Retsef Levi
Robert N. Noyce Career Development Professor
Sloan School of Management and Operations Research Center
Massachusetts Institute of Technology

EDUCATION

January 2002 – July 2005 -- Cornell University
Ph.D. in Operations Research and Industrial Engineering
GPA: 4.2368
Co-Advisors: Robin Roundy and David Shmoys.
Minor Advisors: James Renegar (Applied Math) and Shane Henderson (Applied Probability).
Thesis: "Computing Provably Near-Optimal Policies for Stochastic Inventory Control Models", under the supervision of Robin Roundy and Davis Shmoys

1996-1997 & 1999-2001 -- Tel-Aviv University
B.Sc. in Mathematics, trend of Operation Research
Final Grade: 96 (out of 100), Summa cum Laude
My B.Sc. studies were part of my service in the IDF (Israeli Defense Forces):
1996-1997 First Academic year completed
1997-1999 Upon requests from IDF went back to active service
1999-2001 Second and third Academic years completed (graduated in July 2001)

RESEARCH INTERESTS

- Supply chain and revenue management optimization
- Approximate dynamic programming
- Data-driven algorithms
- Stochastic Optimization
- Combinatorial optimization

PROFESSIONAL PREPARATION

September 2006
Robert N. Noyce Career Development Professor, Sloan School, MIT, Boston MA

July 2005–August 2006
Goldstine Postdoctoral Fellowship in Mathematical Sciences, IBM T.J. Watson Research Center, Yorktown Heights, NY

January 2002–July 2005
OR&IE Department, Cornell University, Ithaca, NY

Fall 2004 **-** OR320 (Optimization 1) Teaching Assistant (undergraduate courses). Duties: Holding weekly recitations and office hours, grading of assignments and exams, writing solutions and assisting students.

Summer 2004 **–** OR320/520 (Optimization 1) Instructor (undergraduate / M.Eng course). Duties: Setting the syllabus of the course, teaching, preparing homework and exams, managing TA's, etc;

Spring 2004 **–** OR115 (Introduction to Operations Research) Instructor (freshman course). Duties: Setting the syllabus of the course, teaching, preparing homework and exams, managing TA's.

Fall 2003 **–** OR522 (Topics in Linear Optimization) Instructor (M.Eng. course). Duties: Setting the syllabus of the course, teaching, preparing exams, etc.

Summer 2003 **–** OR320/520 (Optimization 1) Instructor (undergraduate / M.Eng course). Duties: Setting the syllabus of the course, teaching, preparing homework and exams, managing TA's, etc; Research Assistant for Professor Shmoys and Professor Roundy (approximation algorithms to inventory and supply chain management problems).

Spring 2003 **-** OR321 (Optimization 2) Teaching Assistant (undergraduate course). Duties: Holding weekly recitations and office hours, grading of assignments and exams, writing solutions and assisting students.

Fall 2002 **-** OR320 (Optimization 1) Teaching Assistant (undergraduate courses). Duties: Holding weekly recitations and office hours, grading of assignments and exams, writing solutions and assisting students.

Summer 2002 **–** Research Assistant (Cornell University): Professor Roundy (Manufacturing) and Professor Renegar (Continuous Optimization); Teaching Assistant of undergraduate level courses OR320 (Optimization 1). Duties: Holding weekly recitations and office hours, grading of assignments and exams, writing solutions and assisting students.

Spring 2002 **-** OR321 (Optimization 2) Teaching Assistant (undergraduate course). Duties: Holding weekly office hours, grading of assignments and exams, writing solutions and assisting students.

2001 - Business Development Consultant, Wisair Inc, Israel

Wisair is an Israeli hi-tech start-up company (of the RAD Group), which develops wireless solutions based on Ultra Wide Band (UWB) technology. The position included initiating and leading the potential market analysis and business development: initiating and promoting three major funding channels from the European Commission (1m Euro), an Israeli venture capital company ($5m), and the Israeli Chief Scientist.

1990-1999 - Officer in the Israeli Defense Forces (IDF)

Since 1991, served as an Officer in an elite unit of the Intelligence Corps of the IDF. Filled different positions throughout the years, which involved highly complicated analysis of interdisciplinary projects. Work was identified by high pressure and required high level of creativity and original thinking.

1991-1994 - Intelligence Analyst Officer (analyzing technical intelligence material)

1994-1996 - Captain, Head of Section, supervising 8 soldiers and officers. Designated as an extra merit officer (received prize from IDF Intelligence Department)

1997-1999 – Major, Head of Section, supervising more than 25 soldiers and officers. Received prize for "Creative Thinking" (Head of IDF Intelligence Department)

PUBLICATIONS

Refereed Journals

"Primal-Dual Algorithms for Deterministic Inventory Problems", Retsef Levi, Robin Roundy and David Shmoys. Mathematics of Operations Research, Volume 31, pages 267-284, February 2006.

"Approximation Algorithms for Stochastic Inventory Control Models", Retsef Levi, Martin Pál, Robin Roundy, and David Shmoys, Technical Report 1412, School of Operations Research and Industrial Engineering, Cornell University (To appear in Mathematics of Operations Research). This paper was awarded first prize in the 2004 MSOM Student Paper Competition.

Refereed Conferences

"Improved Approximation for the One-Warehouse-Multi-Retailer Problem (Extended Abstract)," Retsef Levi and Maxim Sviridenko (to appear in Approx 2006).

"Provably Near-Optimal Balancing Policies for Multi-Echelon Stochastic Inventory Control Models", Retsef Levi, Robin Roundy and Van Anh Truong, 2006 Multi-Echelon Conference.

