

**CV: Edwin K. P. Chong**

Last updated: July 13, 2018

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## 1 Personal Information

### 1.1 Contact Information

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### 1.2 Education

<i>Degree</i>	<i>Date</i>	<i>University</i>
B.E.(Hons)	Dec. 1987	The University of Adelaide, South Australia
M.A.	Oct. 1989	Princeton University
Ph.D.	June 1991	Princeton University

*Doctoral Dissertation:*

On-Line Stochastic Optimization of Queueing Systems

### 1.3 Awards and Honors

- [1] The Sacred Heart College Academic Merit Award, 1983
- [2] Four Sacred Heart College Subject Prizes: Mathematics I, Mathematics II, Physics, Chemistry, 1983
- [3] Placed in the South Australian *Matriculation Candidates of Merit* List for four subjects: Mathematics I, Physics, Chemistry, Economics (published in *The Advertiser* newspaper, Adelaide, January 17, 1984), 1984
- [4] Philips Industries Prize in Elements of Electronics, 1985
- [5] E. V. Clark Prize for Electrical Engineering, 1985
- [6] Gerard Industries Clipsal Prize, 1986
- [7] Chamber of Commerce and Industry Prize in Electronic Engineering, 1986
- [8] Chamber of Commerce and Industry Prize in Electrical Engineering, 1986
- [9] Sir William Goodman Scholarship, 1987
- [10] Texas Instruments Australia Certificate of Achievement, 1987. Honors Project "A Token Ring LAN Adaptor for a Speech Node" selected one of best three in Australia in the 1987 Inaugural Australian Technology Awards, 1987 (a description of the project appeared in *Electronics Today International*, August, 1988, p. 69)
- [11] Electricity Trust Prize in Electrical Power Engineering, 1987
- [12] Philips Industries Prize in Electronics, 1987
- [13] George Murray Travel Grant, 1988

- [14] University of Adelaide Scholarship for Postgraduate Research, 1988
- [15] R. W. Parsons Memorial Medal and Prize (I.E.Aust.), 1988
- [16] Princeton First-Year Merit Prize, 1988
- [17] IBM Graduate Fellowship, 1990
- [18] Best Paper Presentation in Session Award, *1990 American Control Conference*, 1990
- [19] Outstanding IEEE Branch Counselor and Advisor Award, 1993 (ten awarded worldwide by IEEE; citation appeared in article “Outstanding Branch Counselors” by S. L. DeFilippo, *IEEE Potentials*, pp. 41–42, December 1993)
- [20] Purdue Student Government Leadership Award: Citation of Advisor Excellence, awarded by the Purdue University Student Government in honor of outstanding leadership and dedication to Purdue University as Advisor of the Purdue IEEE Student Branch, 1993
- [21] IEEE Section Recognition Award (IEEE Central Indiana Section), 1994
- [22] National Science Foundation Faculty Early Career Development (CAREER) Award, 1995
- [23] Senior Member of the IEEE, 1996
- [24] American Society for Engineering Education (ASEE) Frederick Emmons Terman Award, 1998. The Terman Award is bestowed annually upon an outstanding electrical engineering educator under 45 years of age in the United States or Canada, in recognition of the educator’s contributions to the profession.
- [25] University Faculty Scholar, Purdue University, 1999. Provides \$50,000 in funding over five years.
- [26] IEEE Control Systems Society Distinguished Lecturer, 2001–2003.
- [27] Elected to Full Member of Sigma Xi (The Scientific Research Society), 2002.
- [28] IEEE Communications Society Certificate of Appreciation, 2003.
- [29] Fellow of the IEEE, 2004, “for contributions to communication networks and discrete event systems.”
- [30] Elsevier Best Paper Award, 2004, for the paper “A framework for opportunistic scheduling in wireless networks,” *Computer Networks*, vol. 41, no. 4, pp. 451–474, March 2003 (with X. Liu and N. B. Shroff).
- [31] Professional of the Year in Electrical Engineering, 2006, awarded by the *America’s Registry of Outstanding Professionals*.
- [32] Professional of the Year in Education/Computer Engineering, 2007, awarded by the *Strathmore’s Who’s Who*.
- [33] Professional of the Year in Electrical Engineering, 2007, awarded by the *America’s Registry of Outstanding Professionals*.
- [34] Elected member of the Board of Governors of the IEEE Control Systems Society, 2006–2008

- [35] Elected to *Strathmore Who's Who Roundtable* (elite group of 50 professionals), 2008.
- [36] George T. Abell Outstanding Faculty Research Award, Colorado State University College of Engineering, 2008.
- [37] Best Editor Award, 2009, *Computer Networks* (journal).
- [38] IEEE Distinguished Member Award from the Control Systems Society, 2010. Citation: To recognize significant technical contributions in the areas of control, optimization, and modeling, and outstanding long-term service to the Society through editorial and conference related activities.
- [39] Elected member of the Board of Governors of the IEEE Control Systems Society, 2009–2012
- [40] Elected Vice President for Financial Activities, IEEE Control Systems Society, 2012–2014.
- [41] Elected President-Elect, IEEE Control Systems Society, 2016.
- [42] 2016 IEEE Signal Processing Society Young Author Best Paper Award (awarded to J. Ho) for the paper J. Ho, W. P. Tay, T. Q. S. Quek, and E. K. P. Chong, “Robust decentralized detection and social learning in tandem networks,” *IEEE Transactions on Signal Processing*, vol. 63, no. 19, pp. 5019–5032, October 2015 [J92].
- [43] Elected President, IEEE Control Systems Society, 2017.
- [44] Elected Past-President, IEEE Control Systems Society, 2018.

#### **1.4 Present Professional Appointments**

July 2013–present

Director, Colorado State University Information Science and Technology Center (ISTeC).

Aug. 2001–present

Professor, Department of Electrical and Computer Engineering, Colorado State University.

Sep. 2001–present

Professor, Department of Mathematics, Colorado State University.

#### **1.5 Past Professional Appointments**

Dec. 1984–Feb. 1985

Industrial Trainee, Tamco Cutler-Hammer, Malaysia.

Dec. 1985–Feb. 1986

Industrial Trainee, Paramount Computer Engineering, Malaysia.

Dec. 1986–Mar. 1987

Research Assistant, Department of Electrical Engineering, University of Adelaide.

Feb. 1988–Aug. 1988

Tutor and Laboratory Demonstrator, University of Adelaide.

Sep. 1988–June 1991

Research Assistant, Department of Electrical Engineering, Princeton University.

Spring 1989

Assistant Instructor, Princeton University, for a junior level course on Linear System Theory.

Fall 1989

Tutor for a junior course in Probability Theory and Stochastic Processes, Princeton University.

Fall 1990

Tutor for a senior course in Communications, Princeton University.

Spring 1990

Assistant Instructor, Princeton University, for a new senior level course on Image Processing and Transmission.

Summer 1991

Research Associate (Postdoctoral), Department of Electrical Engineering, Princeton University.

Aug. 1991–July 1997

Assistant Professor, School of Electrical and Computer Engineering, Purdue University.

Aug.–Dec. 1998

Visiting Fellow, Department of Electrical Engineering, Princeton University.

Aug. 1997–Aug. 2001

Associate Professor, School of Electrical and Computer Engineering, Purdue University. Promoted to Full Professor effective Aug. 2001.

Sep. 2001–2005

Adjunct Professor, School of Electrical and Computer Engineering, Purdue University.

Jul.–Dec. 2012

Acting Head, Department of Electrical and Computer Engineering, Colorado State University.

## 1.6 Consulting Activities

Oct. 1996–Dec. 1998

Caterpillar, Inc., Ungaretti and Harris (Oct. 1996–Oct. 1997; as expert witness), Barnes and Thornburg, and Howrey and Simon (Oct. 1997–Dec. 1998; as expert witness).

Sep.–Dec. 1998

Bell Labs, Lucent Technologies, Holmdel, NJ.

June 2003

Essential Software Solutions, Denver, CO.

Nov. 2003–2013

The Johns Hopkins University Applied Physics Laboratory, Laurel, MD.

Sep. 2004–2012

Numerica Corporation, Loveland, CO.

Apr. 2009–2012

Information System Technologies, Inc. (ISTI), Fort Collins, CO.

## 2 Research Activities

### 2.1 Research Grants and Contracts

- [1] Principal Investigator: “Distributed Algorithms for Discrete Event Systems,” 1992 Purdue Research Foundations Summer Faculty Grant, June 1, 1992 to July 31, 1992, \$5,000.
- [2] Project Director: “Distributed Stochastic Optimization of Discrete Event Systems,” 1992-93 Purdue Research Foundation Research Grant 6901955, August 17, 1992 to August 16, 1993, \$9,900.
- [3] Principal Investigator: “Manufacturing System Design Tools Based on Efficient Optimization,” National Science Foundation Engineering Research Center for Intelligent Manufacturing, Special Initiative Grant 8803017-ECD, March 1, 1992 to August 15, 1992, \$10,000.
- [4] Recipient: 1992-93 Whirlpool Faculty Fellowship, July 1, 1992 to June 30, 1993, \$12,500.
- [5] Co-principal Investigator: “Manufacturing Systems Design, Control and Analysis,” National Science Foundation Engineering Research Center for Intelligent Manufacturing Grant 8803017-ECD (PI: R. L. Kashyap, other co-PIs: C. L. Moodie, R. Koubek), August 15, 1992 to August 14, 1993, approximately \$250,000 (Chong’s portion of grant: approximately \$70,000).
- [6] Project Director: “Distributed Stochastic Optimization of Discrete Event Systems,” 1993-94 Purdue Research Foundation Research Grant 6901955, August 17, 1993 to August 16, 1994, \$10,200.
- [7] Recipient: 1993 Purdue Research Foundation International Travel Grant for participation in the *1993 Conference on Applied Probability in Engineering, Computer and Communication Sciences*, Paris, France, June 16–18, 1993, \$1,060.
- [8] Principal Investigator: “Optimization of Discrete Event Systems,” Engineering Foundation—Engineering Research Initiation Grant RI-A-93-09, September 1, 1993 to August 31, 1994, \$23,000.
- [9] Recipient: 1993-94 Whirlpool Faculty Fellowship, July 1, 1993 to June 30, 1994, \$12,500.
- [10] Co-principal Investigator: “Manufacturing Systems Design, Control and Analysis,” National Science Foundation Engineering Research Center for Intelligent Manufacturing Grant 8803017-ECD (PI: R. L. Kashyap, other co-PIs: C. L. Moodie, R. Koubek), August 15, 1993 to August 14, 1994, approximately \$300,000 (Chong’s portion of grant: approximately \$75,000).
- [11] Co-principal Investigator: “Manufacturing Systems Design, Control and Analysis,” National Science Foundation Engineering Research Center for Intelligent Manufacturing Grant 9402533-EEC (PI: R. L. Kashyap, other co-PIs: C. L. Moodie, R. Koubek), August 15, 1994 to August 14, 1995, renewal (Chong’s portion of grant: approximately \$20,000).
- [12] Principal Investigator: “Parametric and Nonparametric Control in Discrete Event Systems,” National Science Foundation Research Initiation Award (RIA) ECS-9410313, September 1, 1994 to August 31, 1997, \$90,000.
- [13] Co-principal Investigator: “Wireless Distributed Multimedia Communications Networks for the Digital Battlefield,” U.S. Army Research Office Grant DAAH04-95-1-0246 (PI: J. S. Lehnert, other co-PI: M. D. Zoltowski; other participants from University of Illinois, Urbana-Champaign, IL, University of Michigan, Ann Arbor, MI, Magnavox Electronic Systems Company, Fort Wayne, IN, Hughes Network Systems, Germantown, MD), July 1, 1995 to December 31, 1998, amount funded originally \$2,013,340 (Chong’s portion of grant: \$111,187).

- [14] Co-principal Investigator: “VIADUCT: A Testbed to Study Video, Image, Audio and Data Traffic on High-Speed Network,” National Science Foundation CISE Research Instrumentation CDA-9422250 (PI: E. J. Coyle, other co-PIs: N. B. Shroff, E. J. Delp, and A. A. Maciejewski), May 1, 1995 to April 30, 1996, \$120,811 (equally shared among all investigators).
- [15] Principal Investigator: “Decision, Control, and Optimization in Discrete Event Systems,” National Science Foundation Faculty Early Career Development (CAREER) Award ECS-9501652, September 1, 1995 to August 31, 2000, \$225,000.
- [16] Recipient: 1996 Purdue Research Foundation International Travel Grant for participation in the *35th IEEE Conference on Decision and Control (CDC)*, Kobe, Japan, December 11–13, 1996, \$1,036.
- [17] Recipient: 1996 National Grant for Education, DSP Development Corporation, for *DADiSP* data analysis software. Total value: \$70,000.
- [18] Principal Investigator: “Graduate Controls Laboratory,” National Science Foundation grant ECS-9612315 (Co-PI: V. Balakrishnan; Significant contributor: R. A. DeCarlo), September 15, 1996 to August 31, 1997, \$69,774 (\$56,517 from NSF, \$13,257 cost sharing using funds from Alcoa; equipment equally shared between investigators).
- [19] Principal Investigator: “Dynamic Channel Allocation in Multimedia Wireless Networks,” AT&T/Lucent Technologies Foundation Special Purpose Grant, November 1, 1996 to October 31, 1997, \$20,000.
- [20] Project Director: “Resource Allocation in Wireless Networks,” 1997-98 Purdue Research Foundation Research Grant 6902831, January 1, 1998 to December 31, 1998, \$11,666.
- [21] Co-Principal Investigator “Intel Equipment for Processing and Communication Intensive Tasks that Enable New Networked Video, Image, and Speech Applications,” Intel Corporation (Other Co-PIs: J. P. Allebach, M. R. Bell, C. A. Bouman, E. J. Coyle, E. J. Delp, P. C. Doerschuk, S. B. Gelfand, J. V. Krogmeier, M. P. Harper, L. H. Jamieson, N. B. Shroff, and M. D. Zoltowski), July 1, 1997 to June 30, 2000, \$598,000 (Chong’s portion of grant: approximately \$70,000).
- [22] Project Director: “Resource Allocation in Wireless Networks,” 1998-99 Purdue Research Foundation Research Grant 6902831, January 1, 1999 to December 31, 1999, \$11,666.
- [23] Principal Investigator: “Intelligent and Adaptive Management of Multi-Class Networks,” DARPA/ITO (BAA 98-02 Next Generation Internet—Network Engineering) Award No. F19628-98-C-0051 (other PI: R. Givan) August 15, 1998 to September 30, 2000, \$564,000 (Chong’s portion of grant: \$290,909).
- [24] Principal Investigator: “Intelligent MetaNet Framework for the Agile Information Control Environment,” Johns Hopkins University Applied Physics Lab (other PI: H. J. Siegel), subcontract for jointly funded DARPA project (see main contract information below), January 11, 1999 to May 8, 2000, Award no. 810994, \$360,389.00 (Chong’s portion of grant: \$184,849, representing an equal division between Chong and Siegel, with faculty salaries divided in proportion to actual salary levels.)
- Main contract information:* “An Intelligent MetaNet Controller,” DARPA/ISO (BAA 98-26 Agile Information Control Environment) Contract No. DABT63-99-C0012 (PI: S. D. Jones, Johns Hopkins University Applied Physics Lab; co-PIs: E. K. P. Chong, H. J. Siegel, and I. J. Wang, Johns Hopkins University Applied Physics Lab, who was a Ph.D. student of Professor Chong), January 11, 1999 to May 8, 2000, \$1,468,201.



