vaccination schedule for a child, given his birth date and the times and doses of the vaccines administered so far. The schedule ensures that all remaining doses are administered, the spacing between doses of the same vaccine adheres to the minimum gaps, and the timing of the doses does not violate the minimum age limit. We define an external wrapper that allows the user to easily make changes to the existing rules and adding new vaccines to the schedule lineup. This is joint work with Dr. Larry Pickering from CDC and Emory University, and Ph.D. student Faramroze Engineer.

Modeling Pandemic Influenza and Strategies for Food Distribution: Given the recent incidents of the avian flu in Asia and the pandemic influenza cases in the history, many experts believe that a pandemic influenza is likely to happen in the near future; hence, governments and non-governmental organizations try to develop response plans. It is estimated that 20% of working adults may become ill and there may be a 40% workforce loss during peak because of illness, fear of infection, and the need to care infected family members or school-aged children. Food and water supplies and transportation services may be interrupted. To aid with planning, we model the spread of pandemic influenza, both geographically and over time, using an agent-based simulation approach. We then combine this with an optimization model to identify and dynamically update the appropriate

Date: April 4

Location: 1411

Time:: 2-3:30pm

Speaker: Jeffrey S. Simonoff Information, Operations, and Management Sciences
Department Leonard N. Stern School of Business, New York University

Title: Two Underexplored Problems Related to Tree-Based Models: The Effectiveness

of Missing Data Methods, and Extensions to Longitudinal Data

Host: Galit Shmueli

Abstract:

Tree-based models are predictive models based on recursive partitioning, whereby the space of all predictors is split into subsets, the subsets are split into subsets, and so on. Tree models allow for the fitting of complex, flexible, nonlinear structures to a set of data, while producing easy-to-understand rules for predicting a categorical (classification tree) or continuous (regression tree) response. In this talk we discuss two important, yet underexplored, problems related to tree-based models. The first problem relates to the very common occurrence of missing data in the predictors when fitting a binary classification tree. Several missing data methods have been proposed to address the occurrence of missing data, but there has been little investigation of their appropriateness and performance. Using theoretical analysis, Monte Carlo simulations, and examination of real data sets, we show that the relationship between the missingness and the dependent variable, rather than the more standard MCAR/MAR/NMAR missing data trichotomy, is the most helpful criterion to distinguish the performances of different missing data methods. We make recommendations as to the best method to use in various situations when clear differences occur, and provide a real data example to illustrate the results. The second problem discussed is the extension of regression trees to longitudinal (panel) data. We present a model that combines the flexibility of tree-based estimation methods with the structure of random effects models in panel data. Estimation is based on the EM algorithm, and the resulting model, called the RE-EM tree, allows for time-varying predictors, while also incorporating individual-specific effects that generate effective longitudinal predictions in future time periods. We discuss the performance of the RE-EM tree using Monte Carlo simulations and application to several real data sets. This is joint work with Yufeng Ding and Rebecca Sela.

Date: March 4

Location: VMH 2505

Time:: 2:30-4:00pm

Speaker: Il-Horn Hann, Assistant professor at Marshall School of Business, USC.

Title: Risk Aversion in a Name-Your-Own-Price Channel: A Decision Analytic Model

Host:

Abstract:

This paper presents a decision analytic model for sequential decisions. Under

uncertainty in the context of repeat bidding on a Name-Your-Own Price (NYOP) auction. The model takes into account both risk aversion and frictional cost of the bidders to determine the optimal bidding sequence. We show that the increments in each two sequential bids are directly related to the bidder's risk aversion coefficient. We use field data from an NYOP auction firm that allowed bidders the option to rebid indefinitely, and estimate the bidder's exhibited risk aversion. Based on three different product groups, we find that risk aversion is a significant variable in the bidding strategy of consumers. To our knowledge this is the first work that empirically examines risk aversion in a non-experimental setting.

Bio: Il-Horn Hann is an Assistant Professor at the Marshall School of Business at the University of Southern California. He received his Ph.D. from the University of Pennsylvania. His primary research interests focus on the intersection of information technology and markets. He has investigated issues regarding competition and pricing in electronic markets and online privacy. Il-Horn's second research interest is in the area of open source software. His research has been published in Communication of the ACM, Journal of Management Information Systems and Management Science. He served as an Associate Editor at Information Systems Research and is currently on the editorial board of Management Science.