"Provably Near-Optimal Sampling-Based Policies for Stochastic Inventory Control Models (Extended Abstract)", Retsef Levi, Robin Roundy and David Shmoys, Proceedings of the 38th Annual ACM Symposium of Computing, pages 739-748.

"Approximation Algorithms for Stochastic Inventory Control Models (Extended Abstract)", Retsef Levi, Martin Pál, Robin Roundy, and David Shmoys, Proceedings of IPCO 2005, pages 306-320.

"Inventory and Facility-Location Models with Market Selection (Extended Abstract)", Retsef Levi, Joseph Geunes, Edwin Romeijn and David Shmoys, Proceedings of IPCO 2005, pages 111-124.

"First Constant Approximation Algorithm for the One-Warehouse-Multi-Retailer Problem (Extended Abstract)", Retsef Levi, Robin Roundy and David Shmoys, Proceedings of SODA 2005, pages 365-374 (http://www.siam.org/meetings/da05/program.htm).

"Primal-Dual Algorithms for Deterministic Inventory Problems (Extended Abstract)", Retsef Levi, Robin Roundy, and David Shmoys, Proceedings of the 36th Annual ACM Symposium on Theory of Computing, pages 353-362, STOC 2004 (http://people.cs.uchicago.edu/~stoc04/accepted.html).

"LP-based Approximation Algorithms for Capacitated Facility Location (Extended Abstract)", Retsef Levi, David Shmoys and Chaitanya Swamy, proceedings of IPCO 2004, pages 206-218 (http://www.corc.ieor.columbia.edu/meetings/ipcox/acceptedpapers.txt).

"Facility Location with Service Installation Costs (Extended Abstract)", David Shmoys, Chaitanya Swamy and Retsef Levi, proceedings of SODA 2004, pages 1081-1090.

Submitted Papers

"New Policies for Stochastic Inventory Control Models - A Theoretical and Computational Study", Gavin Hurley, Peter Jackson, Retsef Levi, Robin Roundy and David Shmoys (submitted to Operations Research), 2006.

"Provably Near-Optimal Balancing Policies for Stochastic Inventory Control Models With Lost-Sales," Retsef Levi, Ganesh Janakiraman and Mahesh Nagarajan (under revision in Mathematics of Operations Research).

"Approximation Algorithms for Capacitated Stochastic Inventory Models", Retsef Levi, Robin Roundy, David Shmoys, and Van Anh Truong, Technical Report No. 1429, School of Operations Research and Industrial Engineering, Cornell University (under revision in Operations Research).

"Provably Near-Optimal Sampling-Based Policies for Stochastic Inventory Control Models", Retsef Levi, Robin Roundy and David Shmoys, Technical Report No. 1427 (under revision in Mathematics of Operations Research).

"First Constant Approximation Algorithm for the One-Warehouse-Multi-Retailer Problem", Retsef Levi, Robin Roundy, David Shmoys, and Maxim Sviridenko. Technical Report No. 1408, School of Operations Research and Industrial Engineering, Cornell University (submitted to Management Science, under revision).

"Provably Near-Optimal Balancing Policies for Stochastic Multi-Echelon Inventory Control Models", Retsef Levi, Robin Roundy and Van Anh Truong (under revision in Operations Research), 2006.

Papers in Preparation

"Capacitated Interval Hitting on the Line", Retsef Levi, Baruch Schieber and Maxim Sviridenko, 2006.

"Flow-Cover-Driven Approximation Algorithms for Multi-Item Capacitated Inventory Models", Retsef Levi, Andrea Lodi and Maxim Sviridenko, 2006.

"On-line Algorithms for Multi-Item Make-to-Order Inventory Models", Tracy Kimberl, Retsef Levi, Konstantin Makarychecv and maxim Sviridenko, 2006.

"Cost Allocation and Games in Multi-Echelon Stochastic Inventory Control Models", Retsef Levi and Nicholas Steir, 2006.

"Revenue Management of Reusable Resources - Provably Near-Optimal LP-Based Policies," Retsef Levi, and Ana Radovanovic, 2006.

"Fast 3-Approxiamtion Algorithm for the Joint Replenishment Problem, Analyzed through Dual-Fitting", Retsef Levi, Robin Roundy and David Shmoys.

Service

- Referee to Math of OR, Operations Research, Naval Research, European Journal of OR
- Referee in the MSOM Student Paper Competition, 2006
- INFROMS – Supply Chain Management Cluster Chair, 2007

GRANTS AND AWARDS

2006 – MIT Bauchsbaum Grant ($50K)
2005 – IBM Goldstein Postdoctoral fellowship in Mathematical Sciences
2004 – First Prize of the Student MSOM Competition
2001 - Award for Excellence, BA Studies at the School of Mathematics in Tel-Aviv University
1999 - Received the prize of the Head of Intelligence Corps for "Creative Thinking"
1996 - Designated as an Extra Merit Officer (Head of Intelligence Corps)

COMPUTER and TECHNICAL SKILLS

Languages: Scheme
Mathematical Software and Programming: AMPL, MATLAB
Document Publishing: MS-Word, Power Point, and LATEX
Platforms: Windows, UNIX
Technical Background: Extensive knowledge and understanding of technical (and marketing) aspects of communication and computer networks (e.g. Wireless, cellular and wire technologies, ISDN, IN, etc).

PERSONAL

Languages: Hebrew - mother-tongue; English - fluent, at mother-tongue level; Arabic - basic + level.
Married to Anat Nidar-Levi with 3 children (Yagev, Nov and Tia); Holds an H1B Visa, citizen of Israel.
Hobbies: Volleyball player (Israel National Youth Team, National League; Tel-Aviv University team); enjoys traveling, reading, listening to music, playing volleyball, soccer and basketball.