- [25] Principal Investigator: “Dynamic Channel Building and Global QoS Optimization for the Agile Information Control Environment,” Johns Hopkins University Applied Physics Lab (other PI: H. J. Siegel), subcontract for jointly funded DARPA project (see main contract information below), January 11, 1999 to September 1, 2000, Award no. 810993, \$348,140.00 (Chong’s portion of grant: \$128,258, representing an equal division between Chong and Siegel, with faculty salaries divided in proportion to actual salary levels.).

*Main contract information:* “Adaptive Information Control Techniques for the Agile Information Control Environment,” DARPA/ISO (BAA 98-26 Agile Information Control Environment) Contract No. DABT63-99-C0010 (PI: I. J. Wang, Johns Hopkins University Applied Physics Lab, a former Ph.D. student of Professor Chong; co-PIs: E. K. P. Chong, S. D. Jones, Johns Hopkins University Applied Physics Lab, M. Jurczyk, University of Missouri-Columbia, and H. J. Siegel), January 11, 1999 to September 1, 2000, \$1,468,201.

- [26] Principal Investigator: “A Framework for Flexible Secure Network Services,” Center for Education and Research in Information Assurance and Security (CERIAS) (other PI: H. J. Siegel), July 1, 2000 to August 30, 2001, Award no. 1419991431A, \$50,000 (Chong’s portion of grant: approximately \$25,000).
- [27] Principal Investigator: “A Framework for Network Control via Online Simulation,” DARPA/ITO (BAA 00-18 Network Modeling and Simulation) (other PI: R. Givan) Agreement No. F30602-00-2-0552, June 28, 2000 to November 21, 2001, \$345,191 (Chong’s portion of grant: approximately \$180,000).
- [28] Co-Principal Investigator: “Design and Control of Next Generation Networks: A Measurement Analytical Approach,” National Science Foundation grant 0099137-ANI (ANI Special Projects in Networks Research) (PI: N. B. Shroff; other co-PIs: R. R. Mazumdar, C. P. Rosenberg), September 1, 2001 to August 31, 2005, \$783,104 (Chong’s portion of grant: \$195,776).
- [29] Principal Investigator: “Control of Communication Networks: Modeling, Simulation, and Optimization,” National Science Foundation grant 0098089-ECS (Co-PI: R. Givan), July 1, 2001 to June 30, 2004, \$180,774 (Chong’s portion of grant: approximately \$90,000).
- [30] Principal Investigator: “A Framework for Flexible Secure Network Services,” Center for Education and Research in Information Assurance and Security (CERIAS) (other PI: H. J. Siegel), continuation of previous funding, August 1, 2001 to December 31, 2001, \$30,000 (Chong’s portion of grant: approximately \$15,000).
- [31] Principal Investigator: “Collaborative Research: Opportunistic Scheduling for Multimedia Wireless Systems,” National Science Foundation grant ANI-0207892 (in collaboration with N. B. Shroff, Purdue University), July 1, 2002 to June 30, 2006, \$199,997.
- [32] Co-Principal Investigator: “Integrated Sensing and Processing,” Mission Research Corporation contract number SC-1198-02-0001 (PI: L. L. Scharf), subcontract for jointly funded DARPA project (see main contract information below), May 15, 2003 to September 31, 2004, \$374,693 (Chong’s portion of grant: approximately 50% of total).

*Main contract information:* “A Mathematical Methodology for Managing and Integrating Sensors and Processors in Distributed Systems for Radar and Communication,” DARPA/DSO (Integrated Sensing and Processing) Agreement No. F33615-02-C-1198 (PI: M. Clark, Mission Research Corporation; co-PIs: L. L. Scharf, E. K. P. Chong, T. McWhorter), January 1, 2003 to June 30, 2005.

- [33] Principal Investigator: “Integrated Radar Imaging, Sensor Scheduling, and Target Tracking,” DARPA contract FA9550-04-1-0371 (Co-PI: L. L. Scharf), May 15, 2004 to May 14, 2006, \$494,288 (Chong’s portion of grant: approximately 50% of total).
- [34] Principal Investigator: “Sensor Management for Multi-Target Tracking,” Sandia National Labs purchase order 305149, June 1, 2004 to September 30, 2004, \$35,117.
- [35] Principal Investigator: “Sensor Management for Multi-Target Tracking,” Sandia National Labs purchase order 613076, October 1, 2004 to March 31, 2005, \$30,000.
- [36] Principal Investigator: “Sensor Management for Multi-Target Tracking,” Sandia National Labs purchase order 613076, April 1, 2005 to September 1, 2005, \$20,735.
- [37] Principal Investigator: “Waveforms for Active Sensing in Military Operations on Urban Terrains,” DARPA contract FA8750-05-2-0285 (Co-PI: L. L. Scharf), September 22, 2005 to December 31, 2007, \$1,572,541. (Chong’s portion: approximately \$340,000).
- [38] Principal Investigator: “Sensor Management for Multi-Target Tracking,” Sandia National Labs purchase order 305149, September 1, 2005 to December 31, 2006, \$30,000.
- [39] Principal Investigator: “Partial Differential Equation Models for Large Networks,” National Science Foundation grant ECCS-0700559 (Co-PIs: D. Estep and J. Hannig), May 1, 2007 to April 30, 2011, \$276,833. (Chong’s portion: approximately half).
- [40] Principal Investigator: “Adaptive Compressive Sensing,” Princeton University contract 00001604, subcontract for jointly funded ONR project (see main contract information below), July 7, 2008 to June 30, 2013, \$237,900  
*Main contract information:* “Reed-Muller Sampling Matrices, Fast Reconstruction, and Null Space Properties in Compressive Sensing,” Office of Naval Research Award No. N00014-08-1-110 (PI: R. Calderbank, Princeton University; co-PIs: I. Daubechies, D. Cochran, and E. Chong), July 7, 2008 to August 31, 2012.
- [41] Principal Investigator: “Information Fusion and Control in Hierarchical Networks,” AFOSR contract FA9550-09-1-0518 (Co-PI: A. Pezeshki), July 1, 2009 to November 30, 2011, \$397,877.
- [42] Principal Investigator: “UAV Guidance on GPUs by Nominal Belief-State Optimization,” Apolent Corporation, subcontract for jointly funded AFOSR STTR project under DOD AFOSR STTR Program Solicitation FY09B, Topic AF09-BT06: *Novel Algorithm/Hardware Partnerships for Real-Time Nonlinear Control*, August 12, 2010 to March 20, 2011, \$50,000.
- [43] Principal Investigator: “Guidance of Autonomous Air Vehicles with On-Board Sensors for Multi-target Tracking,” Northrop Grumman, Rocky Mountain Aerospace Technology Incubator (RMATI) program, September 2, 2010 to June 30, 2012, \$31,913.
- [44] Principal Investigator: “Mathematical Infrastructure for Knowledge Enhanced Compressive Measurement,” Johns Hopkins University Applied Physics Lab contract N66001-11-C-4023 (co-PIs: L. Scharf, R. Luo, A. Pezeshki), subcontract for jointly funded DARPA/DSO project (Knowledge Enhanced Compressive Measurement KECOM BAA-10-38), January 12, 2011 to October 6, 2012, \$397,000.
- [45] Principal Investigator: “Student Travel Support for the 2011 IEEE Conference on Decision and Control,” National Science Foundation grant ECCS-1120940, September 1, 2011 to August 31, 2012, \$10,000.

- [46] Co-Principal Investigator: “Amorphous Polyhedral Model for Stochastic Control of Autonomous UAVs,” AFOSR contract FA9550-13-1-0064 (PI: S. Rajopadhye), February 15, 2013 to February 14, 2016, \$998,992.
- [47] Principal Investigator: “Orchestrated Management of Heterogeneous Sensors via POMDP,” Naval Postgraduate School Assistance Grant/Agreement No. N00244-14-1-0038 awarded by the NAVSUP Fleet Logistics Center San Diego (NAVSUP FLC San Diego). June 17, 2014 to July 31, 2015, \$144,314.
- [48] Co-Principal Investigator: “CIF: Small: String Submodularity and Near-Optimal Adaptive Control and Sensing,” National Science Foundation grant CCF-1422658 (PI: A. Pezeshki), July 1, 2014 to June 30, 2017, \$499,962.
- [49] Principal Investigator: “Vertically Integrated Projects at Colorado State University,” The Leona M. and Harry B. Helmsley Charitable Trust (via Georgia Institute of Technology), January 1, 2015 to December 31, 2017, \$270,000.
- [50] Co-Principal Investigator: “MRI Collaborative Consortium: Acquisition of a Shared Supercomputer by the Rocky Mountain Advanced Computing Consortium,” National Science Foundation grant ACI-1532235 (PI: H. J. Siegel; other co-PIs: J. Prenni, P. J. Burns), September 1, 2015 to August 31, 2018. \$700,000 (CSU portion of an award in collaboration with the University of Colorado in Boulder, totaling \$3.55M including mandatory cost share).
- [51] Co-Principal Investigator: “CRISP Type 2: Collaborative Research: Scalable Decision Model to Achieve Local and Regional Community and Infrastructural Resilience,” National Science Foundation grant CMMI-1638284 (PI: B. Ellingwood; other co-PI: J. W. van de Lindt), September 1, 2016 to August 31, 2020. \$865,129. Collaborators: J. B. Kruse, East Carolina University, P. Gardoni, University of Illinois at Urbana-Champaign, and W. G. Peacock, Texas A&M University.
- [52] Co-Principal Investigator: “CCF-BSF:CIF:Small:Signal Processing and Machine Learning on Manifolds, with Applications to Invariant Detection and Covariant Estimation,” National Science Foundation grant CCF-1712788 (PI: L. Scharf; other co-PI: C. Peterson), July 1, 2017 to June 30, 2020. \$499,122.
- [53] Team Leader, “Next-generation Electricity Demand Response,” SoGES Global Challenges Research Team Award (other team leaders: S. Suryanarayanan and J. Burkhardt), July 1, 2018 to May 31, 2019. \$20,000.

## 2.2 Books

- [B1] E. K. P. Chong and S. H. Žak, *An Introduction to Optimization*. New York, NY: John Wiley and Sons, Inc., 1996, ISBN 0-471-08949-4, xiii+409 pp. (Complete solutions manual, 129 pp.) Example of published review by Darko Kajfez, *IEEE Antennas and Propagation Magazine*, Volume 38, Issue 2, April 1996, p. 60.
- [B2] E. K. P. Chong and S. H. Žak, *An Introduction to Optimization, Second Edition*. New York, NY: John Wiley and Sons, Inc., 2001, ISBN 0-471-39126-3, xvi+477 pp. (Complete solutions manual, 137 pp.)
- [B3] E. K. P. Chong and S. H. Žak, *An Introduction to Optimization, Third Edition*. New York, NY: John Wiley and Sons, Inc., 2008, ISBN 0-471-75800-0, xvi+584 pp. (Complete solutions manual, 181 pp.)

- [B4] E. K. P. Chong and S. H. Zak, *An Introduction to Optimization, Fourth Edition*. New York, NY: John Wiley and Sons, Inc., 2013, ISBN 978-1-1182-7901-4 (or 1-118-27901-8), xvi+622 pp. (Complete solutions manual, 219 pp.)

## 2.3 Journal Articles

(Total: 112)

- [J1] W. Zhao and E. K. P. Chong, "Performance evaluation of scheduling algorithms for dynamic imprecise soft real-time computer systems," *Australian Computer Science Communications*, vol. 11, no. 1, pp. 329–340, 1989.
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- [C194] Y. Liu, E. K. P. Chong, A. Pezeshki, and W. Moran, “Bounds for general approximate dynamic programming based on string submodularity and curvature,” in *Proceedings of the 53rd IEEE Conference on Decision and Control*, Los Angeles, CA, December 15–17, 2014, pp. 6653–6658.
- [C195] Y. Sarkale and E. K. P. Chong, “Orchestrated management of heterogeneous sensors incorporating feedback from intelligence assets,” in *Proceedings of the Conference on Signal Processing, Sensor Fusion, and Target Recognition XXIV* (SPIE Vol. 9474), part of the *SPIE Symposium on Defense + Security*, Baltimore, Maryland, April 20–24, 2015, Paper 9474-9.
- [C196] E. K. P. Chong, “Multistage Wiener filters and conjugate direction algorithms,” presented at *Forty-Six Years (and counting) of Statistical Signal Processing: A workshop in recognition of the career contributions of Louis Scharf*, Asilomar Hotel and Conference Grounds, Pacific Grove, California, November 10, 2015 (Invited presentation).
- [C197] Y. Liu, E. K. P. Chong, and A. Pezeshki, “Bounding the greedy strategy in finite-horizon string optimization,” in *Proceedings of the 54th IEEE Conference on Decision and Control*, Osaka, Japan, December 15–18, 2015, pp. 3900–3905.
- [C198] R. Sturdivant and E. K. P. Chong, “Modeling and simulation of via conductor losses in co-fired ceramic substrates used in transmit/receive radar modules,” presented at the *2016 RF and Microwave Packaging (RaMP) Workshop*, sponsored by the International Microelectronics Assembly and Packaging Society (IMAPS), San Diego, California, April 5–6, 2016.
- [C199] R. Sturdivant and E. K. P. Chong, “Systems engineering of hybrid renewable electric power,” in *Proceedings of the 8th IEEE Annual Green Technologies Conference (IEEE GreenTech 2016)*, Kansas City, Missouri, April 7–8, 2016, pp. 90–94.
- [C200] E. K. P. Chong, “Submodular optimization and greedy policies,” presented at the *2016 Symposium on Emerging Frontiers in Systems and Control*, Center for Intelligent and Networked Systems (CFINS), Tsinghua University, May 27, 2016 (Invited presentation.)
- [C201] E. K. P. Chong, “Submodular optimization problems and their applications,” Plenary Lecture, *13th International Workshop on Discrete Event Systems (WODES 2016)*, May 30–June 1, 2016, Xi’an, China.
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- [C206] R. Sturdivant and E. K. P. Chong, “Systems engineering contributions to digital receivers for phased array radar,” in *Proceedings of the 2016 IEEE International Symposium on Phased Array Systems and Technology (PAST)*, Waltham, Massachusetts, October 18–21, 2016.
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- [C211] R. Sturdivant, J. Yeh, M. Strambaugh, A. Zahnd, and E. K. P. Chong, “Pico-hydro electric power in the Nepal Himalayas,” in *Proceedings of the 9th IEEE Annual Green Technologies Conference (IEEE GreenTech 2017)*, Denver, Colorado, March 29–31, 2017, pp. 232–237.
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- [C213] F. Ji, W. Tang, W. P. Tay, and E. K. P. Chong, “Inferring network topology from information cascades,” in *Proceedings of the 2017 IEEE International Symposium on Information Theory*, Aachen, Germany, June 25–30, 2017, pp. 2503–2507.
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- [C216] E. K. P. Chong, Y. Liu, and A. Pezeshki, “Performance guarantees for approximate dynamic programming schemes,” presented at *IAS Workshop on Frontiers in Systems and Control*, Hong Kong, August 24–25, 2017 (Invited paper).
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- [C219] C. M. Eaton, E. K. P. Chong, and A. A. Maciejewski, “Robust UAV path planning using POMDP with limited FOV sensor,” in *Proceedings of the 2017 IEEE Conference on Control Technology and Applications (CCTA)*, Kohala Coast, Hawai’i, August 27–30, 2017, pp. 1530–1535 (Invited paper).
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- [C221] E. K. P. Chong, “Dynamic decision making via state-dependent action optimization,” presented at *Alibaba Technology Forum*, Seattle, September 30, 2017 (Invited presentation).
- [C222] M. Ghorbani and E. K. P. Chong, “A dimension reduction method for time-series prediction,” presented at *The 3rd Annual Meeting of SIAM Central States Section*, Fort Collins, CO, September 29–October 1, 2017.
- [C223] E. K. P. Chong, “State-dependent action optimization: Research issues and applications,” Plenary Lecture, *2017 International Automatic Control Conference (CACs 2017)*, Kenting, Taiwan, November 13–15, 2017.
- [C224] Y. Sarkale and E. K. P. Chong, “On the optimality of the greedy policy for the sequential scalar measurement problem in signal-plus-noise models,” presented (poster) at the *2018 North-American School of Information Theory*, Texas A&M University, College Station, TX, May 20–23, 2018.
- [C225] S. Nozhati, B. R. Ellingwood, H. Mahmoud, Y. Sarkale, E. K. P. Chong, and N. Rosenheim, “An approximate dynamic programming approach to community recovery management,” presented at the *Engineering Mechanics Institute Conference 2018 (EMI 2018)*, Cambridge-Boston, MA, May 29–June 1, 2018.
- [C226] Y. Liu, E. K. P. Chong, and A. Pezeshki, “Extending polymatroid set functions with curvature and bounding the greedy strategy,” in *Proceedings of the 2018 IEEE Statistical Signal Processing Workshop (SSP)*, Freiburg, Germany, June 10–13, 2018 (Invited paper), to appear.
- [C227] M. Emmons, A. A. Maciejewski, and E. K. P. Chong, “Modelling emergent swarm behavior using continuum limits for environmental mapping,” in *Proceedings of the 14th IEEE International Conference on Control & Automation (ICCA 2018)*, Anchorage, Alaska, June 12–15, 2018, to appear.
- [C228] M. Ghorbani and E. K. P. Chong, “Time-series prediction via principle components: Predicting stock prices using multiple predictors,” presented at *2018 International Symposium on Forecasting (ISF2018)*, Boulder, CO, June 17–20, 2018.