Date: February 25

Location: 2505

Time: 1:30-3:00 pm

Speaker: Deepa Mani

Title: Outsourcing Discount or Paradox? An Analysis of Long-Term Abnormal Stock Returns across Outsourcing Contracts

Host: Sunil Mithas

Abstract:

We assess the long-term abnormal returns to the hundred largest outsourcing initiatives implemented between 1996 and 2005, and examine whether the choice of outsourcing contract explains the cross section of abnormal returns. Relative to a size-and book-to-market matched sample of control firms in the industry, the mean three year buy-and-hold abnormal return for fixed price contracts is 16.9 percent ($p < 0.05$) while that for variable price contracts is -21.6 percent ($p < 0.10$). However, variable price contracts are not inherently value destroying; after controlling for the observed contextual characteristics and private firm information that influences contract choice, we find that

the negative returns to variable price contracts are the outcome of a paradoxical selection process where some of the very factors that increase the likelihood of choice of variable price contracts also decrease the abnormal returns to outsourcing investments. Our findings point to the benefits of efficient contract choices, and that the market is slow to recognize the extent of such benefit. Implications for theory and the practice of outsourcing are also discussed.

Bio of Deepa Mani :Deepa Mani is a doctoral candidate in the Information, Risk and Operations Management department at the University of Texas at Austin. Her current research focuses on the role of idiosyncratic technology management capabilities in explaining variation in the long-term financial value of the firm and examines the linkage between these managerial capabilities and priced risk factors in traditional asset pricing models in finance. She examines these issues in the context of outsourcing of organizational technology and processes. Her articles on the efficient management of outsourcing relationships have been published in MIS Quarterly Executive and Sloan Management Review's Intelligence section.

Deepa earned her B.A. in Mathematics from St. Stephen's College, Delhi University and her M.S. in Information Systems Management from Carnegie Mellon University (CMU). She was founder and director of HumanArray, LLC, a technology and information assurance solutions provider with clients such as Satyam Learning Center and CMU. She previously worked as a technology consultant to Mount Sinai Medical Center – New York University from 2000-2001 and to NASDAQ from 1998-2000. She was a member of the management services and corporate planning team of Housing Development Finance Corporation, India from 1997-1998.

Research Blog: <http://bponews.blogspot.com>

Date: February 22

Location: 2505

Time: 2:30-4:00 pm

Speaker: Mustafa Akan, Ph.D. Candidate, Kellogg School of Management, Northwestern University

Title: Revenue Management by Sequential Screening

Host: Siva Viswanathan

Abstract:

We consider a dynamic model of revenue management with strategic, i.e. forward

looking, consumers. The consumers are heterogeneous in their valuations or willingness to pay. Each consumer knows his type, which is defined as the distribution of his valuation, at time zero, but not his true valuation. Rather, they learn their true valuations sequentially over time. Consumers with higher valuations, e.g. business travelers, learn their true valuations after the ones with lower valuations, e.g. leisure travelers. In this setting, a monopolist system manager strives to maximize her profits by sequentially screening the consumers. Using a mechanism design approach, we show that the optimal mechanism is a menu of expiring refund contracts. We also identify the conditions under which the system manager can achieve the first-best solution, thereby extracting the entire (expected) consumer surplus. Under the optimal mechanism, contracting takes place after the consumers learn their types but before they learn their true valuations. Moreover, the monopolist finds it optimal to ration different types of consumers to various degrees. Finally, we discuss how the results change under different assumptions on the dynamics of learning.

Bio: Mustafa Akan is a Ph.D. candidate in the Managerial Economics and Strategy Ph.D. program at the Kellogg School of Management, Northwestern University. He obtained his BS degree in industrial engineering from Bilkent University, Turkey in 2004.

