



Barbaros Tansel Memorial Lecture Series

İhsan Doğramacı Bilkent University
Department of Industrial Engineering
Ankara, Turkey

Date: May 08, 2015

Time: 13:30-19:30

Location: Mithat Çoruh Auditorium

We invite researchers and practitioners to participate in the second Barbaros Tansel Memorial Lecture Series. The Barbaros Tansel Lecture Series is named in honor of the late Prof. Dr. Barbaros Tansel, a former member of the Department of Industrial Engineering, who had an irrepressible enthusiasm for research, teaching, and learning. He was a source of inspiration for students and colleagues alike.

Program Schedule:

Time	Activity
13:30-13:45	Opening Remarks (Prof. M. Selim Aktürk) Introduction by Gizem Özbaygın
13:45-15:15	Talk by Prof. Shabbir Ahmed (Georgia Institute of Technology) Scenario Decomposition of Stochastic 0-1 Problems
15:15-15:45	Coffee Break
15:45-16:30	Talk by Assoc. Prof. Özgür Özlük (San Francisco State University) Optimal Keyword Bidding in Search-Based Advertising
16:30-17:15	Talk by Vedat Bayram (Bilkent University) Compromising System and User Interests in Shelter Location and Evacuation Planning
17:30-19:30	Reception (Location: Rektörlük Konutu No. 49)

Organization Committee:

M. Selim Aktürk
Bahar Yetiş Kara
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There will be no registration fee for the event.

For further details please visit <http://www.ie.bilkent.edu.tr>.

About Prof. Dr. Barbaros C. Tansel



Prof. Dr. Barbaros Tansel was born in Ankara on the 10th of January 1952. He completed his high-school education in Robert College. Prof. Tansel graduated from the Industrial Engineering Department of Middle East Technical University in 1974. He got his master and doctorate degrees from the Industrial and Systems Engineering Department of the University of Florida in 1976 and 1979, respectively. Before joining the Industrial Engineering Department of Bilkent University, Prof. Tansel worked as a faculty member in the University of Florida, Middle East Technical University, the University of Southern California, and the Georgia Institute of Technology. Upon joining Bilkent University as a faculty member in 1991, Prof. Tansel became an associate professor in 1993 and a professor in 2002. Prof. Tansel chaired the Department of Industrial Engineering between 1999 and 2006. Prof. Tansel was granted several awards and research funds from national and international organizations and agencies. Prof. Tansel authored and co-authored a significant number of papers and book chapters in national and international journals and books. He supervised more than 40 master and doctorate theses. Prof. Tansel was a highly-respected researcher and a well-established academician in his field. Moreover, he was a talented dancer who shared his experience in dancing with Bilkenters and dance lovers. He is survived by his wife, Elif Tansel, and his son, Doğa Tansel.

Scenario Decomposition of Stochastic 0-1 Problems

Shabbir Ahmed

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Abstract

We present a scenario decomposition algorithm for stochastic 0-1 programs. The algorithm recovers an optimal solution by iteratively exploring and cutting-off candidate solutions obtained from solving scenario subproblems. The scheme is applicable to quite general problem structures and can be implemented in a distributed framework. We provide a theoretical justification of the effectiveness of the proposed scheme. We also extend the approach to risk averse and chance-constrained stochastic 0-1 programs. Illustrative computational results demonstrating near linear parallel speedup on standard test instances are presented.

Biography

Shabbir Ahmed is the Dean's Professor and Stewart Faculty Fellow in the H. Milton Stewart School of Industrial & Systems Engineering at the Georgia Institute of Technology. He received his PhD from the University of Illinois at Urbana-Champaign in 2000. His research interests are in optimization, specifically stochastic and integer programming. He has authored over 60 papers, and has graduated 21 PhD students. Dr. Ahmed served as the Chair of the Stochastic Programming Society, as a Vice-chair of the INFORMS Optimization Society, and is on the board of directors of the INFORMS Computing Society. He is on the editorial boards of various journals included Mathematical Programming A, Mathematical Programming C, and Operations Research. Dr. Ahmed's honors include the National Science Foundation CAREER award, two IBM Faculty Awards, the Coca-Cola Junior Professorship from ISyE, and the INFORMS Dantzig Dissertation award.