- [C229] M. Ghorbani, A. A. Maciejewski, T. J. Siller, E. K. P. Chong, P. Omur-Ozbek, and R. Atadero, “Incorporating ethics education into an Electrical and Computer Engineering undergraduate program,” in *Proceedings of the 2018 ASEE Annual Conference & Exposition*, Salt Lake City, UT, June 24–27, 2018.
- [C230] C. Robbiano, A. A. Maciejewski, and E. K. P. Chong, “Work in progress: An analysis of correlations in student performance in core technical courses at a large public research institution’s Electrical and Computer Engineering Department,” in *Proceedings of the 2018 ASEE Annual Conference & Exposition*, Salt Lake City, UT, June 24–27, 2018.
- [C231] S. Nozhati, Y. Sarkale, B. R. Ellingwood, E. K. P. Chong, and H. Mahmoud, “A modified approximate dynamic programming algorithm for community-level food security following disasters,” in *Proceedings of the 9th International Congress on Environmental Modelling and Software (iEMSs 2018)*, Fort Collins, CO, June 24–28, 2018, to appear.
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- [C233] Y. Peng, J. Song, J. Xu, and E. K. P. Chong, “Stochastic control framework on sampling allocation for feasibility determination,” in *Proceedings of the 14th IEEE International Conference on Automation Science and Engineering (CASE 2018)*, Munich, Germany, August 20–24, 2018, to appear.
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- [C235] C. Eaton, L. W. Krakow, E. K. P. Chong, and A. A. Maciejewski, “Fuel efficient moving target tracking using POMDP with limited FOV sensor,” in *Proceedings of the 2018 IEEE Conference on Control Technology and Applications (CCTA)*, Copenhagen, Denmark, August 21–24, 2018, to appear (Invited paper), to appear.
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## 2.5 Research Book Contributions

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- Netherlands: Elsevier Science Publishers (North Holland), 1989, ch. 7, pp. 441–446. ISBN: 0-444-880550.
- [R2] E. K. P. Chong, “On-line optimization of queues using infinitesimal perturbation analysis,” in *Discrete Event Systems, Manufacturing Systems, and Communication Networks*, P. R. Kumar and P. P. Varaiya, Eds., Vol. 73 of Institute for Mathematics and its Applications (IMA) Volumes in Mathematics and its Applications, Springer-Verlag, 1995, pp. 41–57. ISBN: 0-387-97987-5.
- [R3] E. K. P. Chong, “Discrete-event systems and their optimization,” in *Perspectives in Control Engineering: Technologies, Applications, and New Directions*, T. Samad, Ed., IEEE Press, 2000, ch. 2, pp. 20–41. ISBN: 0-7803-5356-0.
- [R4] X. Liu, E. K. P. Chong, and N. B. Shroff, “Efficient network utilization for multimedia wireless networks,” in *Mobile and Wireless Communication Networks*, C. G. Omidyar, Ed., Vol. 1818 of Lecture Notes in Computer Science, Springer Verlag, 2000, pp. 108–122. ISBN: 3-540-67543-4. This volume constitutes the refereed proceedings of the *International Workshop on Mobile and Wireless Communications Networks (MWCN 2000)*, held as part of the IFIP-TC6/European Union *NETWORKING 2000* Conference in Paris, France, in May 2000 (see Conference Proceedings and Presentations, item [80]). The revised full papers presented were carefully reviewed and selected for inclusion in the volume.
- [R5] *Modeling and Design of Wireless Networks*, E. K. P. Chong, Ed., Proc. of SPIE Vol. 4531, 2001.
- [R6] Y. Park and E. K. P. Chong, “Monitoring of automata discrete event systems,” in *Discrete Event and Hybrid Systems in Robotics and Automation*, T. Sobh, Ed., ch. 5, Nova Science Publishers, Inc., 2006, pp. 111–190. ISBN: 1-59454-463-8.
- [R7] E. K. P. Chong, C. Kreucher, and A. O. Hero III, “POMDP approximation using simulation and heuristics,” in *Foundations and Applications of Sensor Management*, A. Hero, D. Castañón, D. Cochran, and K. Kastella, Eds., New York, NY: Springer, 2008, ch. 8, pp. 95–120. ISBN: 978-0-387-27892-6.
- [R8] E. K. P. Chong, “Markov processes,” in *Foundations and Applications of Sensor Management*, A. Hero, D. Castañón, D. Cochran, and K. Kastella, Eds., New York, NY: Springer, 2008, ch. 12, sec. 2, pp. 273–278. ISBN: 978-0-387-27892-6.
- [R9] E. K. P. Chong and S. H. Žak, “Single-dimensional search methods,” in *Wiley Encyclopedia of Operations Research and Management Science (EORMS)*, 2011, ISBN: 978-0-470-40063-0. Winner of the 2011 RUSA Award for Outstanding Business Reference Source.
- [R10] T. Katanyukul, E. K. P. Chong, and W. S. Duff, “Intelligent inventory control: Is bootstrapping worth implementing?” in *Intelligent Information Processing VI*, IFIP Advances in Information and Communication Technology, vol. 385/2012, Z. Shi, D. Leake, and S. Vadera, Eds., Springer, 2012, pp. 58–67. ISBN: 978-3-642-32890-9. DOI: 10.1007/978-3-642-32891-6\_10
- [R11] E. K. P. Chong, “Infinitesimal perturbation analysis in on-line optimization algorithms,” in *Stochastic Simulation Optimization for Discrete Event Systems: Perturbation Analysis, Ordinal Optimization, and Beyond*, C. H. Chen, Q.-S. Jia, and L. H. Lee, Eds., World Scientific Publishing, August 2013, ch. 5, pp. 75–95. ISBN: 978-981-4513-00-5.
- [R12] S. Ragi and E. K. P. Chong, “UAV guidance algorithms via partially observable Markov decision processes,” in *Handbook of Unmanned Aerial Vehicles*, K. P. Valavanis and G. J. Vachtsevanos, Eds.,



Dordrecht, Netherlands: Springer, ISBN 978-90-481-9706-4, 2015, ch. 73, Section XIII, pp. 1775–1810.

- [R13] A. Pezeshki, Y. Chi, L. L. Scharf, and E. K. P. Chong, “Compressed sensing, sparse inversion, and model mismatch,” in *Compressed Sensing and Its Applications*, H. Boche, R. Calderbank, G. Kutyniok, and J. Vybiral, Eds., Applied and Numerical Harmonic Analysis, New York, NY: Springer, ISBN: 978-3-319-16041-2 (Print) 978-3-319-16042-9 (Online), 2015, ch. 3, pp. 75–95.
- [R14] T. M. Hansen, R. Roche, S. Suryanarayanan, A. A. Maciejewski, H. J. Siegel, and E. K. P. Chong, “Customer modeling and pricing-mechanisms for demand response in smart electric distribution grids,” in *Cyber-Physical-Social Systems and Constructs in Electrical Power Engineering*, S. Suryanarayanan, R. Roche, and T. M. Hansen, Eds., London, UK: The Institution of Engineering and Technology (IET), 2016, ch. 6, pp. 135–160.

## 2.6 Published Reviews

- [1] E. K. P. Chong, “Review of *Discrete Event Systems: Modeling and Performance Analysis*, by Christos G. Cassandras; Richard D. Irwin, Inc., and Aksen Associates, Inc., Homewood, IL, 1993, xix + 790 pp., ISBN 0-256-11212-6,” *Discrete Event Dynamic Systems: Theory and Applications*, vol. 4, pp. 113–116, 1994.
- [2] E. K. P. Chong, “Book review: *Discrete Event Systems: Modeling and Performance Analysis*, by Christos G. Cassandras; Richard D. Irwin, Inc., and Aksen Associates, Inc., Homewood, IL, 1993, xix + 790 pp., ISBN 0-256-11212-6,” *IEEE Transactions on Automatic Control*, vol. 40, no. 9, pp. 1682–1683, September 1995.

## 2.7 Technical Reports

- [1] E. K. P. Chong, “A fast active subharmonic transponder,” Tech. Rep., Department of Electrical and Electronic Engineering, University of Adelaide, South Australia, May 1987 (92 pp.).
- [2] E. K. P. Chong, “A token ring LAN adaptor for a speech node,” Tech. Rep., Department of Electrical and Electronic Engineering, University of Adelaide, South Australia, October 1987; also Texas Instruments Australia, Sydney, New South Wales (81 pp.).
- [3] E. K. P. Chong, “Control of queues in soft real-time imprecise computer systems,” Tech. Rep., Department of Electrical and Electronic Engineering, University of Adelaide, South Australia, August 1988 (20 pp.).
- [4] J.-H. Kim, J.-H. Park, S.-W. Lee, and E. K. P. Chong, “A novel approach to fuzzy logic controller design for systems with deadzones,” Tech. Rep. TR-EE 92-44, School of Electrical Engineering, Purdue University, October 1992 (25 pp.).
- [5] J.-H. Kim, J.-H. Park, S.-W. Lee, and E. K. P. Chong, “A fuzzy precompensator design for PD control of systems with deadzones,” Tech. Rep. TR-EE 93-16, School of Electrical Engineering, Purdue University, April 1993 (23 pp.).
- [6] T. W. Then and E. K. P. Chong, “Genetic algorithms in noisy environments,” Tech. Rep. TR-EE 93-36, School of Electrical Engineering, Purdue University, November 1993 (24 pp.).

- [7] P. Dharwadkar, H. J. Siegel, and E. K. P. Chong, “A study of dynamic bandwidth allocation with preemption and degradation for prioritized requests,” Tech. Rep. TR-ECE 00-9, School of Electrical and Computer Engineering, Purdue University, July 2000 (108 pp.).
- [8] A. D. Naik, H. J. Siegel, and E. K. P. Chong, “Dynamic bandwidth allocation for requests with classes and priorities in preemptive distributed networks,” Tech. Rep. TR-ECE 00-10, School of Electrical and Computer Engineering, Purdue University, July 2000 (100 pp.).
- [9] X. Liu, E. K. P. Chong, and N. B. Shroff, “An access protocol to provide QoS in wireless networks,” Tech. Rep. TR-ECE 00-14, School of Electrical and Computer Engineering, Purdue University, November 2000 (44 pp.).
- [10] U. Savagaonkar, R. L. Givan, and E. K. P. Chong, “Sampling techniques for zero-sum, discounted Markov games,” Tech. Rep. TR-ECE 02-??, School of Electrical and Computer Engineering, Purdue University, June 2002 (vi+38 pp.).

## 2.8 Other Publications

- [1] Y. Wardi and E. Chong, “Editorial for the SI: Optimization of discrete event dynamic systems,” *Discrete Event Dynamic Systems*, special issue on *Optimization of Discrete Event Dynamic Systems*, vol. 19, no. 3, pp. 283–285, September 2009.
- [2] E. K. P. Chong, “CDC-ECC 2011 in Orlando, Florida: Celebrating 50 Years of Decision and Control,” *IEEE Control Systems*, vol. 31, no. 3, June 2011.
- [3] E. F. Camacho, E. K. P. Chong, J. A. Farrell, and M. M. Polycarpou, “Editorial for the special issue on Fundamental Issues in Control,” *European Journal of Control*, vol. 17, no. 5–6, pp. 447–448, September–December 2011.
- [4] E. K. P. Chong, “2011 Joint 50th IEEE Conference on Decision and Control and European Control Conference,” Conference Report, *IEEE Control Systems*, vol. 32, no. 3, pp. 79–88, June 2012.
- [5] Interview of E. K. P. Chong in *International Innovation*, June 2012. International Innovation is the leading global dissemination resource for the wider scientific, technology and research communities, dedicated to disseminating the latest science, research and technological innovations on a global level. More information and a complimentary subscription offer to the publication can be found at [www.researchmedia.eu](http://www.researchmedia.eu).
- [6] Q. Zhao, E. K. P. Chong, B. Krishnamachari, A. Leshem, S. Meyn, and V. V. Veeravalli, “Introduction to the issue on Learning-Based Decision Making in Dynamic Systems Under Uncertainty,” *IEEE Journal of Selected Topics in Signal Processing*, special issue on *Learning-Based Decision Making in Dynamic Systems under Uncertainty*, vol. 7, no. 5, pp. 743–745, October 2013.
- [7] Edwin K. P. Chong [People in Control], *IEEE Control Systems*, vol. 34, no. 5, pp. 28–29, October 2014.
- [8] Edwin K. P. Chong [People in Control], *IEEE Control Systems*, vol. 36, no. 6, pp. 16–19, December 2016.
- [9] E. K. P. Chong, “To control, with love,” President’s Message, *IEEE Control Systems*, vol. 37, no. 1, pp. 9–13, February 2017.

- [10] E. K. P. Chong, “The control problem,” President’s Message, *IEEE Control Systems*, vol. 37, no. 2, pp. 14–16, April 2017.
- [11] E. K. P. Chong, “Textbook models: Expanding applications,” President’s Message, *IEEE Control Systems*, vol. 37, no. 3, pp. 10–12, June 2017.
- [12] Z. Zhang, W. P. Tay, M. Draief, X. Wang, E. K. P. Chong, and A. O. Hero, “Introduction to the issue on Distributed Information Processing in Social Networks,” *IEEE Transactions on Signal and Information Processing over Networks*, special issue on *Signal and Information Processing over Networks*, vol. 3, no. 2, pp. 219–221, June 2017.
- [13] E. K. P. Chong, “Our society’s best practices,” President’s Message, *IEEE Control Systems*, vol. 37, no. 4, pp. 9–10, August 2017.
- [14] E. K. P. Chong, “Control and sustainability,” President’s Message, *IEEE Control Systems*, vol. 37, no. 5, pp. 8–10, October 2017.
- [15] E. K. P. Chong, “Do we have common philosophical presuppositions?” President’s Message, *IEEE Control Systems*, vol. 37, no. 6, pp. 8–9, December 2017.