Date: February 20

Location: 2505

Time: 2:00-3:30 pm

Speaker: Feng Zhu

Title: Dynamics of Platform Competition: Exploring the Role of Installed Base, Platform Quality and Consumer Expectations

Host: Anand Gopal

Abstract:

This paper seeks to answer three questions. First, which drives the success of a platform, installed base, platform quality or consumer expectations? Second, when does a monopoly emerge in a platform-based market? Finally, when is a platform-based market socially efficient? We analyze a dynamic model where an entrant with superior quality competes with an incumbent platform, and examine long-run market outcomes. We find that the answers to these questions depend critically on two parameters: the strength of indirect network effects and consumers' discount factor of future applications. In addition, contrary to the popular belief that indirect network effects

protect incumbents and are the source of market inefficiency, we find that under certain conditions, indirect network effects could enhance entrants' quality advantage and market outcomes hence could be more efficient with stronger indirect network effects. We empirically examine the competition between the Xbox and PlayStation 2 consoles. We find that Xbox has a small quality advantage over PlayStation 2. In addition, the strength of indirect network effects and consumers' discount factor in this market are within the range in which platform success is driven by quality advantage and the market is potentially efficient. Counterfactual experiments suggest that PlayStation 2 could have driven Xbox out of the market had the strength of indirect network effects more than doubled or had consumers' discount factor increased by fifty percent.

Bio of Feng Zhu: Feng Zhu is a PhD candidate in Science, Technology and Management at Harvard University. His research interests include multi-sided markets, business value of information technology, intellectual property protection, and technology adoption and diffusion. Feng received his B.A. in Economics, Mathematics and with highest honors in Computer Science from Williams College, and his S.M. in Computer Science from Harvard University. He is a member of Phi Beta Kappa and Sigma Xi Research Society.

Date: February 18

Location: 2505

Time: 3:00-4:30 pm

Speaker: Jianer Zhou, Ph.D. Candidate William E. Simon School of Business
University of Rochester

Title: Impacts of Financial Collaboration in a Three-Party Supply Chain

Host: Itir Karaesmen

Abstract:

We study a supply chain in which a retailer faces a classic newsvendor problem with a financial constraint on his capacity to order inventory from a manufacturer. To sell more products to the retailer, the manufacturer teams up with a bank to offer an interest-free loan to the retailer. The manufacturer pays the loan interest to the bank which bears the bankruptcy risk of the retailer. The bank sets the credit line and the interest rate so that the loan is fairly priced. We formulate the interaction between the retailer and the manufacturer in a Stackelberg game in which the manufacturer, as the leader, has the dominant pricing power. We characterize the equilibrium solution to this model. Our results indicate that the loan program can significantly improve the

manufacturer's profit. The retailer also benefits from the loan program, and starts to seek risks when equilibrium order quantity is low but demand risk is high. We also compare bank financing with open account financing in which the manufacturer allows a partial and delayed payment, equivalent to a loan to the retailer. In open account financing, the manufacturer bears the bankruptcy risk of the retailer. We show that the manufacturer may have an incentive to choose bank financing over open account financing if the loan is fairly priced. Numerical experiments demonstrate the supply chain performance under bank financing and indicate that the demand volatility may actually improve contract efficiency when the loan program is offered. We propose two contract forms that coordinate the supply chain of these three parties.

Bio of Jianer Zhou: Jianer Zhou is a Ph.D. Candidate in Operations Management at the William E. Simon School of Business at the University of Rochester. He holds an M.S. in Business Administration from the University of Rochester and a B.S. in Economics with a minor in Management Information System from Fudan University in China. Before attending the University of Rochester, he worked as a business consultant in Accenture for four years. His consulting experience includes strategy, organization structure, business process re-engineering (BPR), information system planning, ERP system implementation, etc. His research interest focuses on interface issues of operations and finance in supply chains. His current research examines impacts of financial collaboration on supply chain decisions and performance.

Date: February 15

Location: VMH 1505

Time: 2:00-3:30 pm

Speaker: Gregory Ramsey, Doctoral Candidate Information & Decision Sciences
Department Carlson School of Management, University of Minnesota

Title: Logic of Error: Success and Failure in Medical Decision Making

Host: Joseph Bailey

Abstract:

The issue of medical errors gained national attention in 2000 when the Institute of Medicine published *To Err is Human: Building a Safer Health System*. While a policy can create safeguards and mechanisms to help prevent errors, it cannot change the thinking of those committing the errors. Occurrences of errors have been examined in a general manner for many types of medical conditions. However, chronic diseases present unique characteristics with respect to errors. Chronic diseases are unique

because the condition of patients deteriorates with time. In general it has been found that chronic diseases are susceptible to errors resulting from insufficient levels of treatment for managing the disease.

