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*Updated:* Fall 2014.

## Current Positions

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|  | BOSTON UNIVERSITY | Boston, MA |
|--|-------------------|------------|
- **Professor and Distinguished Faculty Fellow** with a joint appointment in the Department of Electrical and Computer Engineering (9/09–present), the Division of Systems Engineering (9/09–present), and the Department of Biomedical Engineering (5/14–present).
  - **Director**, Center for Information and Systems Engineering (CISE) (1/14–present). CISE is an interdisciplinary research center with about 37 affiliated faculty in Engineering, Sciences, and Business. The Center is responsible for a number of sponsored research projects that correspond to more than \$6.6 million of annual research expenditures.
  - **Affiliations:** Affiliated with the Boston University BioMolecular Engineering Research Center (BMERC) and the Center for Information and Systems Engineering (CISE).

## Education

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|  | MASSACHUSETTS INSTITUTE OF TECHNOLOGY | Cambridge, MA |
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- Ph.D. in Electrical Engineering and Computer Science, May 1996.  
Ph.D. Thesis: “Large Deviations in High Speed Communication Networks”.  
Advisors: Prof. Dimitris Bertsimas and Prof. John Tsitsiklis.
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|  | MASSACHUSETTS INSTITUTE OF TECHNOLOGY | Cambridge, MA |
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- S.M. in Electrical Engineering and Computer Science, February 1993.  
S.M. Thesis: “Scheduling of Multiclass Queueing Networks: Bounds on Achievable Performance”.
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|  | NATIONAL TECHNICAL UNIVERSITY OF ATHENS | Athens, Greece |
|--|---|----------------|
- Diploma in Electrical and Computer Engineering, June 1991.

## Main Research Interests

- Systems and control, networking, applied probability, optimization, operations research, computational biology, and bioinformatics. Specifics topics of interest include:
- Design, performance analysis and control of communication and sensor networks.
  - Protein docking, metabolic and gene networks.
  - Queueing theory and stochastic systems; Large deviations theory.
  - Optimization and decision theory.
  - Cyber-security, anomaly detection.
  - Medical informatics.

- Pricing and revenue management with applications in communication networks and the smart-grid.
- Design, stability, performance analysis and control of manufacturing systems, supply chains, and distribution systems.

**Teaching Experience**

- *Optimization Theory and Methods.*  
Linear Programming; Linear large scale optimization methods; Introduction to nonlinear programming; Interior-point methods; Integer Programming.
- *Advanced Optimization Theory and Methods.*  
Nonlinear programming; Cone and semi-definite programming; Large scale optimization methods; Stochastic approximation.
- *Communication Networks Control.*  
A systems and control perspective into communication and sensor networks research. Topics include: Network Services and Layered Architectures, Traffic Management and Congestion Control, Traffic Modeling, Admission Control, Flow Control and TCP/IP, Routing, Sensor Networks, Wireless Networks, Network Economics and Pricing.
- *Probability and Statistics.*  
Probability and Statistics; Introduction to Decision theory, Estimation, and Markov chains, Statistics and Quality Control.
- *Discrete Stochastic Processes.*  
Poisson processes; Renewal Theory; Markov chains; Markov processes; Martingales.

**Work Experience**

	VARIOUS BUSINESSES	
1/95–Present	Consultant to a variety of companies in my areas of interest.	
	BOSTON UNIVERSITY	Boston, MA
9/04–12/13	Co-Director, Center for Information and Systems Engineering (CISE).	
	BOSTON UNIVERSITY	Boston, MA
11/04–12/12	Academic Director, The Sensor Network Consortium (SNC) – an industry consortium of about 15 member companies with diverse business activities and strong interest in wireless sensor networks.	
	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Cambridge, MA
1/10–8/11	Visiting Scholar, Operations Research Center.	
	BOSTON UNIVERSITY	Boston, MA
1/00–08/09	Associate Professor, College of Engineering.	
	COLUMBIA UNIVERSITY	New York, NY
9/03–12/03	Visiting Scholar, Columbia Business School.	
	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Cambridge, MA
1/03–6/03	Visiting Scholar, Laboratory for Information and Decision Systems.	
	COGENTRIC, INC.	Portsmouth, NH

9/00–12/01 Principal Scientist.  
 BOSTON UNIVERSITY Boston, MA

9/96–12/99 Assistant Professor, College of Engineering.  
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY Cambridge, MA

6/96–8/96 Post-Doctoral Associate, Laboratory for Information and Decision Systems.

9/91–6/96 Research assistant; research on the design and control of manufacturing systems and high speed communication networks.

1/94–6/94 Teaching Assistant.

1/95 AT&T BELL LABORATORIES Murray Hill, NJ  
 Consultant in the Mathematics of Networks and Systems Department. Worked in a quick simulation project.

NATIONAL TECHNICAL UNIVERSITY OF ATHENS Athens, Greece

9/89–6/91 Research Assistant. Worked in projects funded by the European Union.

**Honors and Awards**

- Invited participant, 12th Annual National Academies Keck Futures Initiative (NAKFI) conference, “Collective Behavior: From Cells to Societies”, Organized by the National Academies, November 2014, Irvine, California. Participation by invitation only after a competitive selection process.
- IEEE Fellow (2014).
- Inaugural Editor-in-Chief, IEEE Transactions on Control of Network Systems.
- Supervised the Ph.D. Thesis of Fuzhuo Huang which won the Best Dissertation Award from the Division of Systems Engineering, Boston University, January 2013.
- Distinguished faculty fellow, College of Engineering, Boston University, 2011-2016.
- Dean’s catalyst award, May 2011, College of Engineering, Boston University, for research project “A Quantitative Approach to Disease Prevention and Management Leveraging Electronic Health Records”.
- Best student paper award at the 9th Intl. Symposium of Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt 2011) won by Ph.D. student Reza Moazzez-Estanjini for joint paper “Improved Delay-Minimized Data Harvesting with Mobile Elements in Wireless Sensor Networks”.
- Best performance in modeling selected protein-protein complexes against 64 other predictor groups that combine software models with human analysis (with D. Kozakov, P. Vakili, S. Vajda, et al.), CAPRI (Critical Assessment of Predicted Interactions) Evaluation meeting, Barcelona, Spain, Dec. 9-11, 2009.
- Invited Participant, *Workshop on Mathematics of Molecular and Cellular Biology, Protein Folding*, Institute for Mathematics and Its Applications (IMA), January 14-18, 2008. Workshop organized as part of the IMA thematic year on Molecular and Cellular Biology; participation is by invitation only.
- First prize in the *3rd Critical Assessment PRedicted (Protein) Interaction (CAPRI) Evaluation Meeting*, April 20-21, 2007, Toronto, Canada, for presented poster publication on “Refinement of rigid-body protein docking predictions using semi-definite underestimation” (with Y. Shen, P. Vakili, and S. Vajda). CAPRI is the community-wide experiment in which all computational protein docking groups compete.
- IEEE Senior Member (2006).

- Invited Participant, *2002 U.S. Frontiers of Engineering Symposium*, National Academy of Engineering (NAE). An annual symposium organized by the NAE that brings together 100 of the U.S.-based outstanding young engineers –ages 30-45– from industry, academia, and government.
- *National Science Foundation (NSF) CAREER Award* (Directorate for Computer & Information Science & Engineering, Networking Research), 2000.
- Plenary Speaker, *1998 and 2002 LIDS Student Conference*, Laboratory for Information and Decision Systems, Massachusetts Institute of Technology (MIT).
- Second Prize, *1997 George E. Nicholson* paper competition. Awarded by INFORMS, the Institute for Operations Research and the Management Sciences, to the best Operations Research & Management Science papers on work done as a doctoral student.
- Elected Full Member of *Sigma Xi*, a honor society, (1996, MIT Chapter).
- Graduated ranking first (out of 206), class of 1991, Department of Electrical and Computer Engineering (ECE), National Technical University of Athens (NTUA), Greece.
- Four times recipient (1986-1990) of a scholarship from the *National Scholarship Foundation of Greece* (awarded to the top five students in the ECE Department at NTUA).
- Three times recipient (1988-1990) of an award from the *Technical Chamber of Greece* (based on performance as an undergraduate student at NTUA).
- Included in Who's Who in America, Who's Who in Science and Engineering, Who's Who in American Education, and Who's Who of Emerging Leaders.