## 2.9 Purdue Electrical and Computer Engineering Industrial Affiliates Workshops

- Spring 92: Presentation, “Intelligent Optimization and Simulation,” Edwin K. P. Chong
- Fall 92: Poster, “A Performance Improvement Methodology for Manufacturing Systems,” Yongseok Park and Edwin K. P. Chong
- Spring 93: Poster, “Automated Fault Diagnosis of Manufacturing Systems,” Sanjiv Bavishi and Edwin K. P. Chong
- Spring 93: Poster, “Optimal Sensor Configuration for Manufacturing Systems,” Yongseok Park and Edwin K. P. Chong (second place winner in the student poster competition)
- Spring 93: Poster, “An Adaptive Algorithm for Optimization of Uncertain Manufacturing Systems,” I-Jeng Wang and Edwin K. P. Chong
- Spring 94: Poster, “Fault Diagnosis of Manufacturing Systems,” Sanjiv Bavishi and Edwin K. P. Chong
- Spring 95: Poster, “System Design Under Uncertainty: Machine Learning and Complexity,” I-Jeng Wang and Edwin K. P. Chong
- Spring 97: Vice-Chair of PEEII Workshop, *Emerging Technologies: Microelectronics, Optics, Communications, Networking, and Multimedia*.
- Spring 97: Presentation, “Improving Performance of Cellular Systems,” Edwin K. P. Chong.
- Spring 97: Poster, “Repetitive Learning Control,” Luis G. Sison and Edwin K. P. Chong.
- Spring 97: Poster, “Resource Allocation in Wireless Networks,” Jeff Herdtner and Edwin K. P. Chong.
- Spring 98: Chair of PEEII Workshop, *Engineering Systems in the Information Age*.
- Spring 98: Poster, “Channel Sharing Scheme for Hotspot Alleviation in Packet-Switched Cellular Networks,” Suresh Kalyanasundaram, Edwin K. P. Chong, and Ness B. Shroff.

- Spring 98: Poster, "Network Capacity of Power Controlled CDMA Systems in Fading Channels," Junshan Zhang and Edwin K. P. Chong.
- Spring 00: Poster, "Resource Allocation in Preemptive Networks with Multiple QoS Measures," Uday Savagaonkar and Edwin K. P. Chong.
- Spring 00: Poster, "Utility-Based Power Control in Cellular Wireless Systems," Mingbo Xiao, Ness B. Shroff, and Edwin K. P. Chong.
- Spring 00: Poster, "Intelligent Network Control via Online Simulation," Hyeong Soo Chang, Robert Givan, and Edwin K. P. Chong.
- Spring 01: Poster, "Congestion Control via Online Sampling," Gang Wu, Edwin K. P. Chong, and Robert Givan.
- Spring 01: Poster, "State-based Pricing in Electronic Marketplaces," Uday Savagaonkar, Edwin K. P. Chong, and Robert Givan.
- Spring 01: Poster, "Efficient Resource Allocation for QoS Channels in MF-TDMA Satellite," Jung-Min Park, Uday Savagaonkar, Edwin K. P. Chong, H. J. Siegel, and Steven D. Jones.
- Spring 01: Poster, "A QoS Routing Scheme Using the DFS Method with Limited Crankbacks," Dongwon Shin, Edwin K. P. Chong, and H. J. Siegel.
- Spring 01: Poster, "Online Sampling Algorithms for Network Queueing Problems," Hyeong Soo Chang, Robert Givan, and Edwin K. P. Chong.

## **2.10 Purdue Center for Education and Research in Information Assurance and Security (CERIAS) Annual Research Symposium**

- April 01: Poster, "Survivable Multipath Routing Schemes for Connection-Oriented Communications," Dongwon Shin, Edwin K. P. Chong, and Howard Jay Siegel.
- April 01: Poster, "Efficient Source Authentication Schemes for Multicast Communications," Jung Min Park, Howard Jay Siegel, and Edwin K. P. Chong.

## **2.11 CSU Information Science and Technology Research Colloquium**

- April 05: Poster, "Opportunistic Transmission Scheduling in Wireless Networks," Zhi Zhang and Edwin K. P. Chong.
- April 05: Poster, "Scheduling File Transfers over Highspeed Networks," Hua Li and Edwin K. P. Chong.
- April 05: Poster, "Markov Decision Processes with Action Fairness Constraints," Sudhir Moola, Zhi Zhang, and Edwin K. P. Chong.
- April 05: Poster, "Markov Decision Processes and Particle Filters for Sensor Management," Lucas W. Krakow, Yun Li, and Edwin K. P. Chong.
- April 05: Poster, "Target Tracking with Limited Communication in Sensor Networks," Patricia R. Barbosa and Edwin K. P. Chong.

- April 05: Poster, "Optimization Techniques in Portfolio Management," Ramin Zahedi and Edwin K. P. Chong.
- April 05: Poster, "Resource Allocation for Periodic Applications in a Shipboard Environment," Vladimir Shestak, Edwin K. P. Chong, Anthony A. Maciejewski, and H. J. Siegel.
- April 05: Invited talk, "Network Modeling, Analysis, Control, and Simulation."
- April 05: Invited panel speaker, "Colorado Grid Computing (CoGrid) Initiative."
- November 06: Poster, "Radar Processing for Target Tracking in Urban Environments," Sowmya Lolla and Edwin K. P. Chong.
- November 06: Poster, "Portfolio Management using Partially Observable Markov Decision Process," Ramin Zahedi and Edwin K. P. Chong. (Winner of Second Prize in the Poster Contest.)
- November 06: Poster, "Active Sensing in an Urban Environment: Closing the Loop," Patricia R. Barbosa, Yun Li, and Edwin K. P. Chong. (Winner of Lockheed Martin Prize and also Third Prize in the Poster Contest.)
- November 06: Poster, "Dynamic Sensor Management For Multisensor Multitarget Tracking," Yun Li, Edwin K. P. Chong, and Lucas W. Krakow.
- November 06: Poster, "Opportunistic Scheduling for Wireless Networks," Zhi Zhang and Edwin K. P. Chong. (Winner of First Prize in the Poster Contest.)

### 3 Educational Activities

#### 3.1 Ph.D. Dissertation Supervision Completed at Purdue

<i>Name</i>	<i>Date</i>	<i>Dissertation Title</i>
Yongseok Park	May 1996	“Model-Based Monitoring of Discrete Event Systems” Journal articles [J11], [J17]. Conference proceedings and presentations [C10], [C16], [C19], [C20], [C21], [C22], [C27], [C33], [C36], [C41], [C45]. Research book contributions [6].
I-Jeng Wang	Aug. 1996	“Analysis of Stochastic Approximation and Related Algorithms” Journal articles [J12], [J16], [J19], [J21], [J58]. Conference proceedings and presentations [C15], [C25], [C29], [C35], [C38], [C43], [C46], [C50], [C56], [C69], [C93].
Junyi Li	Feb. 1998	“Intercellular Coordination Schemes for Improving Spectrum Utilization in Wireless Cellular Networks” (jointly supervised with N. B. Shroff) Journal articles [J20], [J23], [J24], [J46]. Conference proceedings and presentations [C52], [C57], [C65], [C66], [C64].
Luis G. Sison	Feb. 1998	“Repetitive Learning Control of Linear Periodic Plants” Conference proceedings and presentations [C32], [C51], [C55], [C62].
Suresh Kalyanasundaram	May 2000	“Call-Level and Class-Level Quality-of-Service in Multiservice Networks” (jointly supervised with N. B. Shroff) Journal articles [J28], [J29], [J36], [J46], [J51]. Conference proceedings and presentations [C60], [C64], [C78], [C91], [C100].
Junshan Zhang	Aug. 2000	“Design and Performance Analysis of Power-Controlled CDMA Wireless Networks with Linear Receivers and Antenna Arrays” Journal articles [J26], [J30], [J32], [J37], [J40]. Conference proceedings and presentations [C58], [C63], [C74], [C76], [C77], [C81], [C88], [C103].
Hyeong Soo Chang	May 2001	“On-line Sampling-based Control for Network Queueing Problems” (jointly supervised with R. Givan) Journal articles [J39], [J44], [J56]. Conference proceedings and presentations [C73], [C82], [C131].
Mingbo Xiao	May 2002	“Resource Management in Power-controlled Cellular Wireless Networks” (jointly supervised with N. B. Shroff) Journal articles [J31], [J35], [J42]. Conference proceedings and presentations [C71], [C83], [C90].

- Xin (Mandy) Liu      Aug. 2002    “Opportunistic Scheduling in Wireless Communication Networks” (jointly supervised with N. B. Shroff)  
Journal articles [J34], [J41].  
Conference proceedings and presentations [C80], [C84], [C92], [C97], [C99], [C106].  
Research book contributions [4].
- Uday Savagaonkar    Sep. 2002    “Dynamic Network Pricing using Sampling Techniques for Markov Games” (jointly supervised with R. Givan)  
Journal articles [J45].  
Conference proceedings and presentations [C79], [C94], [C98].
- Jung Min Park        Aug. 2003    “Efficient Primitives for Ensuring Security in E-Commerce Transactions” (jointly supervised with H. J. Siegel)  
Journal articles [J43], [J49].  
Conference proceedings and presentations [C79], [C95], [C104], [C108].
- Dong-Won Shin        Aug. 2003    “Multicriteria Routing for Guaranteed Performance Communications” (jointly supervised with H. J. Siegel)  
Journal articles [J73].  
Conference proceedings and presentations [C87], [C96], [C113], [C142].
- Gang Wu              Oct. 2003    “Model-Based Analysis and Control in Stochastic Networks” (jointly supervised with R. Givan)  
Journal articles [J38], [J55].  
Conference proceedings and presentations [C85], [C101], [C109], [C110].
- Jeffrey D. Herdtner   May 2004    “Power Control and Capacity in Wireless Networks”  
Journal articles [J25].  
Conference proceedings and presentations [C59], [C70], [C122].
- Jeongjoon Lee        Sep. 2005    “Energy Efficient Schedulers in Wireless Networks: Design and Optimization” (jointly supervised with C. Rosenberg)  
Journal articles [J53].  
Conference proceedings and presentations [C107], [C112], [C126], [C133].

### 3.2 Ph.D. Dissertation Supervision Completed at CSU

- | <i>Name</i> | <i>Date</i> | <i>Dissertation Title</i>  |
|-------------|-------------|--|
| Hua Li      | Oct. 2007   | “Information Theoretic Problems in Networks and Active Sensing”<br>Journal articles [J47], [J60], [J70].<br>Conference proceedings and presentations [C111], [C114], [C115], [C137], [C140], [C143], [C156]. |

- Patricia de Rezende Barbosa Apr. 2010 “Target Tracking with Distributed Sensing: Information-Theoretic Bounds and Closed-Loop Scheduling for Urban Terrain”  
Journal articles [J60].  
Conference proceedings and presentations [C137], [C145], [C150].
- Tatpong Katanyukul Apr. 2010 “Approximate Dynamic Programming Application to Inventory Management” (jointly supervised with W. Duff, IEOR Program)  
Journal articles [J69], [J90].  
Conference proceedings and presentations [C176], [C10].
- Zhi Zhang Aug. 2011 “Resource Management in QoS-Aware Wireless Cellular Networks”  
Journal articles [J62], [J68].  
Conference proceedings and presentations [C119], [C121], [C149].
- Zhenliang Zhang Aug. 2013 “Decision and Learning in Large Networks” (jointly supervised with A. Pezeshki)  
Journal articles [J76], [J79], [J81], [J85], [J96], [J105], [J102], [J109].  
Conference proceedings and presentations [C160], [C161], [C166], [C167], [C171], [C172], [C174], [C175], [C178], [C180], [C179], [C189].
- Ramin Zahedi Sep. 2013 “Compressive Measurement Design for Detection and Estimation of Sparse Signals” (jointly supervised with A. Pezeshki)  
Journal article [J75], [J83].  
Conference proceedings and presentations [C157], [C169], [C183], [C188].
- Yang Zhang Jan. 2014 “Continuum Limits of Markov Chains with Application to Wireless Network Modeling and Control”  
Journal articles [J80], [J84].  
Conference proceedings and presentations [C158], [C163], [C170].
- Shankarachary Ragi Mar. 2014 “Cooperative Control of Mobile Sensor Platforms in Dynamic Environments”  
Journal articles [J74], [J82], [J86], [J87], [J91].  
Conference proceedings and presentations [C159], [C173], [C184], [C181], [C186], [C210].  
Research book contributions [12].
- Rick Sturdivant Jan. 2017 “Application of Systems Engineering to Complex Systems and System of Systems” (Sys. Engr.)  
Journal articles [J97], [J99], [J101], [J103], [J104], [J111].  
Conference proceedings and presentations [C198], [C199], [C205], [C206], [C207], [C208], [C209], [C211], [C217].



Christopher M. Eaton	Mar. 2018	“Autonomous UAV Control and Testing Methods utilizing Partially Observable Markov Decision Processes” (Sys. Engr., jointly supervised with A. Maciejewski) Journal articles [J94], [J108]. Conference proceedings and presentations [C219], [C235], [C236].
Yajing Liu	June 2018	“Bounding Greedy Strategies in Submodular Optimization Problems” (jointly supervised with A. Pezeshki) Journal articles [J106], [J109]. Conference proceedings and presentations [C194], [C197], [C202], [C216], [C226].

### 3.3 M.S. Thesis Supervision Completed at Purdue

<i>Name</i>	<i>Date</i>	<i>Thesis Title</i>
Binal M. Bhukhanwala	Aug. 1994	“Dual Controller Scheme for Rapid Magnet Cycling” Journal article [J15]. Conference proceedings and presentations [C44], [C48].
Surjamukhi Chatterjea	Nov. 1999	“Quality of Service Attributes at Multiple Levels of an Information Dissemination System” (jointly supervised with H. J. Siegel) Conference proceedings and presentations [C69].
Amit Naik	Aug. 2000	“Bandwidth Allocation for Prioritized Session and Data Requests in Preemptive Communication Networks” (jointly supervised with H. J. Siegel) Conference proceedings and presentations [C89].
Pranav Dharwadkar	Aug. 2000	“Dynamic Bandwidth Allocation with Preemption and Degradation for Prioritized Requests” (jointly supervised with H. J. Siegel) Conference proceedings and presentations [C86].

### 3.4 M.S. Thesis Supervision Completed at CSU

Sudhir Moola	Mar. 2006	“Temporal Fair Scheduling Over a Wireless Channel” Journal article [J68]. Conference proceedings and presentations [C149].
Ramin Zahedi	Oct. 2007	“Stochastic Dynamic Programming Approximation Techniques for the Portfolio Management Problem”
Lucas W. Krakow	Mar. 2009	“Sensor Resource Management via Partially Observable Markov Decision Processes” Journal article [J66]. Conference proceedings and presentations [C132], [C136], [C138].

Pranav Damale      Sep. 2015      “Design of a Gait Acquisition and Analysis System for Assessing The Recovery in a Classical Murine Model of Parkinson’s Disease”  
Journal article [J110].

