July 2008

Eli V. Olinick

Associate Professor (with Tenure)
Dept. of Engineering Management, Information, and Systems
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Education

University of California, Berkeley
Ph.D. (December 1999)
Industrial Engineering and Operations Research
Dissertation: *Optimization Algorithms for Survivable Network Design Problems*
Minors: Computer Science, Statistical Computing
Advisor: Dorit S. Hochbaum

University of California, Berkeley
M.S. (May 1994), Industrial Engineering and Operations Research

Brown University
Sc.B. (May 1989), Applied Mathematics

Honors

- 2004 Emerald Management Review's Citation of Excellence, recognizing the article "Hierarchical Cellular Network Design with Channel Allocation," as one of the top fifty management articles of 2004.
- 2003 SMU Outstanding Undergraduate Faculty Award in Engineering Management, Information, and Systems.
- 1998 U. C. Berkeley Alpha Pi Mu Outstanding Graduate Student Instructor (GSI) Award
- 1998 U. C. Berkeley Academic Senate Outstanding GSI Award
- INFORMS 1996 Doctoral Colloquium Participant
- Sigma Xi 1989

Research Interests

- Applied Optimization
- Telecommunications Network Design Problems
- OR/MS Applications in Sports

Publications

Charles F. Mann, David W. Matula, and Eli V. Olinick, "The Use of Sparsest Cuts to Reveal the Hierarchical Community Structure of Social Networks," *Social Networks*, **Vol. 30**, No. 3, 2008, pp. 223-234.

Eli V. Olinick and Jay M. Rosenberger, "Optimizing Revenue in CDMA Networks Under Demand Uncertainty," *European Journal of Operational Research*, **Vol. 186**, No. 2, 2008, pp. 812-825.

Publications cont.

Jeffery L. Kennington, Eli V. Olinick and Gheorghe Spiride , "Basic Mathematical Programming Models for Capacity Allocation in Mesh-Based Survivable Networks," *Omega*, **Vol. 35**, No. 6, 2007, pp. 629-644.

Qibin Cai, Joakim Kalvenes, Jeffery Kennington, and Eli Olinick, "W-CDMA Network Design," *International Journal of Mobile Network Design and Innovation*, **Vol. 2**, No. 2, 2007, pp. 92-104.

Giray Birkan, Jeffery Kennington, Eli Olinick, Augustyn Ortynski, and Gheorghe Spiride, "Design Strategies for Meeting Unavailability Targets Using Dedicated Protection in DWDM Networks," *Journal of Lightwave Technology*, **Vol. 25**, No. 5, 2007, pp. 1120-1129.

Jay M. Rosenberger and Eli V. Olinick , "Robust Tower Location for CDMA Networks," *Naval Research Logistics*, **Vol. 54**, No. 2, 2007, pp. 151-161.

Joakim Kalvenes, Jeffery Kennington, and Eli V. Olinick, "Base Station Location and Service Assignments in W-CDMA Networks," *INFORMS Journal on Computing*, **Vol. 18**, No. 3, 2006, pp. 366-376.

Giray Birkan, Jeffery Kennington, Eli V. Olinick, Augustyn Ortynski, and Gheorghe Spiride, "Practical Integrated Design Strategies for Opaque and All-Optical Networks: Optimization Models and Solution Procedures," *Telecommunications Systems*, **Vol. 31**, No. 1, 2006, pp. 61-83.

Joakim Kalvenes, Jeffery Kennington, and Eli Olinick, "Hierarchical Cellular Network Design with Channel Allocation," *European Journal of Operational Research*, **Vol. 160**, No. 1, 2005, pp. 3-18.

Jeffery L. Kennington and Eli V. Olinick, "Wavelength Translation in WDM Networks: Optimization Models and Solution Procedures," *INFORMS Journal on Computing*, **Vol. 16**, No. 2, 2004, pp. 174-187.

Giray Birkan, Jeffery Kennington, Eli Olinick, Augustyn Ortynski, and Gheorghe Spiride, "Making a Case for Using Integer Programming to Design DWDM Networks," *Optical Networks Magazine*, **Vol. 4**, No. 6, 2003, pp. 107-120.

