

**HAROLD VINCENT POOR**

**CONTACT INFORMATION:**

Electrical and Computer Engineering  
Princeton University  
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**EDUCATION:**

*Princeton University, Princeton, New Jersey*

Ph.D. in Electrical Engineering and Computer Science, 1977  
M.A. in Electrical Engineering, 1976

*Auburn University, Auburn, Alabama*

M.S. in Electrical Engineering, 1974  
B.E.E. with Highest Honor, 1972

**EMPLOYMENT AND EXPERIENCE:**

**Principal Employment**

*Princeton University*

Michael Henry Strater University Professor, 2005 - present  
Professor of Electrical and Computer Engineering, 1990 - present  
Associated Faculty, Center for Statistics and Machine Learning, 2014 - present  
Associated Faculty, Andlinger Center for Energy and the Environment, 2012 - present  
Associated Faculty, High Meadows Environmental Institute, 2006 - present  
Associated Faculty, Department of Operations Research & Financial Eng'g, 2001 - present  
Associated Faculty, Program in Applied and Computational Mathematics, 1996 - present  
Dean, School of Engineering and Applied Science, 2006-16  
Founding Director, (Keller) Center for Innovation in Engineering Education, 2005-06  
George Van Ness Lothrop Professor in Engineering, 2003-05

*University of Illinois at Urbana-Champaign*

Beckman Associate, Center for Advanced Study, 1989-90  
Professor, Beckman Institute for Advanced Science and Technology, 1988-90  
Professor of Electrical and Computer Engineering, 1984-90  
Research Assistant, then Associate, then Full Professor in the Coordinated Science Lab, 1977-90  
Assistant, then Associate, Professor of Electrical Engineering, 1977-84

**Visiting Positions**

*Imperial College London*

Visiting Professor, Electrical and Electronic Engineering, 2004 - present  
Royal Academy Distinguished Visiting Fellow, Electrical and Electronic Engineering, Fall 2012  
Academic Visitor (as a Guggenheim Fellow), Mathematics, Fall 2003  
Senior Visiting Fellow, Centre for Process Systems Engineering, Fall 1993  
Academic Visitor, Electrical Engineering, Fall 1985

*Selected Other Visiting Positions:*

Moore Distinguished Scholar, California Institute of Technology, Fall 2024  
Gordon McKay Visiting Professor, University of California, Berkeley, Fall 2024  
Fellow, Hagler Institute for Advanced Study, Texas A & M University, 2018-23  
Miller Visiting Research Professor, University of California, Berkeley, Spring 2017  
Visiting Scholar, Isaac Newton Inst. for Mathematical Sciences, Cambridge Univ., Fall 2016  
Visiting Professor, Electrical Engineering, Stanford University, Winters 2004 & 2013  
Visiting Scholar, Engineering and Applied Sciences, Harvard University, Spring 2004

## RECOGNITION:

### Election to National and International Academies

Member, American Academy of Sciences and Letters (elected 2024)  
Corresponding Member, Australian Academy of Science (elected 2024)  
Honorary Fellow, Indian Academy of Sciences (elected 2023)  
Foreign Fellow, Indian National Science Academy (elected 2023)  
Foreign Fellow, Royal Society of Canada (elected 2021)  
Corresponding Member, Heidelberg Academy of Sciences (elected 2020)  
Foreign Member, Chinese Academy of Sciences (elected 2017)  
Honorary Member, National Academy of Sciences, Republic of Korea (elected 2017)  
Foreign Member, National Academy of Engineering of Korea (elected 2017)  
Fellow, National Academy of Inventors (U.S.) (elected 2015)  
Fellow, The World Academy of Sciences (elected 2015)  
Foreign Member, The Royal Society (U.K.) (elected 2014)  
Foreign Member, Academia Europaea (elected 2013)  
Corresponding Fellow, Royal Society of Edinburgh (elected 2013)  
Member, National Academy of Sciences (U.S.) (elected 2011)  
International Fellow, Royal Academy of Engineering (U.K.) (elected 2009)  
Fellow, American Academy of Arts & Sciences (elected 2005)  
Member, National Academy of Engineering (U.S.) (elected 2001)

### Fellowships in Learned Societies

Fellow, International Union of Radio Science (URSI) (elected 2017)  
Fellow, Institution of Engineering and Technology (IET) (elected 2012)  
Fellow, American Society for Engineering Education (ASEE) (elected 2003)  
Fellow, Optical Society of America (now Optica) (elected 2001)  
Fellow, Institute of Mathematical Statistics (elected 2001)  
Fellow, American Association for the Advancement of Science (elected 1991)  
Fellow, Institute of Electrical and Electronics Engineers (IEEE) (elected 1987)

### Honorary Degrees & Professorships

Doctor of Engineering *honoris causa*, University of Waterloo (2019)  
Doctor of Science *honoris causa*, Syracuse University (2017)  
Honorary Professor, Peking University (appointed 2017)  
Honorary Professor, Tsinghua University (appointed 2017)  
Doctor of Science in Technology *honoris causa*, Aalto University (2014)  
Doctor of Engineering *honoris causa*, HKUST (2012)  
*Doctorem Technices honoris causa*, Aalborg University (2012)  
Doctor of Science *honoris causa*, University of Edinburgh (2011)