### 3.5 M.S. and Ph.D. Students Currently Being Supervised

Lucas Krakow	(Ph.D.) Journal articles [J66], [J83]. Conference proceedings and presentations [C132], [C136], [C138], [C169], [C183], [C188], [C190], [C218], [C235], [C236].
Mahsa Ghorbani	(Ph.D., Sys. Engr.) Conference proceedings and presentations [C215], [C222], [C228], [C229].
Yugandhar Sarkale	(Ph.D.) Conference proceedings and presentations [C195], [C224], [C225], [C231], [C234].
Megan Emmons	(Ph.D.) (jointly supervised with A. Maciejewski) Conference proceedings and presentations [C227].
Pranav Damale	(Ph.D.) Journal article [J110].
Anthony D’Angelo	(Ph.D., Sys. Engr.) Conference proceedings and presentations [C237].
Christopher Robbiano	(Ph.D.) Conference proceedings and presentations [C230].
Andy St. Fort	(Ph.D., Sys. Engr.)
Fateh El Sherif	(Ph.D.)
Alaa Refeis Alsaedy	(Ph.D.)
Mark Ritschard	(Ph.D.)
Apichart Vasutapituks	(Ph.D.)
Frank Bria	(Ph.D., Sys. Engr.)

Neels van Greunen (Ph.D.)

### 3.6 Courses Developed at Purdue

EE 681 *Discrete Event Systems*

EE 5XX *Graduate Control Laboratory* (with other members of the Automatic Control Area)

### 3.7 Courses “In Charge Of” at Purdue

EE 681 *Discrete Event Systems*, Fall 1992–2001.

EE 580 *Optimization Methods for Systems and Control*, Fall 1994–2001.

### 3.8 Undergraduate and Non-Thesis Student Projects at Purdue

EE 495 *Vehicular Traffic Control* (1 cr.), Spring 1991.  
Christopher Omar Gozali

EE 696 *Fuzzy Computation* (6 cr.), Summer 1993.  
Muthucumar Maheswaran

EE 495 *Statistical Process Control* (3 cr.), Fall 1993.  
Cory C. Kihlstrom

EE 495 *X, Petri Nets, and IMS* (3 cr.), Fall 1993.  
Thomas M. Cronin

EE 495/6 *Genetic Algorithms* (495: 2cr.; 496: 1cr.), Fall 1993.  
Thai Wei Then

EE 495/6 *Interior Point Methods* (495: 2cr.; 496: 1cr.), Fall 1993.  
Wan Ning Fu

EE 495 *Intelligent Manufacturing* (2 cr.), Summer 1994.  
Hartarto Ciputra

EE 495 *Discrete Event Systems* (3 cr.), Fall 1994.  
Choon-Teng Loh

EE 495 *Industrial Survey Proj.* (2 cr.), Fall 1996.  
Shawn M. Bruns

EE 496 *Peripheral Controls* (1 cr.), Spring 1998.  
Richard Pettys

EE 496 *Peripheral Controls* (2 cr.), Spring 1998.  
D. Hamilton Radcliffe

EE 696 *Bay Command Console (BCC) – Automated Testing* (1 cr.), Summer 1998.  
Siddharth Vajirkar

### 3.9 Summer Undergraduate Research Internship (SURI) supervision at Purdue

(Supported by the Purdue NSF Engineering Research Center)

1993: Thai Wey Then, Cory C. Kihlstrom, Wan-Ning Fu, Thomas M. Cronin, Yin Chan, Mark Penny

1994: Choon-Teng Loh

### 3.10 Courses Developed at CSU

EE 520/M 520 *Optimization Methods for Control and Communication*

ECE 531/ENGR 531 *Engineering Risk Analysis*

### 3.11 Undergraduate and Non-Thesis Student Projects at CSU

EE 401 *Target Tracking with Sensor Networks* (3 cr.), Fall 2003.  
Jeremy D. West

EE 495 *Location Aware Computing in a Wireless Local Area Network* (3 cr.), Spring 2004.  
Borys E. Senyk

EE 695 *Voice over Internet Protocol* (3 cr.), Spring 2004.  
Sanket Bajaj

EE 402 *Target Tracking with Sensor Networks* (3 cr.), Spring 2004.  
Jeremy D. West

EE 401 *Location Aware Computing in a Wireless Local Area Network* (3 cr.), Fall 2004.  
Borys E. Senyk

EE 402 *Wireless Sniffer Development on a Xilinx Vertex-II Pro ML300 Evaluation Platform* (3 cr.),  
Fall 2004.  
Micaela Nofsinger

EE 695 *Web Authentication for CoGrid Using a WebISO* (3 cr.), Spring 2005.  
Michael Raskey

\*\*\* *PDE Models of Networks*, Summer 2007.  
Nagarjuna Duvvuru (Department of Electrical Engineering, Indian Institute of Technology,  
Madras)

\*\*\* *Opportunistic Scheduling with Heterogeneous Fairness Constraints for Wireless Networks*,  
Summer 2008.  
Shankarachary Ragi (Department of Electrical Engineering, Indian Institute of Technology,  
Madras)

\*\*\* *PDE Models of Nonuniform Networks*, Summer 2009.  
Sujay Prasad Srivastava (Department of Electrical Engineering, Indian Institute of Technol-  
ogy, Madras)

EE 401 *Automatic Portfolio Management* (3 cr.), Fall 2009.  
Abdulla Altunaiji and Yazeed Alruwayti

- EE 402 *Automatic Portfolio Management* (3 cr.), Spring 2010.  
Abdulla Altunaiji and Yazeed Alruwayti
- ECE 401 *Automatic Portfolio Management* (3 cr.), Fall 2010.  
Danny Webb and Yijiang Zhou
- ECE 402 *Automatic Portfolio Management* (3 cr.), Spring 2011.  
Danny Webb and Yijiang Zhou
- ECE 401 *Automatic Portfolio Management* (3 cr.), Fall 2011.  
Greg Burkhart and Frank Willis Turner V
- ECE 402 *Automatic Portfolio Management* (3 cr.), Spring 2012.  
Greg Burkhart and Frank Willis Turner V
- ECE 401 *Automatic Portfolio Management* (3 cr.), Fall 2012.  
Jordan Courville and Rayan Alanazi
- ENGR 597 *Collaborative Command & Conquer System (C3S)* (3 cr.), Fall 2012.  
Bronson Aken and Daniel Crowe
- ECE 402 *Automatic Portfolio Management* (3 cr.), Spring 2013.  
Jordan Courville, Rayan Alanazi, and Khalid Abudawood
- ENGR 597 *Chess By Volume* (3 cr.), Spring 2013.  
Patrick Hresko
- ECE 402 *Automatic Portfolio Management* (3 cr.), Fall 2013.  
Khalid Abudawood
- ENGR 597 *SharAR ("Sharer")* (3 cr.), Fall 2013.  
Joseph Kovach
- ECE 695 *Orchestrated Management of Sensors* (3 cr.), Summer 2014.  
Yugandhar Sarkale
- ENGR 695 *Systems Engineering Processes Applied to the Naval Electromagnetic Railgun Project* (3 cr.), Summer 2014.  
Benjamin W. Parker
- ECE 695 *Orchestrated Management of Sensors* (3 cr.), Fall 2014.  
Tushar Ganguli
- ENGR 597 *Swissport Cargo Services ORD Ops-4 Warehouse Relocation Project* (3 cr.), Fall 2014.  
Jared Butler
- ENGR 597 *Topside Communications Deckbox: Prototype to Production* (3 cr.), Fall 2014.  
Tina Botti
- ENGR 695 *Systems Engineering for Bottling* (3 cr.), Fall 2014.  
Michael Herder
- ECE 695 *Prediction of End-of-day Stock Prices via Principal Component Analysis* (3 cr.), Fall 2014/Spring 2015.  
Arun Boominathan

- ENGR 597 *Hover-Watch: A Reconnaissance and Surveillance System for Law-Enforcement Operations* (3 cr.), Fall 2015.  
Jorge O'Neil
- ENGR 695 *Engineering Cyber Security* (3 cr.), Fall 2015.  
Jonathan P. Baeckel
- ECE 401 *3-D Printing and Electronics Prototyping* (3 cr.), Fall 2015.  
Zebulun Benham and Jason Gardner
- ECE 695 *Optimizing the MATLAB Code for UAV Tracking System* (3 cr.), Fall 2015.  
Dhawal Gusain
- ECE 402 *3-D Printing and Electronics Prototyping* (3 cr.), Spring 2016.  
Zebulun Benham and Jason Gardner
- ENGR 695 *Systems with Human Components* (3 cr.), Fall 2016.  
Ben Baldassare
- ECE 695 and 587 *Development of Water Probe for Total Dissolved Solids* (3 cr.) (jointly with G. Markman), Fall 2016–Summer 2017.  
Sharvari Malunjkar
- ECE 695 *Predictive Data Analytics* (3 cr.), Spring & Fall 2017.  
Mingsui Sun
- ENGR 597 *Cybersecurity System Services (C2S) Concept Definition* (3 cr.), Fall 2017.  
Joseph Packrone
- ECE 401 *Senior Design Lab* (3 cr.), Fall 2017.  
Erica Hoppe and Kassi Prochazka (Computer Engineering), Spencer Pollner (Mechanical Engineering), and Kristopher Kaseman (Electrical Engineering).

## 4 Professional Activities

### 4.1 Invited Lectures

- [1] *Student Papers Evening*, Institution of Engineers, Australia, Adelaide, October 1987 (A Token Ring LAN Adaptor for a Speech Node).
- [2] *Inaugural Australian Technology Awards*, Texas Instruments Australia, Sydney, November 1987 (A Token Ring LAN Adaptor for a Speech Node).
- [3] Department of Electrical and Electronic Engineering, University of Adelaide, June 1988 (Control of Queues in Soft Real-Time Systems).
- [4] Research Seminar, Department of Electrical Engineering, Princeton University, August 1989 (Convergence of Optimization Algorithms using IPA).
- [5] Corporate Affiliates Meeting, Princeton University, November 1989 (Recursive Optimization of Queues).
- [6] Corporate Affiliates Meeting, Princeton University, November 1990 (Optimization Algorithms for Communication/Computer Networks).
- [7] Department of Electrical Engineering, Princeton University, November 1990 (On Algorithms using IPA that Update After Every Customer).
- [8] Department of Computer Science, Texas A&M University, December 9, 1991 (On-Line Optimization Algorithms for Queueing Systems).
- [9] *Purdue IEEE Student Branch Meeting*, School of Electrical and Computer Engineering, Purdue University, October 6, 1992 (If Only Traffic Lights Have More Than Just A Yellow Signal).
- [10] Department of Electrical and Computer Engineering, C&SRL, University of Illinois at Urbana-Champaign, November 17, 1992 (On-Line Optimization of Queues).
- [11] Department of Electrical and Computer Engineering, University of Massachusetts, Amherst, April 30, 1993 (Inversion of Timed Discrete Event Systems).
- [12] Département d'I.R.O., Université de Montréal, Montréal, Canada, May 26, 1993 (Discrete Event Simulation of Structural Changes).
- [13] Département de Génie Électrique et de Génie Informatique, École Polytechnique, Montréal, Canada, May 27, 1993 (On-Line Optimization of Queues).
- [14] Department of Electrical Engineering, Indiana University Purdue University Indianapolis (IUPUI), October 22, 1993 (Discrete Event Systems: A New Challenge for Engineers).
- [15] Department of Electrical Engineering, University of Notre Dame, September 10, 1996 (On-Line Parametric Tuning of Networks).
- [16] EE 694 Graduate Seminar Series, School of Electrical and Computer Engineering, Purdue University, October 10, 1996 (On-Line Parameter Tuning of Networks).
- [17] INFORMS Student Chapter (Purdue) Seminar Series, April 24, 1997 (On-Line Performance Optimization).

- [18] CS 690P Advanced Topics in Networking Seminar, Department of Computer Science, Purdue University, Fall 1997 (On-line parametric tuning of networks).
- [19] Performance Analysis Department, Bell Labs, Lucent Technologies, Holmdel, NJ, June 29, 1998 (A Localized Channel Sharing Scheme for Wireless Cellular Networks).
- [20] Mathematics of Networks and Systems Research Department, Bell Labs, Lucent Technologies, Murray Hill, NJ, October 9, 1998 (On Optimal Throughput with Static Reduced Power).
- [21] Department of Electrical Engineering, Princeton University, November 19, 1998 (Channel Reuse with Reduced Power in Cellular Systems).
- [22] Wireless Information Network Laboratory (WINLAB), Rutgers, The State University of New Jersey, December 9, 1998 (Channel Reuse with Reduced Power in Cellular Systems).
- [23] Department of Electrical and Computer Engineering, New Jersey Institute of Technology December 11, 1998 (Channel Reuse with Reduced Power in Cellular Systems).
- [24] Performance Analysis Department, Bell Labs, Lucent Technologies, Holmdel, NJ, December 22, 1998 (On Channel Reuse with Reduced Power).
- [25] School of Chemical Engineering, Purdue University, January 19, 1999 (Repetitive Learning Control of Linear Periodic Plants).
- [26] Department of Electrical Engineering, Ohio State University, November 18, 1999 (A Reduced-Power Channel Reuse Scheme for Cellular Systems).
- [27] Department of Computer Science, Purdue University, April 20, 2000 (Simulation-based Network Control).
- [28] Department of Electrical and Computer Engineering, University of Massachusetts, Amherst, February 22, 2001 (Transmission Scheduling for Wireless Data Services).
- [29] United Technologies Seminar Series in Manufacturing and Systems Engineering, Department of Manufacturing Engineering, Boston University, February 23, 2001 (Transmission Scheduling for Wireless Data Services).
- [30] Applied Physics Laboratory, The Johns Hopkins University, June 12, 2001 (How to Use Traffic Models to Help Make Network Control Decisions).
- [31] Department of Mathematics, Colorado State University, September 4, 2001 (Sampling-based Approximation Methods for Markov Decision Processes: Application to Network Control).
- [32] Department of Electrical Engineering, University of Wyoming, September 14, 2001 (Transmission Scheduling for Wireless Data Services).
- [33] Department of Statistics, Colorado State University, September 17, 2001 (Sampling-based Approximation Methods for Markov Decision Processes: Application to Network Control).
- [34] Department of Interdisciplinary Telecommunications, University of Colorado, Boulder, February 15, 2002 (Network Control via Online Sampling of Traffic Models).
- [35] Computer Science Colloquium, Department of Computer Science, University of Denver, May 24, 2002 (Efficient Multicast Packet Authentication Using Signature Amortization).