D. Allen, I. Ismail, J. Kennington, and E. Olinick, "An Incremental Procedure for Improving Path Assignment in a Telecommunications Network," *Journal of Heurisitics*, **Vol. 9**, No. 4, 2003, pp. 375-399.

Olivier Goldschmidt and Alexandre Laugier, and Eli V. Olinick, "SONET/SDH Ring Assignment with Capacity Constraints," *Discrete Applied Mathematics*, **Vol. 129**, No. 1, 2003, pp. 99-128.

J. Kennington, K. Lewis, E. Olinick, A. Ortynski, and G. Spiride, "Robust Solutions for the WDM Routing and Provisioning Problem: Models and Algorithms," *Optical Networking Magazine*, **Vol. 4**, No. 2, 2003, pp. 74-84.

Publications cont.

Jeffery Kennington, Eli Olinick, Augustyn Ortynski, and Gheorghe Spiride, "Wavelength Routing and Assignment in a Survivable WDM Mesh Network," *Operations Research*, **Vol. 51**, No. 1, 2003, pp. 67-79.

Olivier Goldschmidt, Dorit S. Hochbaum, Asaf Levin, and Eli V. Olinick, "The SONET Edge-Partition Problem," *Networks*, **Vol. 41**, No. 1, 2003, pp. 13-23.

Ilan Adler, Alan Erera, Dorit S. Hochbaum, and Eli V. Olinick, "Baseball, Optimization, and the World Wide Web," *Interfaces*, **Vol. 32**, No. 2, 2002, pp. 12-22.

Dorit S. Hochbaum and Eli V. Olinick, "The Bounded Cycle-Cover Problem," *INFORMS Journal on Computing*, **Vol. 13**, No. 2, 2001, pp. 104-119.

Technical Reports Submitted for Publication

Eli V. Olinick and Tauhid M. Rahman, "Incremental Demand Rerouting: Optimization Models and Solution Procedures". [Submitted to *Telecommunication Systems* - March 2008]

Editorial Activities

Editorial Review Board, International Journal of Interdisciplinary Telecommunications and Networking (IJITN)

Networks and Spatial Economics, **Vol. 8**, No. 1, March 2008, Eli Olinick and S. Raghavan Guest Editors.

Research Support

"Using Mathematical Programming for Optimal IP Routing", (N00014-07-1-0192) *The Office of Naval Research*, PI: Jeffery L. Kennington, co-PI: Eli V. Olinick, Southern Methodist University, $163,550, January 1, 2008 - December 31, 2008

"Optimization-based Design Procedures for Backbone Transport Networks", (N00014-07-1-0192) *The Office of Naval Research*, PI: Jeffery L. Kennington, co-PI: Eli V. Olinick, Southern Methodist University, $157,584, January 1, 2007 - December 31, 2007

"Discrete Optimization Models and Efficient Algorithms for Designing Reliable Optical Networks", (N00014-03-1-0053) *The Office of Naval Research*, PI: Jeffery L. Kennington, co-PI: Eli V. Olinick, Southern Methodist University, $152,522, January 1, 2006 - December 31, 2006

"Protection Strategies for DWDM All-Optical Networks"(N00014-03-1-0053) , *The Office of Naval Research*, PI: Jeffery L. Kennington, co-PI: Eli V. Olinick, Southern Methodist University, $144,041, January 1, 2004 - September 30, 2005

Research Support
Cont.

"Optimization-Based Design Strategies for DWDM Networks: Opaque Versus All-Optical Networks" (N00014-03-1-0053), *The Office of Naval Research*, PI: Jeffery L. Kennington, co-PI: Eli V. Olinick, Southern Methodist University, $135,465, October 1, 2003 - September 30, 2004

"Optimization-Based Techniques for Designing Optical Networks" (N00014-03-1-0053), *The Office of Naval Research*, PI: Jeffery L. Kennington, co-PI: Eli V. Olinick, Southern Methodist University, $135,458, October 1, 2002 - October 1, 2003

"Optimization-Based Techniques for Designing Optical Networks" (N00014-96-1-0315), *The Office of Naval Research*, PI: Jeffery L. Kennington, co-PI: Eli V. Olinick, Southern Methodist University, $228,664, February 1, 2001 - October 1, 2002

"Robust Designs for WDM Routing and Provisioning for Metro Networks: Models, Algorithms and Software" (NUSMG00JK), *Nortel Networks*, PI: Jeffery L. Kennington, co-PI: Eli V. Olinick, Southern Methodist University, $50,000, December 14, 2000 - September 13, 2001

Teaching Experience
at Southern Methodist University (SMU)

Spring 2008
EMIS 8360 — Operations Research Models (13 students, Executive Masters Format)
Textbooks: Taha *Operations Research: An Introduction* 8th Ed.