### Professional Activities

- Editor-in-Chief (inaugural), *IEEE Transactions on Control of Network Systems* (2/2013–present).
- Guest Editor, *IEEE Transactions on Automatic Control*, Special Issue on Wireless Sensor and Actuator Networks, Volume 56 (2011), Issue 10 (October).
- Associate Editor:
  - *Operations Research* (1/12–6/2013);
  - *ACM Trans. on Sensor Networks* (1/11–6/2013);
  - *SIAM Journal on Control and Optimization* (1/10–12/12);
  - *Operations Research Letters* (2/02–7/10);
  - *IEEE Transactions on Automatic Control* (1/06–12/09);
  - *Automatica* (8/02–12/07).
- Professional Leadership positions:
  - IEEE Control Systems Society, Board of Governors (Appointed 2010–2012; Elected 2013-2015).
  - Liaison position between the IEEE Control Systems Society and the Institute for Operations Research and the Management Sciences (INFORMS) (11/2007–12/13);
  - Member, *Technical Committee on Systems Biology*, and *Technical Committee on Medical and Health Care Systems*, IEEE Control Systems Society, (1/13–present);
  - Chair, *Technical Committee on Networks and Communication Systems*, IEEE Control Systems Society, (1/06–12/11);
  - Member, International Federation of Automatic Control (IFAC) Technical Committee on Stochastic Systems (2004–2007);
  - Chair, Working Group on Finance Systems under the Network and Communications Technical Committee of the *IEEE Control Systems Society* (1997–2004).
- Conference Organizing Committees:
  - Co-Organizer, Symposium on *Systems Science: Shaping Society's Future*, Boston University, May 2012;

- Steering Committee, *1st International Conference on Sensor Networks Applications, Experimentation and Logistics (Sensappeal 2009)*;
- Organizer, Mini-workshop on “Security and Wireless Sensor Networks”, *National Colloquium for Information Systems Security Education*, hosted at Boston University, June 2007;
- Registration Chair, *46th IEEE Conference on Decision and Control*, December 2007, New Orleans, Louisiana;
- Co-Organizer, Workshop on “Challenges and Opportunities in Distributed Sensor Networks”, *The Center for Nonlinear Studies, Los Alamos National Laboratory*, Los Alamos, New Mexico, USA, March 2006;
- Co-Organizer, *Emerging Technologies Symposium* on “Sensor Networks: What’s real and what lies ahead”, Boston University, November 2005;
- Organizer, *Emerging Technologies Symposium* on “Sensor Networks: Where Technologies Meet and Applications are Endless”, Boston University, May 2004;
- Chair, Local Arrangements Committee, *43rd IEEE Conference on Decision and Control*, December 2004, Paradise Island, Bahamas;
- Member of the organizing committee, *1998 Information Theory Symposium*, Boston, MA.
- Program Committees:
  - Member of the Technical program committee, *IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS 2013)*, May 20–23, 2013, Cambridge, Massachusetts.
  - Member of the Technical program committee, *11th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)*, May 13–17, 2013, Tsukuba Science City, Japan.
  - Member of the Technical program committee, *4th IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys)*, September 25–26, 2013, Koblenz, Germany.
  - Member of the Technical program committee, *21st Mediterranean Conference on Control and Automation (MED)*, June 25 – 28, 2013 Crete, Greece.
  - Member of the Technical program committee, *3rd IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys)*, September 14–15, 2012, Santa Barbara, California.
  - Member of the Technical program committee, *20th Mediterranean Conference on Control and Automation (MED)*, July 3–6 2012, Barcelona, Spain.
  - Member of the Technical program committee, *10th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)*, May 14–18, 2012, Paderborn, Germany.
  - Member of the Technical program committee, *19th Mediterranean Conference on Control and Automation (MED)*, June 20-23 2011, Corfu, Greece.
  - Member of the Technical program committee, *2nd International Workshop on Wireless Sensor, Actuator and Robot Networks (WiSARN 11)*, April 10-15, 2011, Shanghai, China.
  - Member of the Technical program committee, *9th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)*, May 9-13, 2011, Princeton, New Jersey.
  - Member of the Technical program committee, *2nd IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys)*, 13-14 September, 2010, Centre de Congrès de L’ Impérial Palace, Annecy, France.
  - Member of the Technical program committee, *1st International Workshop on Wireless Sensor, Actuator and Robot Networks (WiSARN 10)*, June 17th, 2010, Montreal, Canada.

- Member of the Technical program committee, *2nd ACM International Workshop on Mobile Entity Localization and Tracking in GPS-less Environments (MELT 09)*.
- Co-Chair, Sensors and Sensor Networks Track, Program Committee of the *2009 IEEE Conference on Automation Science and Engineering (CASE 2009)*.
- Member of the Technical program committee, *Workshop on End-to-End, Sense-and-Respond Systems, Applications, and Services (in conjunction with MobiSys '05)*.
- Member of the Technical program committee, *2002 American Control Conference*.
- Member of the Technical program committee, *IEEE INFOCOM 2002* conference.
- Member and Group Leader (i.e., area editor) of the Technical program committee, *IEEE INFOCOM 2001* conference.
- Member of the program committee, *Internet II: QoS and Future Directions Conference, SPIE 2000 Voice, Video, and Data Communications Symposium*.
- Member of the program committee, *37TH IEEE Conference on Decision and Control (1998)*.
- Member of the program committee, *9TH INFORMS Applied Probability Conference (1997)*.
- Served in blue-ribbon and many other peer review panels for the *National Science Foundation (NSF)*. Reviewed proposals for various NSF programs. Served in Review Visiting Committees to evaluate DOE funded projects at Universities and at the National Labs. Referee for many technical journals. Session Organizer and Chair in many sessions at the IEEE Conference on Decision and Control, the INFORMS National Meeting, and the INFORMS Applied Probability conference.
- Fellow of the *IEEE (Institute of Electrical and Electronics Engineers)*. Member of *INFORMS (Institute for Operations Research and the Management Sciences)*, Sigma Xi, and of the *Technical Chamber of Greece*.

## Sponsored Projects

**Summary:** PI or Co-PI for \$ 34,822,813 in sponsored projects since 1997.

- [F1] “Effective Classification and Actionable Obstacle Detection from Roadway Data”, Co-PI (with C.G. Cassandras), *City of Boston*, 9/1/13–9/30/14, \$ 85,000.
- [F2] “Clinical Decision Support System for Patient-Specific Cancer Diagnosis and Management,” Co-PI (with V. Saligrama at BU and K. Andriole, Brigham and Women’s Hospital), *Joint Brigham and BU Program in Radiology and Engineering*, 5/1/14–4/30/15, \$ 40,000.
- [F3] “SHB: Type II (INT): Collaborative Research: Algorithmic Approaches to Personalized Health Care,” **Principal Investigator (PI)**, (Collaborative grant with D. Bertsimas at MIT, BU Co-PI Dr. Adams), *NSF Smart Health and Wellbeing Program*, 9/12/12–9/11/17, \$ 1,100,000 (BU budget).
- [F4] “CPS: Synergy: Collaborative Research: A Cyber-Physical Infrastructure for the ‘Smart City’”, Co-PI, (PI: C.G. Cassandras at BU, Co-PIs: A. Bestavros, A. Kfoury at BU, collaborative with W. Gong at UMass Amherst and R. Gao at UConn), *NSF Cyber-Physical Systems Program*, 10/1/12–9/30/15, \$ 700,000 (BU budget).
- [F5] “Associating growth conditions with cellular composition in Gram-negative bacteria”, Co-PI, (PI: C. Wilke UT Austin, subcontract to BU team of D. Segré and I. Paschalidis), *DoD Multidisciplinary University Research Program (MURI) FY12*, 10/1/12–9/30/15, \$ 7,500,000.
- [F6] “A Coordinated Approach to Cyber-Situation Awareness Based on Traffic Anomaly Detection”, **Principal Investigator (PI)**, (Co-PIs: C.G. Cassandras, M. Crovella at BU and P. Barford at U. of Wisconsin), Army Research Office, 6/11/11–6/10/14, \$ 600,000.

