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Itai Gurvich

Curriculum Vitae

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Education

2004-2008 **Graduate School of Business, Columbia University, New York, NY**
PhD in Decisions, Risk and Operations
Dissertation: Staffing and Control of Many-Server Service Systems
Principal Adviser: Ward Whitt
Co-Advisers: Mor Armony, Costis Maglaras and Assaf Zeevi

2002-2004 **Technion, Israel Institute of Technology, Haifa, Israel**
M.Sc. in Operations Research *(summa cum laude)*
Dissertation: Design and Control of the M/M/N Queue with Multi-Type Customers and Many Servers. Adviser: Avishai Mandelbaum.

1998-2002 **Technion, Israel Institute of Technology, Haifa, Israel**
B.Sc in Industrial Engineering *(summa cum laude)*

Professional Experience

2012- Associate Professor, Kellogg School of Management, Northwestern University

2009-2012 Assistant Professor, Kellogg School of Management, Northwestern University

2008-2009 Donald P. Jacobs Scholar in Managerial Economics and Decision Sciences, Kellogg School of Management, Northwestern University

2005-2006 Teaching Assistant, Graduate School of Business, Columbia University

2001-2004 Teaching Assistant, Technion—Israel Institute of Technology

Research Interests

Application Areas:
- Service Operations
- Call Centers

Methodological Areas:
- Queueing Theory
- Applied Probability

Publications

1. I. Gurvich, M. Armony, and A. Mandelbaum (2008). Service level differentiation in call centers with fully flexible servers. *Management Science*, 54(2), 279—294.

2. I. Gurvich, M. Armony, and C. Maglaras (2009). Cross-selling in a call center with a heterogeneous customer population. *Operations Research*, 57(2), 299—313.

3. I. Gurvich and W. Whitt (2009). Queue-and-idleness-ratio controls in many-server service systems. *Mathematics of Operations Research*, 34(2), 363—396.

4. I. Gurvich and W. Whitt (2009). Scheduling flexible servers with convex delay costs in many-server service systems. *Manufacturing & Service Operations Management*, 11(2), 237--253.

5. G. Allon and I. Gurvich (2010). Pricing and dimensioning competing large-scale service providers. *Manufacturing & Service Operations Management*, 12(3), 449--469,

6. M. Armony and I. Gurvich (2010). When promotions meet operations: Cross selling and its effect on call-center performance. *Manufacturing & Service Operations Management* 12(3), 470—488.

7. I. Gurvich, J. Luedtke, and T. Tezcan (2010). Staffing call centers with uncertain demand forecasts: A chance-constrained optimization approach. *Management Science*, 56(7), 1093—1115.

8. I. Gurvich and W. Whitt (2010). Service-level differentiation in many-server service systems: A solution based on fixed-queue-ratio routing. *Operations Research*, 29, 567—588.

9. G. Allon, A. Bassamboo, and I. Gurvich (2011). "We will be right with you": Managing customers with vague promises and cheap talk. *Operations Research* 59(6) 1382-1394

10. S. Deo and I. Gurvich (2011). Centralized vs. decentralized ambulance diversion: A network perspective. *Management Science*, 57(3), 1300-1319.

11. I. Gurvich and O. Perry (2011). Overflow networks: approximations and implications to call center outsourcing. *Operations Research,* 60(4), pp. 996-1009.

12. B. Ata and I. Gurvich (2012). On optimality gaps in the Halfin-Whitt regime. *Annals of Applied Probability, 22(1),* 407-455.

13. I. Gurvich. Validity of heavy-traffic steady-state approximations in multiclass queueing networks: The case of queue-ratio disciplines. *Mathematics of Operations Research*, forthcoming.

14. R. Atar and I. Gurvich. Scheduling parallel servers in the non-degenerate slowdown diffusion regime: Asymptotic optimality results. *Annals of Applied Probability*, forthcoming.

15. I. Gurvich, J. Huang, and A. Mandelbaum. Excursion-based universal approximations for the Erlang-A queue in steady-state. *Mathematics of Operations Research*, forthcoming.

16. I. Gurvich. Diffusion models and steady-state approximations for exponentially ergodic Markovian queues. *Annals of Applied Probability*, forthcoming

Completed Papers under Review

17. I. Gurvich and A. Ward. On the dynamic control of matching queues.

18. S-B. Soh and I. Gurvich. Call-center staffing: Service-level-differentiation and Gcμ rules.

19. I. Gurvich and J.A. Van Mieghem. Collaboration and resource sharing in networks: Architectures, bottlenecks and throughput

20. I. Gurvich, M. Lariviere, and A. Moreno-Garcia. Staffing service systems when capacity has a mind of its own.

21. J. Zhang, E. Park, I. Gurvich, J.A Van Mieghem, R.S. Young, and M.V. Williams. Hospital readmission reduction program: An economic and operational analysis.