Spring 2008
EMIS 8374 — Network Flows (35 Students)
Textbooks: Ahuja, Magnanti, and Orlin, *Network Flows: Theory, Algorithms, and Applications* 1st Ed., and Glover, Klingman, and Phillips, *Network Models in Optimization and Their Applications in Practice* 1st Ed.

Fall 2007
EMIS 7300 — Systems Analysis Methods (6 students, Executive Masters Format)
Textbooks: Montgomery and Runger, *Applied Statistics and Probability for Engineers* 4th Ed., and Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Fall 2007
EMIS 7300 — Systems Analysis Methods (32 students)
Textbooks: Montgomery and Runger, *Applied Statistics and Probability for Engineers* 4th Ed., and Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Summer 2007
EMIS 8373 — Integer Programming (1 student)
Textbook: Rardin, *Optimization In Operations Research* 1st Ed.

Teaching Experience at SMU cont.

Spring 2007
EMIS 7300 — Systems Analysis Methods (12 students, Executive Masters Format)
Textbooks: Montgomery and Runger, *Applied Statistics and Probability for Engineers* 4th Ed., and Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Spring 2007
EMIS 8373 — Integer Programming (17 students)
Textbook: Rardin, *Optimization In Operations Research* 1st Ed.

Fall 2006
EMIS 7300 — Systems Analysis Methods (17 students, Executive Masters Format)
Textbooks: Montgomery and Runger, *Applied Statistics and Probability for Engineers* 3rd Ed., and Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Fall 2006
EMIS 7300 — Systems Analysis Methods (39 students)
Textbooks: Montgomery and Runger, *Applied Statistics and Probability for Engineers* 3rd Ed., and Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Spring 2006
EMIS 8374 — Network Flows (37 Students)
Textbooks: Ahuja, Magnanti, and Orlin, *Network Flows: Theory, Algorithms, and Applications* 1st Ed., and Glover, Klingman, and Phillips, *Network Models in Optimization and Their Applications in Practice* 1st Ed.

Spring 2006
EMIS 7300/5300 — Systems Analysis Methods (9 students)
Textbooks: Montgomery and Runger, *Applied Statistics and Probability for Engineers* 3rd Ed., and Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Fall 2005
EMIS 7300 — Systems Analysis Methods (18 students, Executive Masters Format)
Textbooks: Montgomery and Runger, *Applied Statistics and Probability for Engineers* 3rd Ed., and Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Fall 2005
EMIS 7300/5300 — Systems Analysis Methods (57 students)
Textbooks: Montgomery and Runger, *Applied Statistics and Probability for Engineers* 3rd Ed., and Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Spring 2005
EMIS 8373 — Integer Programming (13 students)
Textbook: Wolsey, *Integer Programming* 1st Ed.

Spring 2005
EMIS 7300 — Systems Analysis Methods (22 students, Executive Masters Format)
Textbook: Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Teaching Experience at SMU cont.

Fall 2004
EMIS 7300/5300 — Systems Analysis Methods (48 students)
Textbook: Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Fall 2004
EMIS 7300 — Systems Analysis Methods (19 students, Executive Masters Format)
Textbook: Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Spring 2004
EMIS 7300 — Systems Analysis Methods (17 students, Executive Masters Format)
Textbook: Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Spring 2004
EMIS 8374 — Network Flows (22 students)
Textbooks: Ahuja, Magnanti, and Orlin, *Network Flows: Theory, Algorithms, and Applications* 1st Ed., and Glover, Klingman, and Phillips, *Network Models in Optimization and Their Applications in Practice* 1st Ed.