- [F7] “A Quantitative Approach to Disease Prevention and Management Leveraging Electronic Health Records”, PI, Dean’s Catalyst Award, College of Engineering, Boston University, 5/1/11–4/30/12, \$ 33,315.
- [F8] “KIOS Center”, CISE Collaboration with the University of Cyprus, **Principal Investigator (PI)**, (Co-PI: C.G. Cassandras), 4/1/11–present, \$ 21,645 (to date).
- [F9] “AIRFOILS: Animal Inspired Robust Flight with Outer and Inner Loop Strategies”, Co-PI (PI: K. Morgansen at U. of Washington Seattle, subcontract to BU team of J. Baillieul, C. Belta, I. Paschalidis, and T. Kunz), *DoD Multidisciplinary University Research Program (MURI)* FY11, 9/1/10–8/31/15, \$ 7,500,000.
- [F10] “Refinement Methods for Protein Docking based on Exploring Multi-Dimensional Energy Funnels”, **Principal Investigator (PI)**, (Co-PIs D. Kozakov and P. Vakili), *National Institutes of Health (NIH), National Institute of General Medical Sciences (NIGMS) R01 grant*, 4/10–4/15, \$ 1,580,473.
- [F11] “A Statistical Approach to Internet Traffic Anomaly Detection”, **Principal Investigator (PI)**, *Army Research Office (ARO)*, 9/09 – 5/10, \$ 50,000.
- [F12] “Supplement: Distributed Wireless Sensor Networks for Long-term Deployments”, **Principal Investigator (PI)**, (Co-PI C.G. Cassandras), *Department of Energy (DOE)*, 9/09 – 8/11, \$ 360,000.
- [F13] “Forklift Sensor Network at the Abel-Womack Warehouse”, **Principal Investigator (PI)**, *Raymond Corporation*, 6/09–5/10, \$ 10,691.
- [F14] “EFRI-ARESCI: Event-Driven Sensing for Enterprise Reconfigurability and Optimization”, Co-PI (with C. G. Cassandras and A. Bestavros at Boston University and R. Gao and W. Gong at UMass Amherst), *NSF Emerging Frontiers of Research and Innovation Initiative*, 11/1/07–4/30/13, \$ 1,999,573.
- [F15] “Distributed Wireless Sensor Networks for Long-term Deployments”, **Principal Investigator (PI)**, (Co-PI C.G. Cassandras), *Department of Energy (DOE)*, 9/06 – 8/10, \$ 752,117.
- [F16] “Final-Stage Optimization Methods for Protein Docking Exploiting Energy Funnels”, **Principal Investigator (PI)**, (Co-PI P. Vakili), *National Institutes of Health (NIH), National Institute of General Medical Sciences (NIGMS)*, 2/07–12/09, \$ 437,852.
- [F17] The Sensor Network Consortium, **Academic Director**, An industry consortium of 14 companies supporting the consortium activities and research on Sensor Networks, 2004–2012, \$ 188,000.
- [F18] “NeTS-NOSS: SensorNet Architectures for Indoor Location Detection: From Resolution to Robustness”, Co-PI (with D. Starobinski and A. Trachtenberg), *NSF, Research in Networking Technology and Systems (NeTS)*, 9/1/04–8/31/08, \$ 600,000.
- [F19] “ITR: COLLABORATIVE RESEARCH: Diagnosis and Assessment of Faults, Misbehavior and Threats in Distributed Systems and Networks”, **Principal Investigator (PI)**, (with C. Hadjicostis, C. Beck, R. Sreenivas at the University of Illinois at Urbana-Champaign, J. Tsitsiklis at MIT, S. Tatikonda at Yale, and K. Thulasiraman at the Univ. of Oklahoma), *NSF, Information Technology Research for National Priorities (ITR)*, 9/15/04–8/31/09, \$ 1,100,000.
- [F20] “SENSORS: A Control and Optimization Science Base for Sensor Networks in Adverse and Stochastic Environments”, Co-PI (with C. G. Cassandras, J. Baillieul and D. Castanon at Boston University and R. Gao, W. Gong, and A. Deshmukh at UMass Amherst), *NSF Sensors and Sensor Networks Initiative*, 9/1/03–8/31/09, \$ 2,487,459.
- [F21] “Planning, Coordination, and Control of Supply Chains”, **Principal Investigator (PI)**, (Co-PI: M. C. Caramanis), *NSF, Directorate for Engineering (ENG), Division of Design, Manufacture and Industrial Innovation (DMII), Manufacturing Enterprise Systems (MES) Program*, 8/1/03–7/31/07, \$ 350,000, REU Supplement \$ 12,000, 6/1/04.

- [F22] Equipment and Software donation by *Hewlett-Packard Labs* to support pricing and resource allocation work in communication networks, **Principal Investigator (PI)**, 2002, valued \$ 360,000.
- [F23] “Communicating Networked Control Systems”, Co-PI (with J. Baillieul and T. Bifano at Boston University, R.W. Brockett at Harvard University, P.R. Kumar at the University of Illinois at Urbana-Champaign, and P.S. Krishnaprasad, J.S. Baras, D. Hristu-Varsakelis, P. Narayan, and G.C. Walsh at the University of Maryland, College Park), *DoD Multidisciplinary University Research Program (MURI)* FY01, 5/1/01–4/30/06, \$ 5,000,000.
- [F24] “CAREER: Pricing and Resource Allocation in Multiservice Broadband Communication Networks”, **Principal Investigator (PI)**, *NSF CAREER Award*, Advanced Networking Infrastructure and Research (ANIR) Division, Directorate for Computer and Information Sciences and Engineering (CISE), 7/1/00–6/31/05, \$ 450,000.
- [F25] “Quality of Service Provisioning, Scheduling, and Pricing in Communication Networks”, **Principal Investigator (PI)**, (Co-PIs: C.G. Cassandras, J.Q. Hu), *Nokia Research Center (Boston)*, 9/1/99–12/31/01, \$ 55,000.
- [F26] “Synergistic and Decentralized Decision Making in Complex Stochastic Systems”, Co-PI (with M.C. Caramanis, C.G. Cassandras and F.J. Alexander at Boston University, D.P. Bertsekas and J.N. Tsitsiklis at MIT, and Y.M. Ioannides at Tufts), *NSF Knowledge and Distributed Intelligence (KDI) Initiative*, 10/01/98–04/30/03, \$ 1,162,000.
- [F27] “Efficient Resource Allocation and Yield Management in Internet Services”, **Principal Investigator (PI)**, *MIT Internet Telephony Consortium*, 1/1/97–7/31/98, \$ 47,542.
- [F28] “Admission Control in High Speed Multimedia Networks”, **Principal Investigator (PI)**, *NSF Directorate for Computer and Information Sciences and Engineering (CISE), Networking Research Program*, 9/1/97–8/31/01, \$ 200,146.
- [F29] “United Technologies Sponsored Seminar Series in Manufacturing and Systems Engineering”, **Principal Investigator (PI)**, *United Technologies*, 9/1/97–8/31/02, \$ 40,000.

## Citations

(Last updated December 2013.)

More than 1,580 according to Google scholar. My  $h$ -index, defined as

$$h\text{-index} = \max\{h \mid h \text{ papers each having } \geq h \text{ citations}\},$$

is equal to 22. My  $m$ -index ( $h$ -index over the number of years I have been publishing) is equal to 1.1.

## Books

- [B1] Special Issue on Wireless Sensor and Actuator Networks, Edited Volume (with J. Chen, K. H. Johansson, S. Olariu, I. Stojmenovic), *IEEE Transactions on Automatic Control*, Volume 56 (2011), Issue 10 (October).

## Book Chapters

- [B2] “Probabilistic Indoor Tracking of Mobile Wireless Nodes Relative to Landmarks” (with K. Li, D. Guo, Y. Lin), in *The Art of Wireless Sensor Networks, Vol 2: Advanced Topics and Applications*, H. M. Ammari (Ed), Springer, 2014, pages 169–200, doi: 10.1007/978-3-642-40066-7.
- [B3] “Model-Free Probabilistic Localization of Wireless Sensor Network Nodes in Indoor Environments” (with K. Li and D. Guo), *Lecture Notes in Computer Science*, Vol. 5801 (MELT), pages 66–78, R. Fuller and X. D. Koutsoukos (Eds), Springer, 2009.

- [B4] “Statistical Location Detection” (with S. Ray, W. Lai, and D. Guo), in *Localization Algorithms and Strategies for Wireless Sensor Networks: Monitoring and Surveillance Techniques for Target Tracking*, Guoqiang Mao and Baris Fidan, eds., IGI Global, 2009, pages 230–257.
- [B5] “Supply Chain Production Planning Modeling Facility Lead Time and Quality of Service” (with O. Anli and M. Caramanis), in *Analysis, Control and Optimization of Complex Dynamic Systems*, El Kebir Boukas and Roland P. Malhamé, eds., Kluwer Academic Publishers (2005), pages 106-136.

**Journal  
Articles**

(Some of the papers below include Google Scholar citation counts – last updated 12/2013.)