In this research decision making processes within a medical environment are investigated where the task of interest has a low frequency of occurrence relative to other tasks being performed by physicians. The specific environment investigated is physicians treating patients with type 2 diabetes. This environment has two distinguishing characteristics: 1) feedback to physicians on a patient's condition is often delayed or missing, and 2) generalizations from more frequently encountered environments (e.g., regular patient care) may lead to error.

The objective of this study is to understand patterns of physician decision making that explain why some physicians succeed and others fail in achieving treatment goals with diabetic patients. In an experiment a group of 20 physicians each treated three simulated diabetic patients with the intent of bringing them to treatment goals. A record of their actions and patient responses was captured. These data were analyzed and used to create idealized models of physician decision making. The idealized models were then parameterized to account for the behavior of each physician treating each simulated patient. Differences between an idealized physician model and an actual physician's performance are explained by perturbing decision processes within the model. These perturbations are based on a theory of errors that can occur in any process control task.

Results from these studies have application in generating personalized treatment strategies (guidelines for individual patients) and developing technologies to assist physicians' to realize and prevent potential errors they are likely to commit.

Biography: Gregory W. Ramsey is a doctoral candidate in Information and Decision Sciences at the Carlson School of Management at the University of Minnesota. Before starting his studies at the Carlson School he worked with information technology and information systems in several industries including healthcare, financial services, and military electronics. He has earned a BS in Electrical Engineering from Duke University, an MS in Electrical Engineering from the Georgia Institute of Technology, and an MS in Industrial Administration from Carnegie Mellon University. He is a recipient of a KPMG Foundation Minority Doctoral Scholarship and a member of the KPMG PhD Project.

Gregory's research interests focus on understanding errors in human decision-making. Currently, he is examining patterns of decision making that lead to errors and possible causes of such errors. His dissertation uses cognitive and computational modeling along

with discrete-event simulation as tools for identifying and analyzing patterns of errors in physician decision processes. The basic premise upon which the research is based is that these patterns may be modified through the use of web-based technologies for decision support as well as physician training.

Date: February 11

Location: 2505

Time: 1:30-3:00 pm

Speaker: Tong Wang

PhD Candidate Decision Sciences Area, INSEAD

Title: Inventory Management with Advance Demand Information and Flexible Delivery

Host: Zhi-Long Chen

Abstract:

This paper considers inventory models with advance demand information and flexible delivery. Customers place their orders in advance, and delivery is flexible in the sense that early shipment is allowed. Specifically, an order placed at time t by a customer with demand leadtime T should be fulfilled by period $t+T$; failure to fulfill it within the time window $[t, t+T]$ is penalized. We consider two situations: (1) Customer demand leadtimes are homogeneous and demand arriving in period t is a scalar d_t to be satisfied within T periods. We show that state-dependent (s, S) policies are optimal, where the state represents advance demands outside the supply leadtime horizon. We find that increasing the demand leadtime is more beneficial than decreasing the supply leadtime. (2) Customers are heterogeneous in their demand leadtimes. In this case, demands are vectors and may exhibit cross-over, necessitating an allocation decision in addition to the ordering decision. We develop a lower-bound approximation based on an allocation assumption, and propose protection level heuristics that yield upper bounds on the optimal cost. Numerical analysis quantifies the optimality gaps of the heuristics (2% on average for the best heuristic) and the benefit of delivery flexibility (14% on average using the best heuristic), and provides insights into when the heuristics perform the best and when flexibility is most beneficial.

Bio: Tong Wang is now a PhD candidate in the Decision Sciences Area at INSEAD, France. He holds an M.Phil degree in Systems Engineering from the Chinese University of Hong Kong and a B.Eng in Industrial Engineering from Shanghai Jiao Tong University. Tong's main research interests are in Supply Chain Management, with

special focus on the role of information and flexibility in both monopoly and competitive environments. Other interests include economics, marketing, and behavior decision models.