Fall 2003
EMIS 7300 — Systems Analysis Methods (25 students, Executive Masters Format)
Textbook: Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Fall 2003
EMIS 7300/5300 — Systems Analysis Methods (52 students)
Textbook: Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Spring 2003
EMIS 7300 — Systems Analysis Methods (26 students, Executive Masters Format)
Textbook: Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Spring 2003
EMIS 8373 — Integer Programming (8 students)
Textbook: Wolsey, *Integer Programming* 1st Ed.

Fall 2002
EMIS 7300/5300 — Systems Analysis Methods (40 students)
Textbook: Render, Stair Jr., and Hanna, *Quantitative Analysis for Management* 8th Ed.

Fall 2002
EMIS 3360 — Operations Research Models (27 students)
Textbook: Winston, *Operations Research: Applications and Algorithms* 3rd Ed.

Spring 2002
EMIS 8374 — Network Flows (14 students)
Textbook: Ahuja, Magnanti, and Orlin, *Network Flows: Theory, Algorithms, and Applications* 1st Ed.

Teaching Experience at SMU cont.

Fall 2001
EMIS 3360 — Operations Research Models (23 students)
Textbook: Winston, *Operations Research: Applications and Algorithms* 3rd Ed.

Spring 2001
CSE 4395 — Senior Design (12 students)

Fall 2000
CSE 3360 — Operations Research Models (17 students)
Textbook: Winston, *Operations Research: Applications and Algorithms* 3rd Ed.

Spring 2000
CSE 4395 — Senior Design (20 students)

Fall 1999
CSE 3360 — Operations Research Models (20 students)
Textbook: Hillier and Lieberman, *Introduction to Operations Research* 6th Ed.

Teaching Experience University of California, Berkeley

Spring 1999
IEOR 162 — Linear Programming (58 students)
Textbook: Winston, *Introduction to Mathematical Programming* 2nd Ed.

Spring 1998
E 120 — Engineering Economics (125 students)
Textbook: Park, *Contemporary Engineering Economics*

Doctoral Students

Tauhid Rahman, Doctor of Engineering in Engineering Management, 2008
River Logic Praxis Title: *Improving Telecommunications Network Throughput By Incremental Demand Routing*

Gerard Ibarra, Doctor of Philosophy in Applied Science, 2007
Buildwave Technologies Praxis Title: *A Systems Engineering Approach to a Method and Mathematical Model for Identifying the Most Critical Links of Highway Systems*

Nanthi Suthikarnnarunai, Doctor of Engineering in Engineering Management, 2007
Logistics Engineering Department, School of Engineering, UTCC Praxis Title: *Improving Transportation Service for the University of The Thai Chamber of Commerce (UTCC)*

Doctoral Students Cont.

Charles C. Stein, Doctor of Engineering in Engineering Management, 2004
Arkansas Division of Public School Academic Facilities and Transportation Praxis Title: *An Analytic Hierarchy Process Methodology to Combine Multiple Preferences with Data Normalization Effects in A Data Envelopment Analysis Model*

University Service

- 2007 and 2008
  - University Admissions Council
  - School of Engineering Research Development Council
  - EMIS PCE Committee
  - Program Director for Engineering Management
- 2006
  - Academic Senate
  - University Council on Admissions and Financial Aid
  - School of Engineering Research Development Council
  - EMIS PCE Committee
  - Program Director for Engineering Management
- 2005
  - Academic Senate
  - University Council on Admissions and Financial Aid
  - School of Engineering Research Development Council
  - EMIS Search Committee
  - EMIS PCE Committee
  - Program Director for Engineering Management
- 2004
  - EMIS Preliminary Counseling Exam (PCE) Committee Chair
  - INFORMS Student Chapter Advisor
  - Academic Senate
- 2003
  - EMIS Preliminary Counseling Exam (PCE) Committee Chair
  - EMIS Search Committee
  - INFORMS Student Chapter Advisor
- 2002
  - CSE Preliminary Counseling Exam (PCE) Committee
  - EMIS Preliminary Counseling Exam (PCE) Committee Chair
  - EMIS Search Committee
- 2001
  - CSE Preliminary Counseling Exam (PCE) Committee
  - EMIS Preliminary Counseling Exam (PCE) Committee Chair

University Service Cont.