- [J1] “The Impact of Side-chain Packing on Protein Docking Refinement” (with M. Moghadasi, H. Mirzaei, A. Mamonov, P. Vakili, S. Vajda, and D. Kozakov), *Journal of Chemical Information and Modeling*, in print.
- [J2] “Energy minimization on manifolds for docking flexible molecules” (with H. Mirzaei, S. Zarbafian, E. Villar, S. Mottarella, D. Beglov, S. Vajda, P. Vakili, and D. Kozakov), *Journal of Chemical Theory and Computation*, in print.
- [J3] “Robust fluid processing networks”, (with D. Bertsimas and E. Nasrabadi), *IEEE Transactions on Automatic Control*, in print.
- [J4] “Adaptive Control of Bivalirudin in the Cardiac Intensive Care Unit”, (with Q. Zhao and T. Edrich), *IEEE Transactions on Biomedical Engineering*, in print.
- [J5] “Heparin requirements for full anticoagulation are higher for patients on dabigatran than for those on coumadin – a model-based study” (with T. Edrich and G. Frendl), *Clinical Pharmacology: Advances and Applications*, in print.
- [J6] “Prediction of hospitalization due to heart diseases by supervised learning methods” (with W. Dai, T. Brisimi, V. Saligrama, W. Adams, T. Mela), *International Journal of Medical Informatics*, in print, doi: 10.1016/j.ijmedinf.2014.10.002.
- [J7] “Data-Driven Estimation in Equilibrium using Inverse Optimization” (with D. Bertsimas and V. Gupta), *Mathematical Programming Series A*, in print.
- [J8] “Statistical Traffic Anomaly Detection in Time-Varying Communication Networks” (with Jing Wang), *IEEE Transactions on Control of Network Systems*, in print.
- [J9] “A Message-Passing Algorithm for Wireless Network Scheduling” (with F. Huang and W. Lai), *IEEE/ACM Transactions on Networking*, in print.
- [J10] “Distribution-dependent robust linear optimization with applications to inventory control” (with S.-C. Kang and T. Brisimi), *Annals of Operations Research*, in print.
- [J11] “Formation Detection with Wireless Sensor Networks” (with W. Dai and D. Guo), *ACM Transactions on Sensor Networks*, in print.
- [J12] “Encounter Complexes and Dimensionality Reduction in Protein-Protein Association” (with D. Kozakov, K. Li, D. Hall, D. Beglov, J. Zheng, P. Vakili, O. Shueler-Furman, G. Clore, S. Vajda), *eLife*, 2014;3:e01370, doi:elifesciences.org/content/3/e01370/.
- [J13] “Predicting and Evaluating the Effect of Bivalirudin in Cardiac Surgical Patients” (with Q. Zhao and T. Edrich), *IEEE Transactions on Biomedical Engineering*, Vol. 61 (2014), No. 2 (February), pages 435–443, doi:10.1109/TBME.2013.2280636.
- [J14] “Model-Free Stochastic Localization of CBRN Releases” (with R. T. Locke), *IEEE Trans. on Signal Processing*, Vol. 61 (2013), Issue 17 (September), pages 4246–4258, doi:10.1109/TSP.2013.2265679.
- [J15] “Scheduling Mobile Nodes for Cooperative Data Transport in Sensor Networks” (with R. Moazzez Estanjini and J. Wang), *IEEE/ACM Trans. on Networking*, Vol. 21 (2013), No. 3 (June), pages 974–989, doi:10.1109/TNET.2012.2216897.

- [J16] “Heparin requirements for full anticoagulation are lower for patients treated with coumadin than for those on dabigatran or no chronic anticoagulation” (with T. Edrich and G. Frendl), *Critical Care Medicine*, Vol. 40 (2012), No. 12.
- [J17] “Inverse Optimization: A New Perspective on the Black-Litterman Model” (with D. Bertsimas and V. Gupta), *Operations Research*, Vol. 60 (2012), No. 6, pages 1389–1403, doi: <http://dx.doi.org/10.1287/opre.1120.1115>.
- [J18] “Rigid Body Energy Minimization on Manifolds for Molecular Docking” (with H. Mirzaei, D. Beglov, S. Vajda, P. Vakili, and D. Kozakov), *Journal of Chemical Theory and Computation*, Vol. 8 (2012), No. 11, pages 4374–4380, doi: 10.1021/ct300272j.
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- [P67] “Enforcing Service-Level Constraints in Supply Chains with Assembly Operations” (with C. del Vecchio), *Proceedings of the 42nd IEEE Conference on Decision and Control*, pages 5490–5495, December 2003, Maui, Hawaii.
- [P68] “New Scheduling Policies for Multiclass Queueing Networks: Applications to Peer-To-Peer Systems” (with C. Su and M.C. Caramanis), *Proceedings of the 42nd IEEE Conference on Decision and Control*, pages 1604–1609, December 2003, Maui, Hawaii.
- [P69] “Target-Pursuing Policies for Open Multiclass Queueing Networks” (with C. Su and M.C. Caramanis), *Proceedings of the IEEE INFOCOM Conference*, pages 196–206, April 2003, San Francisco, California.

- [P70] “Distributed Resource Allocation in Multiservice Communication Networks Using Pricing” (with Y. Liu), **Invited**, *Proceedings of the 41st IEEE Conference on Decision and Control*, pages 2023–2028, December 2002, Las Vegas, Nevada.
- [P71] “Threshold-Based Control for Make-to-Stock Models: A Synergy between Large Deviations and Perturbation Analysis” (with Y. Liu, C.G. Cassandras, and P. Zhang), *Proceedings of the 40th IEEE Conference on Decision and Control*, pages 4523–4528, December 2001, Orlando, Florida.
- [P72] “Quick simulation of a queue fed by arbitrary traffic traces” (with S. Vassilaras), **Invited**, *Proceedings of the 39th Annual Allerton Conference on Communication, Control, and Computing*, pages 172–181, October 2001, Monticello, Illinois.
- [P73] “Model-Based Estimation of Buffer Overflow Probabilities from Measurements” (with S. Vassilaras), *Proceedings of the ACM SIGMETRICS 2001/Performance 2001 conference*, pages 154–163, June 16–20th, 2001, Cambridge, Massachusetts.
- [P74] “Large Deviations-based Asymptotics for Inventory Control in Supply Chains” (with Y. Liu), **Invited**, *Proceedings of the 39th IEEE Conference on Decision and Control*, pages 528–533, December 2000, Sydney, Australia.
- [P75] “Congestion-Dependent Pricing of On-line Internet Services” (with J.N. Tsitsiklis), **Invited**, *Proceedings of the 38th IEEE Conference on Decision and Control*, pages 4026–4031, December 1999, Phoenix, Arizona.
- [P76] “Controlling Make-to-Stock Manufacturing Systems: A Large Deviations Approach” (with D. Bertsimas), **Invited**, *Proceedings of the 38th IEEE Conference on Decision and Control*, pages 462–467, December 1999, Phoenix, Arizona.
- [P77] “A Framework for the Decentralized Control of Manufacturing Enterprises” (with M. Caramanis and O. Anli), **Invited**, *Proceedings of DARPA-JFACC Symposium on Advances in Enterprise Control*, pages 99–109, November 1999, San Diego, California.
- [P78] “On Estimating Buffer Overflow Probabilities under Markov-modulated Inputs” (with S. Vassilaras), **Invited**, *Proceedings of 37th Annual Allerton Conference on Communication, Control, and Computing*, pages 306–315, September 1999, Monticello, Illinois.
- [P79] “Performance Analysis and Admission Control in Multimedia Communication Networks”, **Invited**, *Proceedings of the 36th IEEE Conference on Decision and Control*, pages 1786–1791, December 1997, San Diego, California.
- [P80] “Buffer Overflow Probabilities in Multiclass ATM Switches” (with D. Bertsimas and J.N. Tsitsiklis), *Proceedings of 34th Annual Allerton Conference*, pages 712–721, October 1996, Monticello, Illinois.
- [P81] “Branching Bandits and Klimov’s Problem: Achievable Region and Side Constraints” (with D. Bertsimas and J.N. Tsitsiklis), *Proceedings of the 33rd IEEE Conference on Decision and Control*, Vol. 1, pages 174–179, December 1994, Lake Buena Vista, Florida.
- [P82] “Scheduling of Multiclass Queueing Networks: Bounds on Achievable Performance” (with D. Bertsimas and J.N. Tsitsiklis), **Invited**, *Proceedings of the Workshop on hierarchical control for real-time scheduling of manufacturing systems*, 1992, Lincoln, New Hampshire,  
**Cited by 16.**
- [P83] “Congestion Avoidance in ATM Networks” (with E.D. Sykas, G.K. Mourtzinou, and K.M. Vlakos), *Proceedings of the IEEE INFOCOM Conference*, pages 905–914, May 4–8, 1992, Florence, Italy.