Work in Progress

1. E. Park, S. Deo, and I. Gurvich. Empirical analysis of ambulance diversion: Policy change in Los Angeles County.

2. I. Gurvich and J.A. Van Mieghem. Controllability and throughput in collaborative networks

3. I. Gurvich. Throughput robustness and LEGO networks.

4. L. Wang, I. Gurvich, and J.A. van Mieghem. Collaboration in service networks: A study of a health-care setting.

5. C. Ozkan, I. Gurvich, and M. Lariviere. How many lines should you have? Design and segmentation in queues.

Cases

Managing Independent Agents at Arise Virtual Solutions. With Martin Lariviere and Antonio Moreno-Garcia.

Conference Presentations

- On the Dynamic Control of Matching Queues. INFORMS Annual Meeting, Minneapolis, October 2013
- Collaboration in Networks: Architectures, Bottlenecks and Throughput. INFORMS Annual Meeting, Minneapolis, October 2013
- Diffusion models and steady-state approximations for exponentially ergodic Markovian queues. INFORMS Annual Meeting, Minneapolis, October 2013
- Diffusion models and steady-state approximations for exponentially ergodic Markovian queues. INFORMS Applied Probability Society conference, San Jose, Costa Rica, July 2013
- Collaboration in Networks: Architectures and Throughput. MSOM Annual Meeting, INSEAD, France, July 2013
- Excursion-based Universal Approximation for the Erlang-A Queue in Steady-State. INFORMS Annual Meeting, Phoenix, October 2012
- Scheduling Parallel Servers in the Non-degenerate Slowdown Diffusion Regime. INFORMS Annual Meeting, Phoenix, October 2012
- Overflow Networks: Approximations and Implications to Call Center Outsourcing. POMS 2012
- Staffing Multiclass Service Systems: Problem Formulations and Consistency Constraints. POMS 2012, Chicago
- Excursion-based steady-state Brownian approximations: Universal approximations for the Erlang-A Queue. The International Workshop on Applied Probability (IWAP), Jerusalem 2012
- Excursion-based steady-state Brownian approximations: Universal approximations for the Erlang-A Queue. 8th World Congress in Probability and Statistics, Istanbul
- On Optimality Gaps of Asymptotically Optimal Policies in the Many-server Heavy-traffic Regime. INFORMS Annual Meeting, Charlotte, November 2011
- Centralized vs. Decentralized Ambulance Diversion: A Network Perspective. INFORMS Annual Meeting, Charlotte, November 2011
- Staffing Call Centers With Uncertain Demand Forecasts: A Chance-Constrained Optimization. INFORMS Annual Meeting, Charlotte, November 2011
- Overflow Networks: Approximations and Implications to Call-Center Outsourcing. MSOM Annual Meeting, Ann Arbor, June 2011
- Overflow networks: approximations and implications to call center outsourcing. Young European Queueing Theorists (YEQT) IV, Eindhoven, Netherlands, November 2010
- Minimizing Convex Holding Costs in a Many-server Heavy-traffic Regime with Non-degenerate Slowdown. INFORMS Annual Meeting, Austin Texas, November 2010