Date: February 6

Location: 2505

Time: 2:30-4:00 pm

Speaker: Caryn Conley

Title: Work Design for Product Quality: The Case of Open Source Software Development

Host: Xiaoqing Wang

Abstract:

This paper proposes and examines a model of the relationship between elements of work design and software quality in open source software (OSS) development projects. Product modularity is hypothesized to affect characteristics of product contributions in the development process, which subsequently affect product quality. An analysis of 203 software releases in 46 OSS projects hosted on SourceForge.net lends support for the hypothesized relationship between software modularity and product development, suggesting that the degree of software modularity is positively associated with the number of contribution opportunities and the number of product contributions, and negatively associated with the size of contributions. In addition, we find that product modularity is negatively associated with software complexity, one common measure of software quality. Surprisingly we find that product modularity is positively associated with the number of static software bugs and number of bugs reported, additional measures of software quality. Finally, we find that the opportunities to contribute mediates the relationship between degree of modularity and number of static bugs and bugs reported. Implications are developed for the theory of work design and the practice of software development.

Position/Academic Affiliation: Doctoral Candidate, NYU Stern School of Business

Bio: Caryn Conley is a doctoral candidate at the New York University Stern School of Business, Department of Information, Operations, and Management Systems. She received her Bachelors of Business Administration from the University of Texas at Austin in Management Information Systems and Business Honors. Prior to joining the doctoral program at Stern, Caryn was a Consultant in the Management Consulting

practice with PricewaterhouseCoopers.

Date: February 4

Location: 2505

Time: 2:30-4:00 pm

Speaker: Nitin Bakshi, Ph.D. Candidate, Operations and Information Management Department The Wharton School, University of Pennsylvania

Title: Securing the Containerized Supply Chain: An Economic Analysis of C-TPAT

Host: Manu Goyal

Abstract:

We perform an economic analysis of the Customs-Trade Partnership Against Terrorism (C-PAT), modeling the strategic interaction between the U.S. Bureau of Customs and Border Protection (CBP) and trading firms as a Principal-Agent Stackelberg game in a queueing setup. We characterize the unique equilibrium outcome and perform comparative statics. We provide insights relevant to policy planners and to private sector trading firms. We find that, for a given level of inspection capacity, implementation of C-TPAT results in greater security and a Pareto reduction in costs. The membership level increases as the environment becomes riskier but is unaffected by changes in inspection capacity. The latter result implies that the program structure should be stable, and it indicates that it may be possible to decouple inspection problems across ports. At the same time, because CBP cannot base C-TPAT agreements upon observed outcomes (terrorist incidents) the program's equilibrium does not achieve an economic First Best.

Bio: Nitin Bakshi is a 5th year doctoral student in the Operations & Information Management Department at Wharton. His research is focused on supply chain risk and related security issues. Projects undertaken include an analysis of multi-party investments in supply chain risk management, and a detailed study of C-TPAT, which is a supply chain standard that forms the basis for container security and risk management for U.S. and international port authorities. He has also worked on the analytical treatment of multi-product diffusion models. Nitin is well versed in both analytical modeling and empirical analysis. The tools he uses include game theoretic concepts from economics, and OR methodologies such as optimization, queueing theory and other tools of dynamic analysis. Nitin has a Bachelor's in Electrical Engineering from Indian Institute of Technology, Bombay ('98); and an MS in Management Science from Stanford University ('02). Prior to Wharton, Nitin worked as a Manager at

Unilever ('98-'00), and later as an Algorithm Design Engineer at SmartOps Inc. (a start-up providing inventory-optimization solutions)('02-'03).