## Abstracts Presented in Conferences

- [A1] “Reverse Engineering Bacterial Metabolism via Inverse Optimization” (with Q. Zhao, A. Stettner, E. Reznik, and D. Segrè), **Invited talk**, INFORMS Conference, November 9–12, 2014, San Francisco, CA.
- [A2] “Predicting Hospital Admissions for Cardiac Conditions at the Boston Medical Center” (with W. Dai, T. Brisimi, V. Saligrama, T. Mela, and W. Adams), **Invited talk**, *BU-U. of Warwick Workshop on Improving Health Care System Efficiency*, November 21-22, 2013, Boston, MA.
- [A3] “A cyberphysical infrastructure for the ‘smart city’” (with C. G. Cassandras, A. Bestavros, A. Kfoury, R. X. Gao, W. B. Gong), *NSF CPS PI Meeting*, October 17-18, 2013, Washington, DC.
- [A4] “Graph-theoretic conflict resolution with applications in wireless networks and protein docking”, **Invited talk**, *Systems Control and Optimization: a workshop in honor of Professor John Tsitsiklis*, Sympi, Greece, July 2013.
- [A5] “Medication dosage control for Cardiac Surgical Patients” (with Q. Zhao), **Invited Talk**, *Control and Adaptation: A 30-Year Journey, A Workshop in honor of Petros Ioannou*, University of Cyprus, Cyprus, June 2013.
- [A6] “Algorithmic Approaches to Personalized Health Care” (with T. Brisimi, W. Dai, Q. Zhao), *NSF PI Meeting, Smart Health & Wellbeing Program*, June 4–5, 2013, Washington, DC.
- [A7] “A new distributed algorithm for side-chain repacking in protein-protein association” (with M. Moghadasi, D. Kozakov, A. Mamonov, P. Vakili, and S. Vajda), *17th Annual International Conference on Research in Computational Molecular Biology (RE-COMB)*, April 7–10, 2013, Beijing, China.
- [A8] “A new message-passing algorithm for the maximum weighted independent set with applications in wireless networks and protein docking”, *Information Theory and Applications Workshop*, February 10–15, 2013, San Diego, California.
- [A9] “Composite Hypothesis Testing Error Exponents with Applications to CBRN Release Localization” (with R. T. Locke), *Stochastic Networks Conference*, June 18–22, 2012, Cambridge, Massachusetts.
- [A10] “Inverse Optimization: A New Perspective on the Black-Litterman Model” (with V. Gupta and D. Bertsimas), *INFORMS Annual Meeting*, November 13–16, 2011, Charlotte, North Carolina.
- [A11] “Tachyphylaxis in post-cardiac surgical patients receiving bivalirudin – a retrospective dynamic study using a PKPD model” (with Thomas Edrich, Gyorgi Frenzl, and Jim Rawn), *Proceedings of the 41st Critical Care Congress, Society of Critical Care Medicine*, February 4 – 8, 2011, Houston, Texas.
- [A12] “Optimizing the Transportation System’s Response Capabilities”, (with C.G. Cassandras), *DHS Science Conference*, March 30–April 1, 2011, Washington, DC.
- [A13] “A Least Squares Temporal Difference Actor-critic Algorithm with Applications to Warehouse Management”, (with R. Moazzez-Estanjini), **Invited**, *INFORMS Northeast Regional Conference*, May 6–7, 2011, Amherst, Massachusetts.
- [A14] “Distributed Wireless Sensor Networks for Long-term surveillance missions”, (with C.G. Cassandras), **Invited**, *DOE NNSA University and Industry Technical Interchange Review Meeting (UITI 2010)*, December 7 – 9, 2010, Knoxville, Tennessee.
- [A15] “Wireless Sensor Networks for Localization and Coverage Control”, (with C.G. Cassandras), **Invited**, *DOE NNSA University and Industry Technical Interchange Review Meeting (UITI 2009)*, December 2 – 3, 2009, Clearwater Beach, Florida.
- [A16] “New Results on Distributed wireless sensor networks for long-term deployments” (with C.G. Cassandras), **Invited**, *DOE NNSA University and Industry Technical Interchange Review Meeting (UITI 2008)*, December 2 – 4, 2008, The Canyons, Utah.

- [A17] “Localization in Sensor Nets: Adventures in Decision Theory and Facility Location” (with D. Guo), **Invited**, *INFORMS Annual Meeting*, October 12–15, 2008, Washington, D.C.
- [A18] “Event-driven Sensing for Enterprise Reconfigurability and Optimization” (with C. Cassandras, A. Bestavros, R. Gao, and W. Gong), **Invited**, *INFORMS Annual Meeting*, October 12–15, 2008, Washington, D.C.
- [A19] “Integrated understanding of the metabolic and gene regulatory systems of *Shewanella oneidensis* MR-1” (with Qasim Beg, David Byrne, Michael Driscoll, Frank Juhn, Yang Shen, Jeremiah Faith, Timothy Gardner, and Daniel Segre), *108th General Meeting of the American Society of Microbiology*, June 1–5, 2008, Boston, Massachusetts.
- [A20] “Systematic identification of regulatory mapping and optimal metabolic engineering strategies in *Shewanella oneidensis* MR-1” (with D. K. Byrne, Q. K. Beg, M. E. Driscoll, F. S. Juhn, Y. Shen, J. J. Faith, D. Segre., T. S. Gardner), *Genomics: Annual Contractor-Grantee Workshop*, Department of Energy, February 10-13, 2008, Bethesda, Maryland.
- [A21] “Robust sensor network localization via composite hypothesis testing”, **Invited**, *Information Theory and Applications Workshop*, January 27 - February 1, 2008, University of California, San Diego, California.
- [A22] “Distributed wireless sensor networks for long-term deployments” (with C.G. Cassandras), **Invited**, *DOE NNSA University Conference*, November 27 - 28, 2007, Central Florida Research Park, Orlando, Florida.
- [A23] “Docking refinement by the underestimation of free energy funnels” (with Y. Shen, P. Vakili, and S. Vajda), *4th Conference on Modeling of Protein Interactions (MPI 2007)*, Sep. 30 - Oct. 2, 2007, Lawrence, Kansas.
- [A24] “A multistep approach to protein-protein docking” (with D. Kozakov, Y. Shen, R. Brenke, D. Beglov, P. Vakili, S. Vajda), *234th American Chemical Society National Meeting*, August 19-23, 2007, Boston, Massachusetts.
- [A25] “New Approaches to Protein-Protein Docking” (with D. Kozakov, R. Brenke, Y. Shen, S.R. Comeau, P. Vakili, S. Vajda), *3DSIG Structural Bioinformatics and Computational Biophysics Meeting*, in conjunction with the *Conference of the International Society for Computational Biology*, July 19-20, 2007, Vienna, Austria.
- [A26] “Statistical Anomaly Detection in Internet Traffic and Sensor Network Topology”, **Invited Plenary**, *National Colloquium for Information Systems Security Education*, June 5, 2007, Boston, MA.
- [A27] “Refinement of rigid-body protein docking predictions using semi-definite underestimation” (with Y. Shen, P. Vakili, and S. Vajda), *3rd Critical Assessment PRedicted Interaction (CAPRI) Evaluation Meeting*, April 20-21, 2007, Toronto, Canada. (Poster presentation, **awarded 1st prize**).
- [A28] “New approaches to protein-protein docking” (with S. Vajda, D. Kozakov, R. Brenke, S. R. Comeau, Y. Shen, P. Vakili), *232nd American Chemical Society National Meeting*, September 10-14, 2006, San Francisco, California.
- [A29] “Sensor Networks: Localization, Transmission Scheduling, and Energy-Aware Routing with QoS Guarantees”, **Invited**, *Workshop on Challenges and Opportunities in Distributed Sensor Networks*, Center for Nonlinear Studies, Los Alamos National Laboratory, March 9–10, 2006, Los Alamos, New Mexico.
- [A30] “Joint Transmission Scheduling and Routing for Low-Power Wireless Sensor Networks is Polynomially Solvable”, **Invited**, *Computer Communications Workshop*, October 2005, Huntington Beach, California.
- [A31] “A semi-definite programming based underestimation method for global optimization in molecular docking” (with Y. Shen, S. Vajda, and P. Vakili), *3rd Conference on Protein Interactions in Genomics*, June 26-28, 2005, Lawrence, Kansas.

- [A32] “Statistical Location Detection in Sensor Networks”, **Invited**, *Workshop on Rare events in communication networks*, EURANDOM, February 2005, Eindhoven, The Netherlands.
- [A33] “Multiservice Loss Networks: From pricing to distributed resource allocation”, **Invited**, *EURO/INFORMS International Joint Meeting*, July 6–10, 2003, Istanbul, Turkey.
- [A34] “Pricing and Congestion Control in Multiservice Loss Networks” (with Y. Liu), **Invited**, *17th IEEE Annual Computer Communications Workshop*, October 2002, Santa Fe, New Mexico.
- [A35] “Pricing of Real-Time Services in Multiservice Communication Networks” (with Y. Liu), **Invited**, *Workshop on Computer-Aided Modeling, Analysis, and Design of Communication Links and Networks (CAMAD)*, May 2002, New York City, New York.
- [A36] “Revenue Management in Multiservice Communication Networks” (with Y. Liu), **Invited**, *INFORMS Conference*, November 2001, Miami, Florida.
- [A37] “New scheduling policies for multiclass queueing networks” (with M. Caramanis and C. Su), **Invited**, *INFORMS Conference*, November 2001, Miami, Florida.
- [A38] “Target-pursuing policies for multiclass queueing networks” (with M. Caramanis and C. Su), *INFORMS 11th Applied Probability Conference*, July 2001, New York, New York, page 21.
- [A39] “Importance Sampling for the Estimation of Buffer Overflow Probabilities in Large Communication Switches” (with S. Vassilaras), *INFORMS 11th Applied Probability Conference*, July 2001, New York, New York, page 19.
- [A40] “Static Pricing in Multiservice Communication Networks” (with Y. Liu), *INFORMS 11th Applied Probability Conference*, July 2001, New York, New York, page 23.
- [A41] “Inventory Control in Supply Chains: A Large Deviations Approach” (with Y. Liu), **Invited**, *INFORMS Conference*, November 2000, San Antonio, Texas.
- [A42] “Large Deviations-based Asymptotics for Inventory Control in Make-to-Stock Manufacturing Systems and Supply Chains”, *Conference on Stochastic Networks*, University of Wisconsin-Madison, June 2000, Madison, Wisconsin.
- [A43] “On the Estimation of Effective bandwidths from Measurements” (with S. Vassilaras), **Invited**, *INFORMS Conference*, November 1999, Philadelphia, Pennsylvania.
- [A44] “Revenue Management and the Internet” (with J.N. Tsitsiklis), **Invited**, *INFORMS Conference*, November 1998, Seattle, Washington.
- [A45] “Optimal control of make-to-stock systems: A large deviations approach” (with D. Bertsimas), *INFORMS Conference*, April 1998, Montreal, Canada.
- [A46] “Revenue Management in Network Services” (with J.N. Tsitsiklis), **Invited**, *Proceedings of the Fourth INFORMS Telecommunications Conference*, March 1998, Boca Raton, Florida.
- [A47] “Congestion Probabilities and Admission control”, *Proceedings of the 9TH INFORMS Applied Probability Conference*, June 1997, Cambridge, Massachusetts, page 169.
- [A48] “On the Large Deviations Behaviour of Acyclic Single Class Networks and Multiclass Queues” (with D. Bertsimas and J.N. Tsitsiklis), **Invited**, *Royal Statistical Society Workshop on Stochastic Networks*, August 1-11, 1995, Edinburgh, U.K., **Cited by 37**.
- [A49] “Branching Bandits and Klimov’s Problem” (with D. Bertsimas and J.N. Tsitsiklis), **Invited**, *Proceedings of the 8TH INFORMS Applied Probability Conference*, June 1995, Atlanta, Georgia.
- [A50] “On the Large Deviations Behaviour of Acyclic Networks of G/G/1 Queues” (with D. Bertsimas and J.N. Tsitsiklis), *Proceedings of the Third INFORMS Telecommunications Conference*, March 1995, Boca Raton, Florida.