Optimal Keyword Bidding in Search-Based Advertising

Özgür Özlük

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Abstract

Search-based advertising has become very popular since it provides advertisers the ability to attract potential customers with measurable returns. In this type of advertising, advertisers bid on keywords to have an impact on their ad's placement, which in turn affects the response from potential customers. An advertiser must choose the right keywords and then bid correctly for each keyword in order to maximize the expected revenue or attain a certain level of exposure while keeping costs in mind. In response to the increasing need for analytical models that provide guidance to advertisers, we construct and examine deterministic and stochastic optimization models of varying levels of complexity to investigate this problem.

Biography

Professor Özlük has been teaching Operations Research and Data Analytics related courses in the Department of Decision Sciences at San Francisco State University, College of Business since Fall 2003. He obtained his Ph.D. in Operations Research from UNC Chapel Hill in 1999. After Ph.D., he spent three years in Silicon Valley, CA working for the revenue management division of Manugistics, Inc. He is involved in the following research areas:

- Data Analytics,
- Practices of Revenue Management,
- Business Applications of Math Programming

Professor Özlük taught several executive MBA courses and given workshops/seminars in companies such as GAP, Banana Republic. Currently, he is acting as a supply chain consultant for a manufacturing company and is the founder and the coordinator of the Big Data Analytics and Management program at Bahçeşehir University.

Compromising System and User Interests in Shelter Location and Evacuation Planning

Vedat Bayram

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Abstract

Traffic management during an evacuation and the decision of where to locate the shelters are of critical importance to the performance of an evacuation plan. While a user equilibrium (UE) approach may satisfy the drivers under normal conditions, it is not realistic to assume that full information exists so that evacuees can make their decisions optimally in case of a disaster. The evacuees, who do not have full information about the traffic conditions, wish to reach safety quickly and tend to go to the nearest shelter. However, such a nearest allocation approach (NA) may create heavy traffic loads on certain links and may result in long evacuation times. From the evacuation management authority's point of view, the desirable goal is to minimize the total evacuation time by computing a system optimum (SO). However, evacuees may not be willing to take long routes enforced on them by a SO solution; but they may consent to taking routes with lengths not longer than the shortest path to the nearest shelter site by more than a tolerable factor. In this talk, we present a Constrained System Optimal (CSO) model that optimally locates shelters and assigns evacuees to the nearest shelter sites by assigning them to shortest paths with a given degree of tolerance, so that the total evacuation time is minimized. We discuss a solution method that can handle practical size problems using second order cone programming techniques. Finally, we report the results of a computational study where we compare SO, UE, NA and CSO approaches and investigate the trade-off between efficiency and fairness. We use different test networks including one of Istanbul, where evacuation planning for an impending earthquake is critical.

This is a joint work with Barbaros Tansel and Hande Yaman.

Biography

Vedat Bayram is a PhD candidate in the Industrial Engineering Department of Bilkent University. He is also working as a Senior Operations Research Analyst at the Project Management Division of Turkish General Staff Headquarters. He has commanded and served in different units and divisions of Turkish Armed Forces as an Artillery Officer and Operations Research Analyst both in Turkey and abroad. He holds an M.S. degree in Operations Research from U.S. Naval Postgraduate School and a B.S. degree in Systems Engineering from Turkish Army Academy. His dissertation is on large scale evacuation problems in disaster management. He is working on a research project funded by TUBITAK on the same subject. He has experience in real world (military) applications of Operations Research on a wide range of subjects such as force structure and military capabilities/requirements planning, base realignment and closure, ballistic missile defense, manpower planning, logistics support, performance evaluation and organizational efficiency analysis. He is the Turkish Armed Forces representative for Systems Analysis and Studies (SAS) Panel in NATO Science and Technology Organization since 2012.