Date: February 1

Location: 2515

Time: 2:00-3:30 pm

Speaker: Donald Lee

Title: Evidence-Based Incentive Systems with an Application in Health Care Delivery

Ph.D. candidate, Department of Management Science & Engineering Stanford

University

Host: Wedad Elmaghraby

Abstract:

We develop an empirical method to estimate the parameters of a multi-task principal-agent model. The principal has a stake in the performance of a system, but delegates its control to an agent. The agent chooses which tasks to perform and the effort to put in each task. The principal observes the system's aggregate performance (downstream outcome) and several other performance measures (typically process-compliance measures to be referred to as intermediate outcomes). All observed measures are noisy signals of the agent's effort in each task. The principal rewards the agent based on a weighted combination of the observed performance measures. The question is to determine the optimal mix of performance measures that would maximize the principal's expected payoff. Using the Empirical Likelihood method, we show how the principal can use data from multiple agents to answer the following questions: a) How can intermediate process-compliance measures be integrated into a single intermediate performance score that can be used in an optimal payment system? b) What is the agent's cost of effort and reservation utility? c) What is the optimal payment system? The method was applied to data from patients with kidney failure who needed dialysis (Medicare, the payer, was the principal and the dialysis providers were the agents). An optimal payment system was designed. The system was shown to have the potential to increase the number of hospital-free days per patient year-at-risk by 7.4% without increasing total medical expenses. Joint work with Stefanos Zenios.

Speaker Bio. Donald Lee is a Ph.D. candidate in the Department of Management Science & Engineering at Stanford University. He is interested in data-driven problems that lie at the intersection of Operations and Statistics. His current focus is in evidence-based service operations issues, particularly pertaining to healthcare delivery. Lee also

holds an MS degree in Statistics from Stanford where he was named a Kimball-Stanford Graduate Fellow and Croucher Foundation Scholar, and read BA, MA and CASM degrees in Mathematics at Cambridge University where he graduated with First Class Honours.

Date: January 30

Location: 2505

Time: 1:30-3:00 pm

Speaker: Prasanna (Sonny) Tambe

Title: WHAT DID JOB-HOPPERS CONTRIBUTE TO THE INFORMATION TECHNOLOGY REVOLUTION?

Host: Gordon Gao

Abstract:

We explore whether employee mobility generates significant spillovers of IT-related process knowledge. We use new longitudinal interfirm mobility data to model employee flows, and find evidence that this channel for the transmission of IT-related process knowledge may play an important role in driving IT-led productivity growth. Our estimates suggest that the marginal spillover effects generated by IT investment may be larger than those generated by R&D investment. We also find evidence that spillovers of IT process knowledge appear principally to be generated by the mobility of 1) skilled workers and 2) information technology, sales, and production workers. By contrast, managers, financial workers, and clerical workers do not appear to be important conduits of this type of knowledge. Keywords: labor mobility, process knowledge, spillovers, information technology
Bio: Prasanna Tambe is a doctoral candidate at the Wharton School at the University of Pennsylvania. His research focuses on information technology, labor mobility, and organizations. Recent interests include how labor mobility results in the transfer of both process and and product knowledge among firms, the impact of offshoring on firms and workers, and on the effects of information technology in the healthcare sector. Before coming to Wharton, he worked for a Washington D.C based startup company that developed structured data management products. He received S.B. and M.Eng. degrees from the Massachusetts Institute of Technology.

Date: January 25

Location: e-Markets Lab 3509

Time: 11:00 am

Speaker: Peter T. L. Popkowski Leszczyc Associate Professor of Marketing,
Department of Marketing, Business Economics and Law, University of Alberta,
Edmonton, Alberta, Canada

Title: Charitable Intent and Bidding in Charity Auctions

Host: Wolfgang Jank

Abstract:

Research on bidding in auctions has generally relied on the assumption of self-interested bidders. This work relaxes this assumption in the context of charity auctions and uncovers altruistic bidding motives for a considerable segment of bidders. These motives lead to voluntary shill-like bidding strategies. We model bidders with charitable intent as receiving additional utility in charity auctions from the charity collecting money for a good cause. This model assumes rationality without pure greed. We test this model empirically in controlled field experiments and find support for voluntary shill-like bidding strategies of charitable bidders. We provide results of three empirical studies consisting of real-life auctions conducted on a local Internet auction site. Results show that auctions with proceeds donated to charity lead to significantly higher selling prices. This increase is due to charitable intent by bidders rather than increased bidder entry, since fewer bidders participated in the charity auctions. We also found that auctions with 25% of revenue donated to charity had higher net revenue than non-charity auctions. Hence, companies may be able to use charity auctions as part of a Corporate Social Responsibility (CSR) strategy and at the same time increase profitability by donating part of proceeds to charity.