- [A51] “Branching Bandits and Klimov’s Problem: Achievable Region and Side Constraints” (with D. Bertsimas and J.N. Tsitsiklis), *ORSA/TIMS conference*, April 1994, Boston, Massachusetts.
- [A52] “Scheduling of Multiclass Queueing Networks: Bounds on Achievable Performance” (with D. Bertsimas and J.N. Tsitsiklis), *ORSA/TIMS conference*, November 1992, San Francisco, California.

### Technical Reports

- [R1] “Performance Benchmarks for Sensor Networks”, Technical Report, The Sensor Network Consortium, February 2005.
- [R2] “Efficient Resource Allocation and Yield Management in Internet Services” (with P. Kavassalis, and J.N. Tsitsiklis), Technical Report, *Internet Telephony Consortium, MIT*, 1997, Cambridge, MA, available at <http://itel.mit.edu/>.
- [R3] “Large Deviations in High Speed Communication Networks”, Technical report (Ph.D. Thesis), Laboratory for Information and Decision Systems, 1996, MIT, Cambridge, MA,  
**Cited by 28.**
- [R4] “Scheduling of Multiclass Queueing Networks: Bounds on Achievable Performance”, Technical report (M.S. Thesis), Laboratory for Information and Decision Systems, 1993, MIT, Cambridge, MA.

### Selected Invited Courses and Tutorials

- [C1] “Production Models”, **Invited Mini-Course**, Athens University of Economics and Business, Summer Session, *Executive M.S. program*, Andros, Greece, July 2000.
- [C2] “Queueing Network Models”, **Invited Mini-Course**, Athens University of Economics and Business, *Executive M.S. program*, Athens, Greece, May 1999.
- [C3] “QoS and Admission Control: Large deviations-based admission control”, **Invited Tutorial**, *Workshop on Control Methods in Communication Networks* (with V. Anantharam, T. Basar, and R. Srikant), 37th IEEE Conference on Decision and Control, December 1998, Tampa, Florida.

### Selected Invited Lectures in Academia

- [L1] “Analytics Enabling “Smarter” Health Care”, **Invited Lecture**, *Department of Control*, Zhejiang University, China, April 24, 2014.
- [L2] “Conflict resolution using graphs with applications in wireless networks and protein docking”, **Invited Lecture**, *Department of Automation*, Tsinghua University, China, April 21, 2014.
- [L3] “Graph-theoretic conflict resolution with applications in wireless networks and protein docking”, **Invited Lecture**, *Institute of Informatics and Telecommunications*, National Center for Scientific Research (DEMOKRITOS), Greece, February 2014.
- [L4] “Analytics Enabling ‘Smarter’ Health Care”, **Invited Lecture**, *Department of Bio-medical Engineering*, Boston University, Boston, Massachusetts, January 2014.
- [L5] “Graph-theoretic conflict resolution with applications in wireless networks and protein docking”, **Invited Lecture**, *Coordinated Sciences Laboratory*, University of Illinois, Urbana-Champaign, September 2013.
- [L6] “Graph-theoretic conflict resolution with applications in wireless networks and protein docking”, **Invited Lecture**, *KIOS Research Center*, University of Cyprus, Cyprus, June 2013.

- [L7] “Conflict resolution as an Independent Set Problem with Applications in Wireless Networks and Protein Docking”, **Invited Lecture**, *Department of Applied Analysis and Complex Dynamical Systems, Graduate School of Informatics*, Kyoto University, Kyoto, Japan, May 2013.
- [L8] “Optimization Techniques for Protein Docking”, **Invited Lecture**, *Department of Chemistry*, Boston University, Boston, Massachusetts, November 2012.
- [L9] “The Maximum Weighted Independent Set Problem and Applications”, **Invited Lecture**, *Department of Informatics*, Athens University of Economics and Business, Athens, Greece, June 28, 2012.
- [L10] “On the Maximum Weighted Independent Set with Applications in Wireless Networks and Protein Docking”, **Invited Lecture**, *Department of Electrical and Computer Engineering*, The Ohio State University, Columbus, Ohio, March 6, 2012.
- [L11] “Optimization Techniques for Protein Docking”, **Invited Lecture**, *Department of Computer Science and Telecommunications*, University of Athens, Athens, Greece, January 13, 2011.
- [L12] “Detection and Optimization Problems in Wireless Sensor Networks”, **Invited Lecture**, *Operations Research Center*, Massachusetts Institute of Technology, Cambridge, Massachusetts, February 25, 2010.
- [L13] “Design and Optimization of Wireless Sensor Networks”, **Invited Lecture**, *Department of Electrical and Computer Engineering*, National Technical University of Athens, Athens, Greece, January 20, 2010.
- [L14] “Mathematics of Statistical Localization in Wireless Sensor Networks and Related Problems”, **Invited Lecture**, *Department of Mathematics*, University of Athens, Athens, Greece, June 16, 2009.
- [L15] “A New Statistical Localization Framework for Wireless Sensor Networks”, **Invited Lecture**, *Department of Electrical and Computer Engineering*, The Ohio State University, May 29, 2009.
- [L16] “Localization with Wireless Sensor Networks” **Invited Lecture**, *Department of Mechanical Engineering*, Worcester Polytechnic Institute, March 27, 2008.
- [L17] “Protein docking by optimizing noisy funnel-like functions”, **Invited Lecture**, University of Bridgeport, Bridgeport, Connecticut, November 8, 2007.
- [L18] “Optimization of Wireless Sensor Networks”, **Invited Lecture**, *Athens Information Technology (AIT) Center*, Athens, Greece, March 12, 2007.
- [L19] “Optimization for Protein-Protein Docking”, **Invited Lecture**, *Operations Research Center*, Massachusetts Institute of Technology, November 30, 2006.
- [L20] “Optimization of Wireless Sensor Networks”, **Invited Lecture**, *Department of Electrical and Computer Engineering*, Boston University, Boston, Massachusetts, November 2006.
- [L21] “Optimization of Wireless Sensor Networks”, **Invited Lecture**, *Department of Mathematical Engineering*, Université catholique de Louvain, Louvain-la-Neuve, Belgium, October 2006.
- [L22] “Wireless Sensor Networks: A playground for optimization methodologies”, **Invited Lecture**, *Dipartimento di Ingegneria*, Univerisità degli Studi del Sannio, Benevento, Italy, September 2006.
- [L23] “Optimization Adventures in the Wonderland of Wireless Sensor Networks”, **Invited Lecture**, *Department of Electrical and Computer Engineering*, University of Connecticut, November 2005.
- [L24] “Optimizing Wireless Sensor Networks”, **Invited Lecture**, *Graduate School of Business*, Stanford University, April 2004.