- 2000
  - SoE Steering Committee for the Corporate America Council
  - CSE Awards Committee
  - CSE Preliminary Counseling Exam (PCE) Committee
  - Ad Hoc Committee on CSE 13xx

Industry Experience

WFI, Dallas, TX. Summer 2005
Independent Contractor: Prepared "Report on Testing and Verifying Wireless E911 Accuracy Testing."

US West Advanced Technologies, Boulder, CO. Summer 1998
Optimization and Logistics Group: Investigated methods of improving the performance of optimization routines used in US West's proprietary network planning software. Introduced modifications that reduced the running time by one half on average without significantly changing the solution quality.

Data General, Westborough, MA. July 1989- July 1992
Software Engineer: Designed and implemented new features for Data General's Comprehensive Electronic Office (CEO) office automation software system. Coordinated the efforts of several engineers working on the Control Program (CP) component of CEO and was responsible for maintaining the integrity of the CP source code throughout two product release cycles. Investigated and resolved software trouble reports from CEO customers around the world.

Professional Activities

- Treasurer INFORMS Technical Section on Telecommunications (2006-2008)
- Program Committee — 6th Wireless Telecommunications Symposium 2006-2007
- Secretary INFORMS Technical Section on Telecommunications (2004-2006)
- Program Committee — 4th Wireless Telecommunications Symposium 2004-2005
- Program Committee — 8th INFORMS Telecommunications Conference 2005-2006
- Cluster Co-Chair: Technical Section on Telecommunications, INFORMS Annual Meeting 2004, Denver, CO.
- Program Committee: 7th INFORMS Telecommunications Conference, 2004, Boca Raton, FL.
- Cluster Co-Chair: Technical Section on Telecommunications, INFORMS Annual Meeting 2003, Atlanta, GA.
- Referee: *Computers & Operations Research*, *Discrete Applied Mathematics*, *ETRI Journal*, *IEEE Transactions on Computers*, *INFORMS Transactions on Education*, *IEEE Communications Magazine*, *International Journal of Operations and Quantitative Management*, *Management Science*, *Mathematical Programming*, *Networks*, *Operations Research*, *Optimization Letters*, *RAIRO Operations Research*, and *Telecommunication Systems*
- Professional Society Memberships
  - Institute for Operations Research and the Management Sciences (INFORMS)
    - President of Dallas chapter 2002 to present
    - Advisor to student chapter at Southern Methodist University 2003 to present
  - Society for Industrial and Applied Mathematics (SIAM)
- Reviewed textbook manuscript for Wiley and Sons, Inc.
- Developed a Mathematica notebook supplement for a leading Calculus textbook.

Recent Talks

IP-based Heuristics for Incremental Demand Rerouting
INFORMS Annual Meeting 2007
Seattle, WA, November 2007

Reliable W-CDMA Network Design with Sectorization
INFORMS Annual Meeting 2006
Pittsburgh, PA, November 2006

Improving Throughput in Telecommunications Networks Through Incremental Demand Rerouting
IFORS Triennial 2005
Honolulu, HI, July 2005

Next Generation Wireless Network Design
Wireless Telecommunications Symposium 2005
Pomona, CA, April 2005

Incremental Demand Rerouting in Telecommunications Networks
9th INFORMS Computing Society Conference
Annapolis, MD., January 2005

It Ain't Over Till It's Over: Playoff Races and Optimization Modeling Exercises
2004 INFORMS Conference
Denver, CO., October 2004

W-CDMA Network Design
International Conference on Computing, Communications and Control Technologies
Austin, TX., August 2004

Optimizing a W-CDMA Network
CORS/INFORMS International Meeting
Banff, Canada., May 2004

W-CDMA Network Design
Seventh INFORMS Telecommunications Conference
Deerfield Beach, FL., March 2004

Base Station Location and Service Assignments in W-CDMA Networks
Industrial Engineering Department Seminar
Texas A&M University, College Station, TX., 24 November 2003

Computer Skills

- Programming Languages:
  AMPL, C, CPLEX, HTML, MATLAB, Perl, S-Plus
- Software Packages:
  Microsoft Office
- Operating Systems/Environments:
  UNIX, Windows/MS-DOS, Macintosh

References

Professor Dorit S. Hochbaum (thesis advisor)
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Professor Candace A. Yano
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