- Skill Based Routing (Part II): Data-based review and research prospects with focus on staffing and routing. MSOM Annual Meeting, Haifa, Israel, June 2010
- Staffing Call Centers with Uncertain Demand Forecasts: A Chance-Constrained Optimization Approach. MSOM Annual Meeting, Service Management SIG conference, Haifa, Israel, June 2010
- On Optimality Gaps of Asymptotically Optimal Policies in the Many-server Heavy-traffic Regime. INFORMS Annual Meeting, San Diego, October 2009
- Empirical Analysis of Skill Based Routing in Call Centers: A Queueing-Science Perspective. INFORMS Annual Meeting, San Deigo, October 2009
- Staffing Call Centers With Uncertain Demand Forecasts: A Chance-Constrained Optimization Approach. Applied Probability Society conference, Cornell, July 2009
- Pricing and Dimensioning Competing Large-scale Service Providers . Applied Probability Society conference, Cornell, July 2009
- Empirical Analysis of Skill Based Routing in Call Centers: A Queueing-Science Perspective. MSOM conference, MIT, June 2009
- A Chance-constrained Optimization Approach to Call-center Staffing. INFORMS Annual Meeting, D.C., October 2008
- Overflow Models with Many-servers: Transient and Steady-state Analysis. INFORMS Annual Meeting, D.C., October 2008
- Staffing Call Centers Using Fixed-queue-ratio and Simulation-based Optimization . INFORMS Annual Meeting, D.C., October 2008
- Pricing and Dimensioning Competing Large-scale Service Providers . INFORMS Annual Meeting, D.C., October 2008
- Staffing large-scale call centers to meet service-level targets. KELLOGG/MCCORMICK joint operations seminar series, October 2008
- Skills-Based Routing and Staffing using Fixed Queue Ratios. Wharton Financial Institutions Center's Contact Center Forum. February 2008
- Competition in Large Scale Service Systems: Do Waiting Time Standards Matter?. MSOM conference, University of Maryland, June 2008
- Workforce Planning and Scheduling in Large Call Centers: Towards a Unified Approach
- INFORMS Annual Meeting, Seattle, November 2007
- Competition in Large-scale Service Systems: Do Waiting Time Standards Matter?. INFORMS Annual Meeting, Seattle, November 2007
- Validity of Heavy-Traffic Steady-State Approximations in Open Queueing Networks: Sufficient Conditions Involving State-Space Collapse. INFORMS Annual Meeting, Seattle, November 2007
- Validity of heavy-traffic steady-state approximations in open queueing networks: Sufficient conditions involving state-space collapse. The Fourteenth INFORMS Applied Probability Society Conference, Eindhoven, July 2007
- Fixed-Queue-Ratio Routing in Call Centers. INFORMS Annual Meeting, Pittsburgh, November 2006
- Cross-Selling in a Call Center with a Heterogeneous Customer Population. MSOM Conference, Georgia-Tech, Atlanta, June 2006

- Cross-selling in Service Focused Call Centers: Staffing, Control and Performance Analysis. INFORMS Annual Meeting, San Francisco, November 2005
- When Promotions Meet Operations: Cross-Selling and its Effect on Call-Center Performance, MSOM Conference, Kellogg, Evanston, June 2005

Honors and Awards

- Co-authored with Gad Allon and Achal Bassamboo the paper:
  Strategic Announcement and Interpretation of Information in Service Systems
  that was awarded the second prize in the Junior Faculty Interest Group (JFIG) paper competition, October 2008

- First Prize, Manufacturing and Service Operations Management (MSOM) student paper competition, November 2006
  Paper Title*: Cross-Selling in a Call Center with a Heterogeneous Customer Population*

- Co-authored with Mor Armony the paper:
  *When Promotions Meet Operations: Cross Selling and Its Effect on Call-Center Performanc*e
  which was awarded the first prize in the Junior Faculty Interest Group (JFIG) paper competition, November 2006

Invited Talks in Academic Institutions

Hebrew University of Jerusalem, November 2013
Tel Aviv University, November 2013
University College London, October 2013
London Business School, October 2013
INSEAD, October 2013
MIT Sloan School of Business, September 2013
Ross School of Business, University of Michigan, February 2011
Booth School of Business, University of Chicago, October 2010
Technion- Haifa, July 2008
Haifa University-Haifa, July 2008
Graduate School of Business, Stanford University, February 2008
Stern School of Business, NYU, February 2008
The Wharton School, University of Pennsylvania, Decembers 2008
ORIE Dept., Cornell University, January 2008
ISYE, Georgia Tech, February 2008
School of Business, Rochester University, January 2008
McCombs School of Business, University of Texas-Austin, January 2008
School of Business, Carnegie Mellon University, January 2008
School of Business, Duke University, January 2008
Sloan School of Management, MIT, February 2007

Teaching

MBA: Operations Management Core Class (OPNS 430)
Service Operations (OPNS 482)
PhD: Stochastic Foundations (OPNS 516)

Professional Service

Associate Editor for *Operations Research* (awarded a meritorious service award for 2012)
Reviewer for: *Management Science*, *Manufacturing and Service Operations Management (M&SOM)*, *Operations Research*, *Mathematics of Operations Research*, *Queueing Systems*, *Annals of Applied Probability*, *Stochastic Processes and Their Applications*, *Stochastic Systems*, *Stochastic Models*, *POMS*, *EJOR*.
Judge: MSOM student paper competition (multiple years)
Conference chair: The Service Special Interest Group (SIG) mini-conference 2014