- [L25] “Multi-service Communication Networks: What’s the “right” time-scale for pricing and resource allocation decisions ?”, **Invited Lecture**, *School of Business*, Columbia University, November 2003.
- [L26] “Supply Chain Inventory Control Lessons: Distributional Information Matters !”, **Invited Lecture**, *School of Business*, Columbia University, November 2003.
- [L27] “Resource Allocation in Sensor Networks”, **Invited Lecture**, *Department of Electrical and Computer Engineering*, Northwestern University, October 2003.
- [L28] “Supply Chain Inventory Control with Quality of Service Guarantees”, **Invited Lecture**, *Graduate School of Business*, University of Chicago, October 2003.
- [L29] “Multi-service Communication Networks: Resource Allocation through Pricing”, **Invited Lecture**, *Department of Electrical Engineering*, Yale University, April 2003.
- [L30] “Multi-service Communication Networks: What’s the “right” time-scale for pricing and resource allocation decisions ?”, **Invited Lecture**, *Information Systems Laboratory, Department of Electrical Engineering*, Stanford University, March 2003.
- [L31] “On the Pricing of Differentiated Internet Services: A Revenue Management Perspective”, **Invited Lecture**, *Graduate School of Industrial Administration*, Carnegie Mellon University, March 2002.
- [L32] “Inventory Control for Supply Chains with Service Level Constraints: A Large Deviations Approach”, **Invited Lecture**, *Department of Mechanical, Industrial and Manufacturing Engineering*, Northeastern University, February 2002.
- [L33] “Near-optimal charging mechanisms for multiservice communication networks”, **Invited Lecture**, *Department of Electrical and Computer Engineering*, Purdue University, October 2001.
- [L34] “Quality of Service: A Unifying Theme”, **Invited Lecture**, *Division of Engineering and Applied Sciences*, Harvard University, November 2000.
- [L35] “Estimating Effective Bandwidths”, **Invited Lecture**, *Department of Electrical and Computer Engineering*, University of Massachusetts at Amherst, November 1999.
- [L36] “QoS Provisioning in Multimedia Communication Networks”, **Invited Lecture**, *Department of Industrial Engineering and Management Sciences*, Northwestern University, June 1999.
- [L37] “Probabilistic Service Level Guarantees in Make-to-Stock Manufacturing Systems”, **Invited Lecture**, *Operations Management Seminar*, Massachusetts Institute of Technology, March 1999.
- [L38] “Congestion-Dependent Pricing of Internet Services”, **Invited Lecture**, *Operations Research Seminar*, Massachusetts Institute of Technology, March 1999.
- [L39] “Revenue Management in the Internet”, **Invited Lecture**, *Finance Seminar*, School of Management, Boston University, March 1999.
- [L40] “Admission Control in High Speed Communication Networks”, **Invited Lecture**, *Computer Science Department*, Boston University, December 1998.
- [L41] “Providing Statistical QoS in Multimedia Networks (Effective bandwidths and beyond)”, **Invited Lecture**, *Center for Satellite and Hybrid Communication Networks*, University of Maryland at College Park, April 1998, Maryland.
- [L42] “Large Deviations and their applications in the traffic management of High-Speed Communication Networks”, **Invited Lecture**, *Networking Seminar, Department of Electrical and Computer Engineering*, University of Michigan, October 1996, Ann Arbor, Michigan.

**Selected Invited Lectures in Industry and Government Agencies**

- [L43] “Optimization Techniques for Animal-Inspired Trajectories”, **Invited Talk**, ONR MURI Meeting, University of Maryland, College Park, September 2014.
- [L44] “Anomaly detection methods for cyber-security awareness”, **Invited Talk**, Army Research Laboratory, September 2014, Adelphi, Maryland.
- [L45] “Inverse FBA: Learning Cellular Objectives from Fluxes”, **Invited Talk**, ARO Metabolic MURI Meeting, University of Texas, Austin, May 2014.
- [L46] “Turning Constraint-Based Modeling on Its Head: Learning Cellular Objectives from Fluxes”, **Invited Talk**, ARO Metabolic MURI Meeting, University of Texas, Austin, June 2013.
- [L47] “Algorithmic approaches to personalized health care”, **Invited Talk**, Brigham and Women’s Hospital, Boston, MA, May 2013.
- [L48] “Large-Scale Methods for Bio-Inspired Robot Motion Planning and Control”, **Invited Talk**, ONR Airfoils MURI Meeting, ONR, Washington, DC, April 2013.
- [L49] “Predicting Hospitalization from Electronic Health Records”, **Invited Talk**, Boston Medical Center, Boston, November 2012.
- [L50] “Predicting Bacterial Growth Conditions via Inverse Optimization and Machine Learning Techniques”, **Invited Talk**, ARO MURI Meeting, University of Texas, Austin, October 2012.
- [L51] “A BU Toolbox for Cyber Anomaly Detection”, **Invited Talk**, Army Research Laboratory, October 2012, Adelphi, Maryland.
- [L52] “Data Harvesting using Mobile Wireless Sensor Networks”, **Invited Talk**, Oak Ridge Laboratory, September 2012, Oak Ridge, Tennessee.
- [L53] “Energy Management of Wireless Sensor Networks”, **Invited Talk**, Oak Ridge Laboratory, September 2012, Oak Ridge, Tennessee.
- [L54] “A Market-Based Mechanism Enabling Buildings to Provide Demand Side Regulation Service”, **Invited Talk**, Oak Ridge Laboratory, September 2012, Oak Ridge, Tennessee.
- [L55] “Optimized Strategies for Bio-Inspired Robot Motion Planning and Control”, **Invited Talk**, ONR MURI Meeting, University of Maryland, College Park, June 2012.
- [L56] “A Coordinated Approach to Cyber-Situation Awareness based on Traffic Anomaly Detection”, **Invited Talk**, Army Research Laboratory, November 2011, Adelphi, Maryland.
- [L57] “Anomaly Detection for Data Security and Algorithms for Disease Prevention and Management”, EMC Corp.-Boston University Meeting, January 2011, Boston, Massachusetts.
- [L58] “AIRFOILS: Real-time Optimization for Animal Inspired Agile Flight”, **Invited Talk**, ONR MURI Kickoff Meeting, University of Washington, Seattle, October 7, 2010.
- [L59] “On Energy Management in Sensor Networks”, **Invited Talk**, Ember Inc.-Boston University Meeting, May 2010, Boston, Massachusetts.
- [L60] “Statistical Anomaly Detection with Applications in Cybersecurity”, **Invited Lecture**, *Information Science & Technology Center*, Los Alamos National Laboratory, March 24, 2010, Los Alamos, New Mexico.
- [L61] “On Statistical Anomaly Detection of Cyber-Security Threats”, **Invited Talk**, Army Research Laboratory, October 2009, Adelphi, Maryland.
- [L62] “Wireless Sensor Networks: Promises and Challenges”, **Invited Talk**, NECINA Wireless Special Interest Group, June 2008, Waltham, Massachusetts.

- [L63] “Localization of Hazardous Sources in Sensor Fields”, DOE Review meeting, June 2008, Boston, Massachusetts.
- [L64] “Next Generation Localization in Wireless Sensor Networks”, *The Sensor Network Consortium*, May 2008, Boston, Massachusetts.
- [L65] “Control and Optimization of Wireless Sensor Networks”, **Invited Lecture**, *Los Alamos National Laboratory*, March 2008, Los Alamos, New Mexico.
- [L66] “Minimal Energy Routing with Latency QoS Guarantees”, *The Sensor Network Consortium*, November 2006, Boston, Massachusetts.
- [L67] “Sensor networks and applications in homeland security”, **Invited Talk**, Symposium on “UK Technologies for Security” organized by the United Kingdom government, October 30, 2006, *UK Consulate*, Boston, Massachusetts.
- [L68] “The Center for Information and Systems Engineering and the Sensor Networks Consortium”, **Invited Talk**, *Holst Centre*, IMEC Netherlands, October 2006, Eindhoven, Netherlands.
- [L69] “Systems-level opportunities for much needed efficiency gains in sensor networks”, **Invited Talk**, *ARRM06 Industry & IMEC Review Meeting*, October 2006, Leuven, Belgium.
- [L70] “Localization with Sensor Networks and related challenges”, **Invited Talk**, *United Technologies Research Center*, October 2006, Hartford, Connecticut.
- [L71] “Energy-Aware Sensor Network Routing with QoS Guarantees”, **Invited Talk**, *MITRE Corp.*, June 2006, Bedford, Massachusetts.
- [L72] “The role of optimization in sensor networks: Localization and energy-aware routing”, **Invited Talk**, *Netted Sensors Workshop*, October 2005, MITRE Corp., McLean, Virginia.
- [L73] “Research Challenges in RFIDs and Sensor Networks”, **Invited Panelist**, *IDC RFID Update Conference*, June 2005, Boston, Massachusetts.
- [L74] “Localization for Sensor Networks: Accurate or Robust (or both) ?”, *The Sensor Network Consortium*, May 2005, Boston, Massachusetts.
- [L75] “Performance evaluation of Sensor Networks”, *The Sensor Network Consortium*, May 2005, Boston, Massachusetts.
- [L76] “Statistical Location Detection and Optimal Routing in Sensor Networks”, **Invited Talk**, *General Electric Labs*, January 2005, Niskayuna, New York.
- [L77] “Establishing the Sensor Network Consortium”, *Inaugural Meeting, The Sensor Network Consortium*, November 2004, Boston, Massachusetts.
- [L78] “Sensor Networks Applications in Robot Navigation”, **Invited Talk**, *Aberdeen Proving Ground*, May 2004, Aberdeen, Maryland.
- [L79] “Military Supply Chains: A 10,000-Foot View of Algorithmic and Methodological Challenges”, **Invited Lecture**, *Manufacturing Engineering Emerging Technologies Seminar, Boston University*, November 2002, Boston, Massachusetts.
- [L80] “Inventory Control in Supply Chains”, **Invited Lecture**, *Solectron*, August 2002, North Andover, Massachusetts.
- [L81] “Pricing Differentiated Internet Services”, **Invited Lecture**, *Sun Microsystems Labs*, April 2002, Burlington, Massachusetts.
- [L82] “Optimizing Multiservice Communication Networks”, Genuity-BU meeting, March 2002, Boston, Massachusetts.
- [L83] “Pricing the Internet: Can simplicity induce optimality ?”, **Invited Lecture**, *IBM T.J. Watson Research Center, Mathematical Sciences*, March 2001, Yorktown Heights, New York.