- [36] Joint Stochastic Models and Optimization Seminar, Department of Mathematics, University of Colorado, Denver, September 20, 2002 (Network Control aided by Stochastic Traffic Models).
- [37] Department of Computer Science, Colorado School of Mines, January 30, 2004 (What is a dynamic decision problem, and what can we do if we encounter one?).
- [38] Faculty of Electrical Engineering, Polytechnic University of Tirana, Albania, March 17, 2004 (Optimal Opportunistic Scheduling in Wireless Networks).
- [39] University of New York at Tirana, Albania, March 18, 2004 (The Convergence of Computing, Communication, and Control).
- [40] IBM, Boulder, Colorado, June 3, 2004 (Dynamic Resource Allocation).
- [41] University College Cork, Ireland, July 7, 2004 (Dynamic Resource Management). Invited talk presented to entire symposium at the *3rd International Symposium on Parallel and Distributed Computing (ISPDC'04)*, in association with *HeteroPar'04*, July 5–8, 2004
- [42] Centre de Recherche Mathématiques (CRM), Université de Montréal, Montréal, Canada, July 17, 2004 (Online Pricing for Bandwidth Provisioning in Multi-Class Networks). Invited talk presented at the *Internet Economics Workshop*.
- [43] *2nd DoE Workshop on Multiscale Mathematics*, Broomfield, Colorado, July 24, 2004 (Analysis and Simulation of Large Networks).
- [44] Malaysia University of Science and Technology, January 4, 2005 (A Monte Carlo Approach to Dynamic Resource Management).
- [45] Centre for Telecommunications Value-Chain-Driven Research (CTVR), Trinity College, Dublin, Ireland, August 12, 2005 (Decentralized Communication Resource Management for Tracking and Surveillance Networks).
- [46] Computer Science Department, University College Dublin, Ireland, August 13, 2005 (Decentralized Communication Resource Management for Tracking and Surveillance Networks).
- [47] Malaysia University of Science and Technology, January 5, 2006 (Decentralized Flow Control for Sensor Networks).
- [48] Faculty of Engineering and Faculty of Information Technology, Multimedia University, Malaysia, January 6, 2006 (Decentralized Flow Control for Sensor Networks).
- [49] Department of Electrical and Computer Engineering, University of Colorado, Boulder, April 14, 2006 (Decentralized Rate Control for Sensor Networks).
- [50] Department of Electrical and Computer Engineering, Arizona State University, and the IEEE Phoenix Section Communications and Signal Processing Chapter, Phoenix, April 21, 2006 (Decentralized Rate Control for Sensor Networks).
- [51] Department of Electrical and Computer Engineering, United States Air Force Academy, Colorado Springs, April 28, 2006 (Decentralized Flow Control for Networked Tracking and Surveillance).
- [52] School of Electrical and Electronic Engineering, The University of Adelaide, Adelaide, South Australia, December 20, 2006 (Decentralized Flow Control for Networked Tracking and Surveillance).

- [53] The Center for Information and Systems Engineering, Boston University, Boston, April 20, 2007 (Duality-Based Optimization Method for Decentralized Flow Control in Sensor Networks).
- [54] Malaysia University of Science and Technology, May 29, 2007 (Continuum Modeling of Large Networks). Co-sponsored by IEEE Malaysia Communication Society.
- [55] Department of Electrical and Computer Engineering, University of Wyoming, September 7, 2007 (Decentralized Flow Control for Sensor Networks).
- [56] Plenary Talk, American Scientific Affiliation, Annual Rocky Mountain Section Conference, Colorado State University, February 23, 2008 (Technology: Control and Responsibility).
- [57] Department of Statistics, Colorado State University, November 10, 2008 (Continuum Models of Large Networks).
- [58] Department of Electrical and Electronic Engineering, Universiti Tunku Abdul Rahman (UTAR), Malaysia, May 20, 2009 (Coordinated Guidance of Autonomous UAVs).
- [59] Department of Electrical and Electronic Engineering, Universiti Tunku Abdul Rahman (UTAR), Malaysia, May 24, 2010 (How to Model and Simulate a Network with a Billion Nodes).
- [60] Department of Statistics, Colorado State University, August 30, 2010 (Markov Decision Processes with Constraints).
- [61] Center for Vehicular Technology, Universiti Tunku Abdul Rahman (UTAR), Malaysia, January 5, 2011 (Guidance of Autonomous Vehicles with On-Board Sensing).
- [62] MMU Melaka, Malaysia, January 7, 2011 (Guidance of Autonomous Vehicles with On-Board Sensing).
- [63] Universiti Tunku Abdul Rahman (UTAR) Kampar Campus, Malaysia, January 11, 2011 (Guidance of Autonomous Vehicles with On-Board Sensing).
- [64] Keynote, Symposium on Autonomous Vehicular Technology, January 13, 2011 (Guidance of Autonomous Vehicles with On-Board Sensing: A Markov Decision Theoretic Approach).
- [65] Department of Electrical and Computer Engineering, Baylor University, February 24, 2011 (Guidance of Autonomous Aerial Vehicles Using a Partially Observable Markov Decision Process Approximation).
- [66] School of Electrical and Electronic Engineering, The University of Adelaide, Adelaide, South Australia, July 18, 2011 (Guidance of Autonomous Aerial Vehicles with On-Board Sensors).
- [67] Department of Computer Science (CS692 Computer Science Colloquium), Colorado State University, February 13, 2012 (Guidance of Autonomous Aerial Vehicles: Real-time Planning via POMDP).
- [68] Department of Finance and Real Estate, Colorado State University, April 13, 2012 (Bellman's Principle with Constraints).
- [69] School of Electronic and Information Engineering, Xi'an Jiaotong University, Xi'an, China, May 22, 2012 (Real-time Planning via POMDP: Guidance of Autonomous Aerial Vehicles).

- [70] Institute of Systems Science, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China, May 24, 2012 (Bellman's Principle for Multichain Problems with Constraints).
- [71] School of Engineering, Monash University, Sunway Campus, Malaysia, May 28, 2012 (Real-time Planning via POMDP: Guidance of Autonomous Aerial Vehicles).
- [72] Center for Mathematical Sciences, Faculty of Engineering, Multimedia University Malaysia (MMU), May 29, 2012 (Real-time Planning via POMDP: Guidance of Autonomous Aerial Vehicles).
- [73] Center for Vehicular Technology, Universiti Tunku Abdul Rahman (UTAR), Malaysia, June 4, 2012 (Real-time Planning via POMDP: Guidance of Autonomous Aerial Vehicles).
- [74] School of Engineering, Monash University, Sunway Campus, Malaysia, June 6, 2012 (Bellman's Principle with Inequality Constraints).
- [75] Department of Mechanical and Control Engineering, Tokyo Institute of Technology (TokyoTech), Japan, May 8, 2013 (Guidance of Autonomous Aerial Vehicles via POMDP).
- [76] Invited talk, *Joint CSS Kyoto University Workshop on Systems and Control 2013*, Clock Tower Centennial Hall, Kyoto University, Kyoto, Japan, May 9, 2013 (Learning Rates in Social Networks).
- [77] Invited talk, *The 2nd International Workshop on Control System Science and Engineering*, University of Electronics Science and Technology of China, Chengdu, China, May 14, 2013 (Guidance of Autonomous Aerial Vehicles via POMDP).
- [78] Department of Automation, Shanghai Jiaotong University, Shanghai, China, May 20, 2013 (Bellman's Principle with Constraints).
- [79] Department of Computer Science and Networked Systems, Sunway University, Malaysia, May 27, 2013 (Guidance of Autonomous Aerial Vehicles).
- [80] MEC4418 Special Lecture, School of Engineering, Monash University, Sunway Campus, Malaysia, May 28, 2013 (Control Principles in Non-Physical and Man-Made Systems).
- [81] Center for Vehicular Technology, Universiti Tunku Abdul Rahman (UTAR), Malaysia, May 29, 2013 (On Succeeding in Your Career).
- [82] School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, January 24, 2014 (Approximating Extremely Large Networks via Continuum Limits of Markov Chains).
- [83] Department of Electrical and Computer Engineering, University of Wyoming, April 4, 2014 (Guidance of Autonomous Aerial Vehicles via POMDP).
- [84] Invited Workshop on Optimization, School of Engineering, Monash University Malaysia, June 1 and 5, 2014.
- [85] Plenary Lecture, *The 5th International Conference on Intelligent and Advanced Systems (ICIAS2014)*, June 4, 2014; part of the *World Engineering, Science & Technology Congress (EST-CON)*, June 3–5, 2014, Kuala Lumpur Convention Center, Malaysia (Technological Convergence for a Sustainable Future: Attitudes and Risks).

- [86] Faculty of Engineering, Multimedia University Malaysia (MMU), June 10, 2014 (Guidance of Autonomous Aerial Vehicles via POMDP).
- [87] Department of Electrical, Computer, and Energy Engineering, University of Colorado, Boulder, October 22, 2014 (Decision Making in Large Networks).
- [88] 2016 Symposium on Emerging Frontiers in Systems and Control, Center for Intelligent and Networked Systems (CFINS), Tsinghua University, May 27, 2016 (Submodular Optimization and Greedy Policies).
- [89] Plenary Lecture, *13th International Workshop on Discrete Event Systems (WODES 2016)*, May 30–June 1, 2016, Xi'an, China (Submodular Optimization Problems and Their Applications).
- [90] School of Automation, Northwestern Polytechnical University, Xi'an, China, June 1, 2016 (Submodular Optimization and Greedy Policies).
- [91] School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, June 6, 2016 (Submodular Optimization and Greedy Policies).
- [92] School of Computing, Informatics, and Decision Systems Engineering, Arizona State University, September 23, 2016 (Greedy Strategies and Submodular Optimization).
- [93] Keynote Lecture, *29th Chinese Control and Decision Conference (CCDC)*, May 28–30, 2017, Chongqing, China (When it is Unnecessary to be Optimal and Enough to be Greedy).
- [94] Networked Sensing and Control, Zhejiang University, Zhejiang, China, June 1, 2017 (When it is Unnecessary to be Optimal and Enough to be Greedy).
- [95] College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China, June 5, 2017 (When it is Unnecessary to be Optimal and Enough to be Greedy).
- [96] Institute for Advanced Study, City University of Hong Kong, Hong Kong, August 24, 2017 (Performance Guarantees for Approximate Dynamic Programming Schemes).
- [97] Plenary Lecture, *2017 International Conference on Instrumentation, Control, Information Technology and System Integration (SICE Annual Conference 2017)*, Kanazawa, September 19–22, 2017 (Don't Bother Being Optimal, Just Be Greedy).
- [98] Alibaba Technology Forum, Seattle, September 30, 2017 (Decision Making via State-Dependent Action Optimization).
- [99] Department of Mechatronics and Biomedical Engineering, Lee Kong Chian Faculty of Engineering and Science, Universiti Tunku Abdul Rahman (UTAR), Kuala Lumpur, Malaysia, November 8, 2017 (State-Dependent Action Optimization).
- [100] School of Engineering, Monash University, Sunway Campus, Malaysia, November 10, 2017 (State-Dependent Action Optimization).
- [101] Plenary Lecture, *2017 International Automatic Control Conference (CACCS 2017)*, Kenting, Taiwan, November 13–15, 2017 (State-Dependent Action Optimization: Research Issues and Applications).
- [102] Los Alamos National Laboratory, March 12, 2018 (State-Dependent Action Optimization Schemes).
- [103] Keynote, Workshop in Honor of Y. C. Ho, Harvard University, July 7, 2018 (Bounding Approximate Dynamic Programming for MDPs).

## 4.2 Editorial Activities

1994

Member of Conference Editorial Board, IEEE Control Systems Society.

1994–June 1999

Editor of the IEEE Control Systems Society Discrete Event Systems Working Group Newsletter.

January 1995–December 1997

Associate Editor, *IEEE Transactions on Automatic Control*.

June 1999–January 2001

Editor of the IEEE Control Systems Society Discrete Event Systems Technical Committee Newsletter.

September 2001–December 2013

Member of Editorial Board, *Computer Networks* (The International Journal of Computer and Telecommunications Networking, Elsevier).

July 2004–present

Member of the International Advisory Committee, *Hellenic Aerospace Industry Journal on Advanced Electronic Communications: Research & Education*.

March 2006–March 2017

Member of Editorial Board, *Journal of Control Science and Engineering*.

September 2006–2010

Member of Editorial Board, *IEEE Expert Now*.

2007–2010

Guest Editor (with Yorai Wardi), special issue on *Optimization of Discrete Event Systems* in the journal *Discrete Event Dynamic Systems*, vol. 19, no. 3, Sep. 2009 and vol. 20, no. 2, May 2010.

June–December 2011

Guest Editor (with E. F. Camacho, J. A. Farrell, and M. M. Polycarpou), special issue on *Fundamental Issues in Control* in the *European Journal of Control*, vol. 17, no. 5–6, September–December 2011.

January–March 2009

Associate Editor At Large, *IEEE Transactions on Automatic Control*.

March 2012–October 2013

Guest Editor (with Q. Zhao [Lead], B. Krishnamachari, A. Leshem, S. Meyn, and V. V. Veeravalli), special issue on *Learning-Based Decision Making in Dynamic Systems under Uncertainty* in the *IEEE Journal of Selected Topics in Signal Processing*.

April 2009–December 2016

Senior Editor (inaugural), *IEEE Transactions on Automatic Control*.

September 2016–June 2017

Guest Editor (with Z. Zhang [Lead], W. P. Tay, M. Draief, X. Wang, and A. O. Hero III), special issue on *Distributed Information Processing in Social Networks* in the *IEEE Transactions on Signal and Information Processing over Networks*.

### 4.3 Conference Committees and Chair Positions

- [1] Organizer and Chair of invited session on “Discrete Event Systems,” *26th Conference on Information Sciences and Systems*, Princeton, New Jersey, March 18–20, 1992.
- [2] Member of Panel for Student Best Paper Award, *31st IEEE Conference on Decision and Control*, Tucson, Arizona, December 16–18, 1992.
- [3] Chair of conference session on “Discrete Manufacturing Systems,” *1993 American Control Conference*, San Francisco, California, June 16–18, 1993.
- [4] Chair of conference session on “Discrete Event Systems,” *31st Annual Allerton Conference on Communication, Control, and Computing*, Monticello, Illinois, September 29–October 1, 1993.
- [5] Member of the Program Committee, *32nd IEEE Conference on Decision and Control*, San Antonio, Texas, December 15–17, 1993.
- [6] Advisor to organizing committee, *IEEE Student Professional Awareness Conference*, Purdue University, West Lafayette, Indiana, October 27, 1993.
- [7] Organizer and Chair of invited session on “Advances in Discrete Event Systems,” *28th Conference on Information Sciences and Systems*, Princeton, New Jersey, March 16–18, 1994.
- [8] Chair of conference session on “Fuzzy Control—Robotics Applications,” *1994 American Control Conference*, Baltimore, Maryland, June 29–July 1, 1994.
- [9] Associate Editor, *33rd IEEE Conference on Decision and Control*, Lake Buena Vista, Florida, December 14–16, 1994.
- [10] Member of the Program Committee, *33rd IEEE Conference on Decision and Control*, Lake Buena Vista, Florida, December 14–16, 1994.
- [11] Chair of conference session on “Fuzzy Identification,” *9th IEEE International Symposium on Intelligent Control*, Columbus, Ohio, August 16–18, 1994.
- [12] Co-chairman of conference session on “Architecture and Machine Learning,” *9th IEEE International Symposium on Intelligent Control*, Columbus, Ohio, August 16–18, 1994.
- [13] Member of Panel for Student Best Paper Award, *33rd IEEE Conference on Decision and Control*, Lake Buena Vista, Florida, December 14–16, 1994.
- [14] Co-chairman of conference session on “Manufacturing Systems,” *1995 American Control Conference*, Seattle, Washington, June 21–23, 1995.
- [15] Member of the Program Committee, *34th IEEE Conference on Decision and Control*, New Orleans, Louisiana, December 13–15, 1995.
- [16] Chair of conference session on “Discrete Event Systems,” *34th IEEE Conference on Decision and Control*, New Orleans, Louisiana, December 13–15, 1995.
- [17] Organizer and chairman of conference session on “Stochastic Approximation and Optimization,” *INFORMS (Institute for Operations Research and Management Science) National Meeting*, Washington, DC, May 5–8, 1996.