- [L84] “Quality of Service in Communication and Manufacturing Systems”, **Invited Lecture**, *Scientific Computing Group, Los Alamos National Laboratory*, February 2001, Los Alamos, New Mexico.
- [L85] “Quick Simulation for the Estimation of the Cell Loss Probability in Large Switches”, **Invited Talk**, Nokia Research Center, February 2001, Boston, Massachusetts.
- [L86] “Leaky Bucket Control”, **Invited Talk**, Nokia Research Center, June 2000, Boston, Massachusetts.
- [L87] “Resource Allocation Issues in Multiservice Communication Networks”, **Invited Talk**, Nokia Research Center, May 1999, Boston, Massachusetts.
- [L88] “Customer-oriented Supply Chain Management”, *Industrial Advisory Board Meeting*, Dept. of Manufacturing Engineering, Boston University, September 1998, Boston, Massachusetts.
- [L89] “Resource and Revenue Management in Internet Services”, **Invited Talk**, *Workshop of the MIT Internet Telephony Consortium*, June 1998, Helsinki, Finland.
- [L90] “Quality of Service Provisioning in Multimedia Communication Networks”, **Invited Talk**, *Basic Research Institute in the Mathematical Sciences (BRIMS)*, Hewlett-Packard Labs, June 1997, Bristol, U.K.
- [L91] “Efficient Resource Allocation and Revenue Management of Internet Services”, **Invited Talk**, *Workshop of the MIT Internet Telephony Consortium*, June 1997, Bristol, U.K.
- [L92] “Right on Schedule”, *Industrial Advisory Board Meeting*, Dept. of Manufacturing Engineering, Boston University, March 1997, Boston, Massachusetts.
- [L93] “Yield Management and Internet Telephony”, *MIT Internet Telephony Consortium*, MIT, November 1996, Cambridge, Massachusetts.

### Other Selected Presentations

- [L94] “Botnet Detection Using Social Graph Analysis” (with J. Wang), Poster presentation, 12th Annual National Academies Keck Futures Initiative (NAKFI) conference, “Collective Behavior: From Cells to Societies”, National Academies, November 2014, Irvine, California.
- [L95] “Turning Constraint-Based Modeling on Its Head: Learning Cellular Objectives from Fluxes” (with Q. Zhao, D. Segre, A. Stettner), Poster presentation, Scholars Day, April 2014, (**awarded the CISE 1st Prize**).
- [L96] “Robust Anomaly Detection in Dynamic Networks” (with J. Wang), Poster presentation, Scholars Day, April 2014, (**awarded the CISE 2nd Prize**).
- [L97] “A multi-stage Monte Carlo minimization-based approach to the protein docking refinement problem” (with M. Moghdasi, A. Mamonov, P. Vakili, S. Vajda, D. Kozakov), Poster presentation, Scholars Day, April 2014, (**awarded a CISE honorable mention**).
- [L98] “Modeling and Prediction of Heart-Related Hospitalization Using Electronic Health Records Data” (with W. Dai, T. Brisimi, and V. Saligrama), Poster presentation, Scholars Day, April 2014, (**awarded a CISE honorable mention**).
- [L99] “Flexible Refinement of Protein-Ligand Docking on Manifolds” (with H. Mirzaei, D. Kozakov, S. Vajda, P. Vakili), Poster presentation, Boston University Science and Engineering Day, April 2013 (**awarded a CISE 2nd Prize**).
- [L100] “A New Approach to Rigid-Body Minimization with Applications to Molecular Docking” (with H. Mirzaei, D. Kozakov, S. Vajda, P. Vakili), Poster presentation, Boston University Science and Engineering Day, April 2012 (**awarded a CISE Honorable Mention**).

- [L101] “The Capacity of Sparse Ad Hoc Networks under Controlled Mobility” (with Reza Moazzez-Estanjini), Poster presentation, Boston University Science and Engineering Day, March 2010 (**awarded a CISE Honorable Mention**).
- [L102] “SDU: Protein docking by the underestimation of binding free energy funnels” (with Y. Shen, S. Vajda, P. Vakili), Poster presentation, *4th Conference on Modeling of Protein Interactions (MPI 2007)*, Sep. 30 - Oct. 2, 2007, Lawrence, Kansas.
- [L103] “A Semi-Definite programming-based Underestimation method for global optimization in molecular docking” (with Y. Shen, S. Vajda, P. Vakili), Poster presentation, Boston University Science and Engineering Day, March 2005 (**awarded the CISE first prize**).
- [L104] “Pricing and Resource Allocation in Multiservice Broadband Communication Networks”, **Invited Talk**, NSF PI Workshop, Networking Research Program, November 2000, NSF Division of Advanced Networking Infrastructure and Research, Irvine, California.
- [L105] “Controlling Congestion in Multimedia Networks”, **Invited Talk**, 1997 George E. Nicholson paper competition (**awarded 2nd prize**), *INFORMS* conference, May 1997, San Diego, California.

### Theses Supervised

- Ph.D. Theses:

- [TP1] Wuyang Dai, “Detection and prediction problems with applications in personalized health care”, Ph.D. in Electrical and Computer Engineering, Boston University, January 2015.
- [TP2] Jing Wang, “Anomaly detection and dynamic decision making for stochastic systems”, Ph.D. in Systems Engineering, Boston University, January 2014.
- [TP3] Fuzhuo Huang, “On the maximum weighed independent set problem with applications in wireless sensor networks”, Ph.D. in Systems Engineering, Boston University, January 2013.
- [TP4] Yingwei Lin, “Optimized dynamic vehicle routing policies with applications”, Ph.D. in Electrical and Computer Engineering, Boston University, May 2012.
- [TP5] Ronald Taylor Locke, “Anomaly detection with applications in environmental and cyber security”, Ph.D. in Systems Engineering, Boston University, May 2012.
- [TP6] Reza Moazzez Estanjini, “Vehicle Scheduling and Routing For Data Transport in Wireless Sensor Networks”, Ph.D. in Systems Engineering, Boston University, May 2011.
- [TP7] Binbin Li, “Optimizing Energy Consumption: From Wireless Sensor Networks to Large “Smart” Buildings”, Ph.D. in Systems Engineering, Boston University, May 2011.
- [TP8] Yin Chen, “From Networks to Proteins: Modeling and Optimization with Markovian Models”, Ph.D. in Systems Engineering, Boston University, January 2011.
- [TP9] Ruomin Wu, “Maximum lifetime routing and resource allocation in wireless sensor networks”, Ph.D. in Systems Engineering, Boston University, January 2011.
- [TP10] Xiangdong Song, “Scheduled Multiple Access Control for Wireless Sensor Networks”, Ph.D. in Systems Engineering, Boston University, January 2010.
- [TP11] Dong Guo, “A New Statistical Localization Framework for Wireless Sensor Networks”, Ph.D. in Systems Engineering, Boston University, May 2009.
- [TP12] Seong-Cheol Kang, “Robust Linear Optimization under Distributional Information”, Ph.D. in Systems Engineering, Boston University, January 2008.
- [TP13] Yang Shen, “Global Optimization Methods for Protein Interaction Prediction”, Ph.D. in Systems Engineering, Boston University, January 2008.

- [TP14] Wei Lai, “Optimizing Wireless Sensor Networks”, Ph.D. in Systems Engineering, Boston University, January 2007.
  - [TP15] Jian Shao, “Optimal Resource allocation in multi-class service systems using pricing”, Ph.D. in Systems Engineering, Boston University, January 2005.
  - [TP16] Chang Su, “Target-pursuing policies for scheduling and routing in multiclass queueing networks”, Ph.D. in Systems Engineering, Boston University, May 2004.
  - [TP17] Yong Liu, “Pricing and Resource Allocation in Communication Networks and Supply Chains”, Ph.D. in Systems Engineering, Boston University, May 2002.
  - [TP18] S. Vassilaras, “Measurement-based Quality of Service Provisioning in Multimedia Telecommunication Networks”, Ph.D. in Electrical and Computer Engineering, Boston University, January 2002.
- M.S. Theses:
    - [TM1] Yimin Yu, “On transmission scheduling in wireless networks and route discovery for a fleet of robots”, M.S. in Manufacturing Engineering, Boston University, September 2004.
    - [TM2] Ying Liu, “Analysis of Regulation Mechanisms in Communication Networks”, M.S. in Manufacturing Engineering, Boston University, January 2003.
    - [TM3] H. Huang, “Yield Management in the Manufacturing and Service Industries”, M.S. in Manufacturing Engineering, Boston University, January 1998.