- [18] Co-chairman of conference session on “Automated System Design with Petri Nets,” *13th World Congress of the International Federation on Automatic Control (IFAC)*, San Francisco, California, June 30–July 5, 1996.
- [19] Member of the Program Committee, *11th IEEE International Symposium on Intelligent Control*, Dearborn, Michigan, September 15–18, 1996.
- [20] Chair of conference session on “Control Issues in ATM and Communication Networks,” *35th IEEE Conference on Decision and Control*, Kobe, Japan, December 11–13, 1996.
- [21] Co-chairman of conference session on “Stochastic Approximation Algorithms,” *9th INFORMS Applied Probability Conference*, Boston, Massachusetts, June 30–July 2, 1997.
- [22] Co-chairman of conference session on “Stochastic Optimization Algorithms,” *9th INFORMS Applied Probability Conference*, Boston, Massachusetts, June 30–July 2, 1997.
- [23] Co-chairman of conference session on “Stochastic Modeling and Control,” *1997 American Control Conference*, Albuquerque, New Mexico, June 4–6, 1997.
- [24] Chair of Panel Discussion Session, *Workshop on Future Directions in Systems and Control*, Allerton Park, Illinois, September 28–29, 1997.
- [25] Member of the Technical Program Committee, *Third IEEE Symposium on Computers and Communications (ISCC’98)*, Athens, Greece, June 30–July 2, 1998.
- [26] Registration Chair, *1998 American Control Conference*, Philadelphia, Pennsylvania, June 24–26, 1998.
- [27] Member of the Program Committee, *37th IEEE Conference on Decision and Control*, Tampa, Florida, December 16–18, 1998.
- [28] Co-chairman of conference session on “Repetitive and Learning Control,” *37th IEEE Conference on Decision and Control*, Tampa, Florida, December 16–18, 1998.
- [29] Member of the Technical Program Committee, *1999 American Control Conference*, San Diego, California, June 2–4, 1999.
- [30] Co-chairman of invited conference session on “Stochastic Optimization,” *1999 American Control Conference*, San Diego, California, June 2–4, 1999.
- [31] Finance/Registration Chair, *14th IEEE Annual Computer Communications Workshop (CCW)*, Estes Park, Colorado, October 17–20, 1999.
- [32] Member of Panel for Student Best Paper Award, *38th IEEE Conference on Decision and Control*, Phoenix, Arizona, December 7–10, 1999.
- [33] Chair of conference session on “Wireless Communications IV: Networking,” *38th Annual Allerton Conference on Communication, Control and Computing*, Monticello, Illinois, October 4–6, 2000.
- [34] Member of the Technical Program Committee, *GLOBECOM 2000 — 2000 IEEE Global Telecommunications Conference*, San Francisco, California, November 27–December 1, 2000.
- [35] Member of the Program Committee, *39th IEEE Conference on Decision and Control*, Sydney, Australia, December 12–15, 2000.

- [36] Conference (General) Chair, *Conference on Modeling and Design of Wireless Networks*, Denver, August 21–23, 2001. Part of *SPIE ITCOM 2001 — International Symposium and Exhibit on the Convergence of Information Technology and Communications*, Denver, Colorado, August 20–24, 2001.
- [37] Registration Chair, *40th IEEE Conference on Decision and Control*, Orlando, Florida, December 4–7, 2001.
- [38] Member of the Program Committee and International Advisory Committee, *International Conference on Industrial Electronics, Technology & Automation (IETA 2001)*, Cairo, Egypt, December 19–21 2001.
- [39] Vice-Chair for Application Sessions and Panels, *2003 IEEE International Conference on Communications (ICC 2003)*, Anchorage, Alaska, 2003.
- [40] Registration Chair, *42nd IEEE Conference on Decision and Control*, Maui, Hawaii, December 9–12, 2003.
- [41] Member of the Program Committee, Workshop on Provisioning and Transport for Hybrid Networks (PATHNets), part of *BroadNets 2004, First International Conference on Broadband Networks*, San Jose, California, October 25–29, 2004.
- [42] Technical Program Vice-Chair (for invited sessions), *43rd IEEE Conference on Decision and Control*, Paradise Island, The Bahamas, December 14–17, 2004.
- [43] Chair of conference session on “Target Tracking,” *43rd IEEE Conference on Decision and Control*, Paradise Island, The Bahamas, December 14–17, 2004.
- [44] Co-Chair of conference session on “Modeling and Approximation,” *43rd IEEE Conference on Decision and Control*, Paradise Island, The Bahamas, December 14–17, 2004.
- [45] Member of the Steering Committee, IEEE International Workshop on Selected Areas in Distributed Computing (SADC 2005), held in conjunction with the *International Parallel and Distributed Processing Symposium (IPDPS’05)*, Denver, Colorado, April 4–8, 2005.
- [46] Organizer and chair of session on “Interoperable Networks: Wired and Wireless,” *FutureVision 2010 Conference*, Fort Collins, September 9, 2005.
- [47] Member of the International Advisory Committee, *International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CIS<sup>2</sup>E 05)*, December 10–20, 2005.
- [48] Member of the Technical Program Committee, *International Conference on Systems, Computing Sciences and Software Engineering (SCS<sup>2</sup> 05)*, December 10–20, 2005.
- [49] Chair of invited session on “Waveforms for Adaptive Sensing,” *40th Annual Conference on Information Sciences and Systems*, Princeton, New Jersey, March 22–24, 2006.
- [50] Member of the Program Committee, *25th IEEE International Performance Computing and Communications Conference (IPCCC 2006)*, Phoenix, Arizona, April 10–12, 2006.
- [51] Member of the International Program Committee, *IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Miami, Florida, April 23–25, 2006.



- [52] Finance Chair, *45th IEEE Conference on Decision and Control*, San Diego, California, December 11–15, 2006.
- [53] Moderator of session on “The Future of Information and Communication Technology,” *FutureVision Conference*, Fort Collins, September 14, 2007.
- [54] Finance Chair, *47th IEEE Conference on Decision and Control*, Cancun, Mexico, December 9–11, 2008.
- [55] Co-chair of conference session on “Information Fusion and Networks,” *2009 American Control Conference*, St. Louis, Missouri, June 10–12, 2009.
- [56] Member of the Program Committee, *Symposium on Adaptive Sensing, Control, and Optimization in Sensor Networks*, part of the *Fifth International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP 2009)*, Melbourne, Australia, December 7–9, 2009.
- [57] Member of the International Advisory Panel, *Symposium on Progress in Information and Communication Technology (SPICT 2009)*, Kuala Lumpur, Malaysia, December 7–8, 2009.
- [58] Finance Chair, *Joint 48th IEEE Conference on Decision and Control and 28th Chinese Control Conference*, Shanghai, China, December 16–18, 2009.
- [59] Member of the International Advisory Panel, *Symposium on Progress in Information and Communication Technology (SPICT 2010)*, Kuala Lumpur, Malaysia, November 1–2, 2010.
- [60] General Chair, *Joint 50th IEEE Conference on Decision and Control and European Control Conference*, Orlando, Florida, December 12–15, 2011.
- [61] Chair of session on “Future of Digital Communication,” *FutureVision 2012 Conference*, Fort Collins, April 12, 2012.
- [62] Chair of conference session on “Aerospace Systems II,” Session ThC04, *2012 American Control Conference*, Montreal, Canada, June 27–29, 2012.
- [63] Chair of conference session on “Optimization III,” Session TuC014, *51st IEEE Conference on Decision and Control*, Maui, Hawaii, December 10–13, 2012.
- [64] Chair of conference session on “Estimation I,” Session TuA03, *2013 American Control Conference*, Washington, DC, June 17–19, 2013.
- [65] Member of the Technical Program Committee, *IEEE GlobalSIP Symposium on Controlled Sensing for Inference*, Austin, Texas, December 3–5, 2013.
- [66] Member of International Advisory Committee, *9th International Conference on Information, Communications and Signal Processing (ICICS 2013)*, Tainan, Taiwan, December 10–13, 2013.
- [67] Chair of session on “Resource Allocation and Routing in Networks,” *IEEE Symposium on Control of Network Systems*, Boston, MA, October 27–28, 2014.
- [68] Member of the International Program Committee, *5th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS 2015)*, Atlanta, GA, October 14–16, 2015.
- [69] Chair of conference special session on “Geometry of Invariants and Information Limits for Radar,” *2016 IEEE Information Theory Workshop (ITW 2016)*, Cambridge University, Cambridge, UK, September 12–14, 2016.

- [70] Chair of conference session, *IAS Workshop on Frontiers in Systems and Control*. Institute for Advanced Study, City University of Hong Kong, August 24–25, 2017.
- [71] Co-organizer and chair of invited session on “UAS/UAV Guidance and Control” (with L. W. Krakow), *2017 IEEE Conference on Control Technology and Applications (CCTA)*, Kohala Coast, Hawai’i, August 27–30, 2017.
- [72] Member of the Advisory Council, *2017 17th International Conference on Control, Automation and Systems (ICCAS 2017)*, Jeju, Korea, October 18–21, 2017.
- [73] Member of the International Advisory Committee, *2017 International Automatic Control Conference (CACCS 2017)*, Pingtung, Taiwan, November 13–15, 2017.
- [74] Co-chair of conference plenary session, *56th IEEE Conference on Decision and Control*, Melbourne, Australia, December 10–15, 2017.
- [75] Member of the Advisory Council, *2018 18th International Conference on Control, Automation and Systems (ICCAS 2018)*, PyeongChang, Gangwon Province, Korea, October 17–20, 2018.
- [76] Co-organizer and chair of invited session on “Unmanned Aerial Vehicle Control Systems: From Airframes to Autonomy” (with L. W. Krakow), *2018 IEEE Conference on Control Technology and Applications (CCTA)*, Copenhagen, Denmark, August 21–24, 2018.

#### 4.4 Professional Society Activities

- Organization: IEEE
- Activity: Student Member, 1986–1991  
Member, 1991–1996  
Senior Member, 1996–2003  
Fellow, 2004–present
- Organization: IEEE TAB Finance Committee,
- Activity: Corresponding Member, 2013–2014  
Member, 2018–present
- Organization: IEEE TAB Financial Transparency (FinTrans) Committee,
- Activity: Member, 2016–2017
- Organization: IEEE Technical Activities Board (TAB),
- Activity: Member, 2017
- Organization: IEEE Signal Processing Society
- Activity: Member, 1987–1988
- Organization: IEEE Computer Society
- Activity: Member, 1989–1990
- Organization: IEEE Control Systems Society

- Activity: Member, 1989–present  
 Member of Conference Editorial Board, 1994  
 Associate Editor, *IEEE Transactions on Automatic Control*, January 1995–December 1997  
 Associate Editor At Large, *IEEE Transactions on Automatic Control*, January–March 2009  
 Senior Editor, *IEEE Transactions on Automatic Control*, April 2009–present  
 Member of the Board of Governors, January 2006–December 2008  
 Chair of the Conference Finance Board, 2007–2010  
 Awarded *Distinguished Member Award*, 2010  
 Member of the Board of Governors, January 2010–December 2012  
 Vice President for Financial Activities, January 2012–December 2014  
 Member of Long Range Planning Committee, January 2012–December 2014  
 Member of Steering Committee, *IEEE Transactions on Control of Network Systems*, 2014  
 President-Elect, 2016  
 Chair of Long Range Planning Committee, 2016  
 President, 2017  
 Member of the Board of Directors (representing IEEE) of the American Automatic Control Council (A2C2), 2017  
 Member of Long Range Planning Committee, 2016–2018  
 Past President, 2018  
 Chair of the Nominating Committee, 2018
- Organization: IEEE Signal Processing Society  
 Activity: Member, off and on since 1988
- Organization: IEEE Information Theory Society  
 Activity: Member, off and on since 1991
- Organization: IEEE Communications Society  
 Activity: Member, off and on since 1998
- Organization: IEEE Communications Society Comm. Theory Technical Committee  
 Activity: Member, 1998
- Organization: IEEE Purdue Student Branch  
 Activity: Counselor/Faculty Advisor, August 1992–August 1996  
 Awarded: Outstanding IEEE Branch Counselor and Advisor Award, 1993; Purdue Student Government Leadership Award, 1993; IEEE Section Recognition Award, 1994.  
 Branch Accomplishments: Second largest student branch in the world, 1993 (citation appeared in *Branch News*, January 1994); Exemplary Branch Award, 1993 (citation appeared in *IEEE Pulse*, April 1994); Second Prize in the Vicki Michelson Award, 1993; Exemplary Branch Award, 1995.
- Organization: IEEE Control Systems Society Technical Committee on Control Theory  
 Activity: Member, 1990–June 1999  
 Chairman, 1997–June 1999.
- Organization: IEEE Control Systems Society Working Group on Discrete Event Systems

- Activity: Member, 1990–June 1999  
Chairman, 1994–June 1999  
Editor of the DES WG Newsletter, 1994–June 1999.
- Organization: IEEE Control Systems Society Technical Committee on Discrete Event Systems  
Activity: Member, June 1999–present  
Chairman, June 1999–January 2001  
Editor of the DES TC Newsletter, June 1999–January 2001.
- Organization: IEEE Purdue Student Branch  
Activity: Organizer and chairman of the Purdue IEEE Student Paper Contest, sponsored by IEEE and Sprint, February 1994.
- Organization: IEEE Student Activities Committee  
Activity: Coordinator and chairman of the panel of judges, IEEE Regional Student Paper Contest, Region 4. Papers received and judged in March, 1994. Oral presentations held at the *American Power Conference*, Chicago, April 25–27, 1994.
- Organization: IEEE Educational Activities Board  
Activity: Member of Editorial Board, *Expert Now IEEE*, September 2006–February 2008.
- Organization: ASME (founded as the American Society of Mechanical Engineers)  
Activity: Member, 2008–2009.
- Organization: Institute for Operations Research and the Management Sciences (INFORMS) Telecommunications Section  
Activity: Member, 1994–2000.
- Organization: American Society for Engineering Education (ASEE)  
Activity: Member, 1998–2000.
- Organization: American Society for Engineering Education (ASEE), ECE Division  
Activity: Chairman, 1999 ASEE Terman Award Selection Committee, 1999.
- Organization: Sigma Xi (The Scientific Research Society)  
Activity: Member, 2002–2003.
- Organization: Institute for Operations Research and the Management Sciences (INFORMS)  
Activity: Member, 2009.
- Organization: American Association for the Advancement of Science (AAAS)  
Activity: Member, 2015–present.

#### 4.5 Referee/Reviewer Activities

##### Journals:

*IEEE Transactions on Automatic Control*, since 1989.  
*Discrete Event Dynamic Systems: Theory and Applications*, since 1990.  
*IEEE Software*, since 1991.  
*IEEE Transactions on Computers*, since 1992.  
*Management Science*, since 1992.  
*Mathematics of Operations Research*, since 1993.  
*ASME Journal of Dynamic Systems, Measurement, and Control*, since 1993.  
*Journal of Optimization Theory and Applications*, since 1993.  
*Stochastic Models*, since 1994.  
*IEEE Transactions on Control Systems Technology*, since 1994.  
*Journal of Intelligent and Fuzzy Systems*, since 1994.  
*IIE Transactions*, since 1994.  
*Mathematical and Computer Modelling*, since 1995.  
*IEEE Expert*, since 1995. *SIAM Journal on Control and Optimization*, since 1995.  
*Computers in Mathematics and Simulation (IMACS Transactions)*, since 1995.  
*IEEE Control Systems*, since 1995.  
*Computer Journal*, since 1997.  
*IEEE Communications Letters*, since 1999.  
*IEEE/ACM Transactions on Networking*, since 1999.  
*IEEE Transactions on Communications*, since 1999.  
*IEEE Journal on Selected Areas in Communications*, since 1999.  
*IEEE Transactions on Wireless Communications*, since 1999.  
*ACM/Baltzer Journal of Wireless Networks*, since 2001.  
*IEEE Transactions on Information Theory*, since 1999.  
*EURASIP Journal on Applied Signal Processing*, since 2005.  
*Artificial Intelligence*, since 2005.  
*ACM Computer Communication Review (CCR)*, since 2006.  
*IEEE Transactions on Signal Processing*, since 2006.  
*Bernoulli Journal*, since 2007.  
*European Journal of Control*, since 2011.  
*Proceedings of the IEEE*, since 2013.  
*Journal of Computational and Graphical Statistics*, since 2015.  
*Asia-Pacific Journal of Operational Research*, since 2016.

##### Conferences:

*IEEE Real-Time Systems Symposium (RTSS)*, since 1989.  
*IEEE Conference on Decision and Control (CDC)*, since 1990.  
*IEEE Conference on Control Applications (CCA)*, since 1992.  
*American Control Conference (ACC)*, since 1992.  
*ASME Winter Annual Meeting*, since 1993.  
*IEEE INFOCOM*, since 1993.  
*IEEE International Conference on Distributed Computing Systems (ICDCS)*, since 1993.  
*IEEE International Symposium on Circuits and Systems (ISCS)*, since 1993.  
*IFAC Symposium on System Identification (SYSID)*, since 1996.  
*IEEE International Conference on Communications (ICC)*, since 1999.

*Networking 2000*, 1999.

*IFAC World Congress*, since 2001.

*IEEE Vehicular Technology Conference (VTC)*, since 2002.

*IEEE Wireless Communications and Networking Conference (WCNC)*, since 2004.

*Annual Conference of the IEEE Industrial Electronics Society (IECON)*, since 2006.

*Symposium on Progress in Information and Communication Technology (SPICT)*, since 2009.

*IEEE Conference on Sustainable Utilization and Development in Engineering and Technology (IEEE STUDENT)*, since 2012.

*IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, since 2013.

*IEEE International Symposium on Information Theory (ISIT)*, since 2015.

#### Funding Agencies:

*The Engineering Foundation*, 1991.

*The National Science Foundation*, Electrical and Communications Systems, since 1995.

*The National Science Foundation*, Production Systems, since 2000.

*Research Grants Council of Hong Kong*, since 1997.

FCT - *Fundação para a Ciência e a Tecnologia*, Ministry of Science and Technology, Portugal, 1999.

*U.S. Civilian Research and Development Foundation (CRDF)*, Cooperative Grants Program, 2001. (CRDF is a charitable foundation established in 1995, authorized by the U.S. Congress to provide productive research opportunities for scientists and engineers in the former Soviet Union (FSU), to promote the conversion of its defense science resources to civilian use, and to foster industrial R&D cooperation.)

*Energy Innovations Small Grant (EISG) Program*, a program of the California Energy Commission, since 2002.

*Natural Sciences and Engineering Research Council of Canada (NSERC)*, since 2007.

*NASA Postdoc Program*, since 2007.

*Air Force Office of Scientific Research (AFOSR)*, since 2007.

*American Institute of Biological Sciences*, since 2009.

*Research Council for Natural Sciences and Engineering at the Academy of Finland*, since 2010.

*Austrian Science Fund (FWF)*, since 2013.

*Dutch Technology Foundation STW*, Dutch Research Council, since 2015.

#### Book Publishers:

*Aksen Associates Incorporated Publishers*, 1992.

*Kluwer Academic Publishers*, 1992.

*John Wiley and Sons*, since 1996.

*SPIE Press, SPIE—The International Society for Optical Engineering*, since 2001.

*Princeton University Press*, since 2002.

*Cambridge University Press*, since 2003. *Taylor & Francis Group*, since 2012.

## **5 University Committee/Administrative Activities**

### **5.1 School (Departmental) Committee Activities at Purdue**

- Committee: Automatic Control Area  
Activity: Member, August 1991–2001  
Chairman, August 1992–January 1995.
- Committee: Computer Engineering Area  
Activity: Member, August 1991–2001
- Committee: Communications and Signal Processing Area  
Activity: Member, August 1991–2001
- Committee: Purdue IEEE Student Branch  
Activity: Counselor/Faculty Advisor, August 1992–August 1996
- Committee: Curriculum Committee Standing Committee On Faculty/Student Activities  
Activity: Member, August 1992–November 1994
- Committee: Ph.D. (Qualifying) Exam Committee  
Activity: Member, August 1993–August 1995
- Committee: Graduate Committee  
Activity: Member, August 1999–August 2001
- Committee: Curriculum Committee  
Activity: Member, August 1994–August 1997
- Committee: Graduate Recruiting Committee  
Activity: Member, January 1997–January 2000.
- Committee: Graduate Admissions Committee  
Activity: Nonmember volunteer, January 2000–2001.
- Committee: ECE Head Review Committee (elected)  
Activity: Member, Spring 2000.

### **5.2 Extra-departmental Committee Activities at Purdue**

- Committee: Campus Appeals Board  
Activity: Member, September 1993–August 1994
- Committee: Faculty Fellows Program  
Activity: Faculty Fellow for Tarkington Hall, August 1996–August 1997
- Committee: Freshman Engineering Industrial Partner Scholarship Interviews  
Activity: Interviewer, Spring 2000

### **5.3 Departmental Committee Activities at CSU**

- Committee: Graduate Committee  
Activity: Chairman, August 2001–July 2005.
- Committee: Systems Area  
Activity: Member, August 2001–present.
- Committee: Head Search/Recruiting Committee

Activity: Member, May 2002–May 2003.  
Committee: Head’s Advisory Committee  
Activity: Member, April 2002–2007.  
Committee: BSIST Steering Committee  
Activity: Member, April 2003–December 2003.  
Committee: Scholarships Committee  
Activity: Assistant to Head, March 2004–2005.  
Committee: Ad Hoc Committee on Teaching Schedule  
Activity: Chair, September 2004–August 2005.  
Position: Acting Department Head, July–December 2012.  
Committee: Post-Doctoral Search Committee  
Activity: Member, August 2011–present.  
Position: Chair of Promotion and Tenure Committee, September 2013–present.

#### **5.4 Extra-departmental Committee Activities at CSU**

Committee: Mathematics Head Search Committee  
Activity: Member, August 2002–May 2003.  
Committee: ISTeC Education Advisory Committee  
Activity: Member, April 2003–June 2013.  
Committee: ISTeC Education Advisory Committee Task Force on Techno-Ethics  
Activity: Chair, January 2004–August 2006.  
Committee: Colorado State University Public Policy Institute, Organizational Planning Committee.  
Activity: Member, October 2003–September 2004.  
Committee: Computer Science Faculty Search Committee  
Activity: Member, September 2003–May 2004.  
Committee: College of Engineering Internal Advisory Committee  
Activity: Member, January 2004–August 2011.  
Committee: College of Engineering Evaluation Committee  
Activity: Member, August 2007–present.  
Committee: University Honorary Degree Committee  
Activity: Member, January 2004–present.  
Committee: Engineering Scholarships Committee  
Activity: ECE Representative, March 2004–2009.  
Committee: Statistics Faculty Search Committee  
Activity: Member, September 2004–May 2005.  
Committee: Search Committee for the Vice President for Research position  
Activity: Member, September 2005–May 2006.  
Committee: Faculty Council Committee on Teaching and Learning  
Activity: Member (Elected), May 2006–May 2008.  
Committee: Mathematics Search Committee



- Activity: Member, September 2007–May 2008.
- Committee: CSU Colorado Grid Computing (COGrid) Initiative  
Activity: Chief Scientist, April 2004–2006.
- Committee: University Review Committee for Department of Computer Science  
Activity: Member, February–July 2009.
- Committee: Mathematics Chair Search Committee  
Activity: Member, October 2010–January 2011.
- Committee: Statistics Search Committee  
Activity: Member, October 2010–May 2011.
- Committee: College of Engineering Review Committee for Faculty and Staff Awards  
Activity: Member, May 2012.
- Committee: College of Engineering Strategic Planning Committee  
Activity: Member, 2015.
- Committee: Information Science and Technology Center (ISTeC)  
Activity: Director, July 2013–present.
- Committee: CSU Ethics Colloquium Committee  
Activity: Member, October 2015–present.
- Committee: University Budget Area Review Committee (BARC) for Information Technology, Facilities, and Operations  
Activity: Member, November 2015–present.
- Committee: Colorado State University Vertically Integrated Projects (VIP) Program  
Activity: Director, January 2015–present.
- Committee: University Review Committee for Department of Computer Science  
Activity: Member, January–July 2016.
- Committee: External tenure evaluator for Department of Civil and Environmental Engineering  
Activity: April–May 2017.

## 6 Other Information

### 6.1 Biographical Lists

1997–present

Listed in *Who's Who in Science and Engineering*.

1997–present

Listed in *American Men and Women of Science*.

1999–present

Listed in *Who's Who in the World*.

2001–present

Listed in *Who's Who in Engineering Education*.

2004–present

Listed in *AcademicKeys Who's Who in Sciences Higher Education*.

2005–present

Listed in *America's Registry of Outstanding Professionals*.

2005–present

Listed in *Strathmore's Who's Who*.

2006–present

Listed in *Who's Who in America*.

2007–present

Listed in *Who's Who Among American Teachers & Educators*.

2007–present

Listed in *Madison Who's Who*.

### 6.2 Other Activities

Oct. 1990

Invited participant, *Office of Naval Research (ONR) Third Annual Workshop on Foundations of Real-Time Computing Research Initiative*, Washington, D.C., October 25–26, 1990.

Aug. 1991–Aug. 1994

Created and led “NODES” (New Opportunities in Discrete Event Systems) research group at Purdue University. The weekly NODES group meetings consist of presentations on topics relevant to discrete event systems, and operates as an open forum for various faculty and students interested in the subject.

Aug. 1992–July 1998

Organizer/coordinator for the Automatic Control Area seminars, School of Electrical and Computer Engineering.

Aug. 1992–2001

Member of the Purdue School of Electrical Engineering Career Counseling Program.

June 1993–2001

Faculty Advisor for the Purdue Singapore Students' Association.

Sept. 1993

Invited participant, *IEEE Region 4 Student Leadership Conference*, at Motorola, Schaumburg, Illinois, September 10–11, 1993.

Aug. 1996–2001

Faculty Mentor for Beering Scholar at Purdue University.

1996–2001

Faculty Advisor for the Purdue Graduate Intersarsity Christian Fellowship.

Dec. 1996

Invited participant, *HKUST Minisymposium on Robust Control and Identification*, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, December 16, 1996 (travel funding provided by HKUST).

Jan. 1997–Jan. 2000

Control area graduate recruiting coordinator.

Mar. 1997

Invited participant, *ARO/DARPA Workshop on Mobile Ad Hoc Networking*, at the University of Maryland, College Park, March 14, 1997.

Fall 1998

Sabbatical at Bell Laboratories, Department of Performance Analysis, Lucent Technologies, Holmdel, NJ.

Spring/Summer 2000

Significant media exposure on Professor Chong's work on wireless systems: Financial Times, March 30, 2000; United Press International (UPI) (Stories of modern science: Better hands-off keep cell phone talking - Edwin K. P. Chong), April 3, 2000; Le Monde, April 5, 2000 (Influential French daily newspaper); Microelectronics Technology Alert, April 10, 2000; WLFI-TV18 (Channel 18 News, 6pm and 11pm, April 23, 2000); WASK (April 28, 2000); Indianapolis Business Journal, May 29–June 4, June 28–July 4, and July 10–16, 2000.

Dec. 2001–present

Faculty Advisor for the CSU International Students Incorporated.

Dec. 2001–2003

Faculty Advisor for the CSU International Student Fellowship.

May 2003

Invited participant, *AFOSR Workshop on Optimization and Discrete Mathematics*, Estes Park, CO, May 25–28, 2003.

June 2003

External Examiner for Ph.D. candidate in Electrical & Computer Engineering, National University of Singapore.

December 2004

Invited participant, *Multiscale Mathematics Initiative: A Roadmap*, a report prepared for the U.S. Department of Energy, Office of Science, December 2004.

July 2005

External Examiner for M.Phil. candidate in Electrical & Computer Engineering, Hong Kong University.

September 2007

External Examiner for Ph.D. candidate in Electrical & Computer Engineering, The University of British Columbia.

Spring/Summer 2008

Significant media exposure on Professor Chong's work on urban radar systems: Denver Post, 9 April 2008; CBS Channel 4 (Denver), 11 April 2008; Defense News, 14 April 2008; Coloradoan, 16 April 2008; Defense Technology International, May 2008, p. 44; National Defense Magazine, June 2008. C4ISR Journal: The Magazine of Net-Centric Warfare, June 9, 2008.

June 2008

External Examiner for Ph.D. candidate in Electrical & Computer Engineering, Hong Kong University.

June 2008

External member of Promotion Committee in Electrical & Computer Engineering, University of Cyprus.

June 2009

External Examiner for Ph.D. candidate in Systems Engineering, University of South Australia.

June 2009–present

International Collaborative Partner of UTAR Global Research Network, Universiti Tunku Abdul Rahman (UTAR), Malaysia.

October 2010

External Examiner for M.Phil. candidate in Mathematics, University of Melbourne, Australia.

February 2011

External Examiner for Ph.D. candidate in Electronics and Communication Engineering, Visvesvaraya Technological University, Belgaum, India.

Aug. 2012

External reviewer for Research Assessment Exercise, Dept. of Electrical & Electronic Engineering, Hong Kong University.

Apr. 2012–present

Faculty Advisor (together with Prabha Unnithan) for the CSU Malaysian Student Association.

February 2013

External Examiner for Ph.D. candidate in Electronics and Communication Engineering, Visvesvaraya Technological University, Belgaum, India.

April 2013

External Examiner for Master of Engineering Science thesis, Faculty of Engineering and Science, Universiti Tunku Abdul Rahman, Malaysia.

May 2013–present

External Examiner for the Bachelor of Engineering (Hons) Mechatronics Engineering program, Faculty of Engineering and Science, Universiti Tunku Abdul Rahman, Malaysia.

October 2013

External Examiner for Master of Engineering Science thesis, Faculty of Engineering and Science, Universiti Tunku Abdul Rahman, Malaysia.

January 2014–December 2016

External Examiner for the Master of Electrical and Electronic Engineering program, Faculty of Engineering, Multimedia University, Malaysia.

2014–present

Adjunct Professor, School of Engineering, Monash University Malaysia.

June 2016

External Examiner for Ph.D. candidate in Information Technology, Institute for Intelligent Systems Research and Innovation, Deakin University, Australia.

September 2017

External Examiner for Master of Engineering Science candidate in Faculty of Engineering, Multimedia University, Malaysia.

October 2017

External Examiner for Ph.D. candidate in the Lee Kong Chian Faculty of Engineering and Science, Universiti Tunku Abdul Rahman (UTAR), Malaysia.

Spring 2018

Volunteer for the Princeton Schools Committee (to interview applicants).

May 19, 2018

Volunteer for the National Science Olympiad (Hovercraft event), held at Colorado State University.