### Selected Recognition of Research & Technical Contributions

Hall of Fame Award, IEEE Vehicular Technology Society (2021)  
Alexander Graham Bell Medal, IEEE (2017)  
Booker Gold Medal, URSI (2014)  
Norbert Wiener Society Award, IEEE Signal Processing Society (2011)  
Ambrose Fleming Medal for Achievement in Communications, IET (2010)  
Edwin Howard Armstrong Achievement Award, IEEE Communications Society (2009)  
Fellow, John Simon Guggenheim Memorial Foundation (selected 2002)

### Selected Recognition for Teaching, Mentoring & Educational Contributions

Carl Friedrich Gauss Education Award, IEEE Signal Processing Society (2022)  
Benjamin Garver Lamme Award, ASEE (2019)  
Outstanding Mentorship Award, IEEE Women in Communications Engineering (2015)  
Athanasios Papoulis Award, European Association for Signal Processing (2015)  
James H. Mulligan, Jr., Education Medal, IEEE (2005)

### **Paper Awards (Journals - Selected)**

IEEE Marconi Prize Paper Award in Wireless Communications (2023)  
Hot Paper Award, *Science China Information Sciences* (2023)  
IEEE ComSoc CSIM Technical Committee Best Journal Paper Awards (2018 & 2023)  
Top 5 Paper Award over the Previous 3 Years, *IEEE Transactions on Smart Grid* (2022 & 2023)  
IEEE Signal Processing Society Best Paper Award (2022)  
IEEE Communications Society Fred Ellersick Prize (2020)  
IEEE Vehicular Technology Society Jack Neubauer Memorial Award (2018)  
IEEE Communications Society Heinrich Hertz Prize Paper Award (2018)  
*IEEE Signal Processing Letters* Best Paper Award (2018)  
Best Paper Award, Ministry of Science and ICT of Korea (1st prize) (2017)  
Best Paper Award, German Information Technology Society (ITG-Preis) (2016)  
Best Paper Awards, *EURASIP J. Wireless Communications & Networking* (2006, 2009 & 2014)  
Best Paper Award, *EMO Bilmisel Dergi* (2013)  
IEEE Information Theory Paper Award (2011)  
IEEE Marconi Prize Paper Award in Wireless Communications (2007)  
Joint Paper Award, IEEE Communications and Information Theory Societies (2000)

### **Paper Awards (Conferences - Selected)**

IEEE International Conference on Communications (Denver, 2024 - 2 awards)  
IEEE Global Communications Conference (Kuala Lumpur, 2023)  
International Conference on Machine Learning (Baltimore, 2022)  
IEEE Global Communications Conference (Madrid, 2021 - 2 awards)  
IEEE Wireless Communications & Networking Conference (Nanjing, 2021)  
IEEE Global Communications Conference (Taipei, held online, 2020 - 2 awards)  
IEEE Int'l Symp. Personal, Indoor & Mobile Radio Commun. (London, held online, 2020)  
IEEE International Conference on Communications (Dublin, held online, 2020 - 2 awards)  
IEEE International Conference on Communications (Shanghai, 2019)  
IEEE International Conference on Communications (Kansas City, 2018)  
IEEE International Conference on Communications (Paris, 2017)  
IEEE Global Communications Conference (San Diego, 2015)  
IEEE Power & Energy Society General Meeting (Denver, 2015)  
IEEE Power & Energy Society General Meeting (Vancouver, 2013)  
IEEE International Conference on Communications (Budapest, 2013)  
IEEE Wireless Communications & Networking Conference (Shanghai, 2013)  
IEEE Global Communications Conference (Houston, 2011)  
IEEE Int'l Symposium on Personal, Indoor & Mobile Radio Communications (Tokyo, 2009)  
IEEE International Conference on Communications (Beijing, 2008)  
IEEE Global Communications Conference (New Orleans, 2008)

### **Named Lectures (Selected)**

Jones Lecture, Villanova University (2024)  
Blake Lecture, University of British Columbia (2021)  
Chien Lecture, University of Illinois at Urbana-Champaign (2017)  
Viterbi Lecture, University of Southern California (2015)  
Nunan Lecture, Syracuse University (2015)  
Mercer Lecture, Rensselaer Polytechnic Institute (2015)  
Linnaeus Lecture, Royal Institute of Technology, Stockholm (2013)  
Armstrong Lecture, Columbia University (2010)  
Welling Lectures, George Washington University (2010)  
Descartes Lecture, University of Ulm (2008)  
(Inaugural) Lytle Lectures, University of Washington (2008)  
Jury Lecture, University of Miami (2006)  
Nokia Lectures, University of Oulu & Helsinki University of Technology (2006)  
Edison Lecture, University of Notre Dame (2005)

## OTHER PROFESSIONAL ACTIVITIES:

### Principal Institutional Leadership

Board of Directors, Hyster-Yale, Inc. (NYSE: HY), 2017 - present  
Subsidiary boards: Bolzoni Holdings, Hyster-Yale Materials Handling & Nuvera Fuel Cells  
Board of Directors, Corporation for National Research Initiatives, 2012 - present  
Board of Managers, Swarthmore College, 2016-24  
Board of Directors, IEEE Foundation, 2015-20  
Council, National Academy of Engineering, 2014-20  
Board of Governors, IEEE Information Theory Society, 1984-92, 1999-2007 & 2015-20  
Council, American Association for the Advancement of Science, 2012-13  
Board of Governors, IEEE - Eta Kappa Nu, 2011-13  
Editor-in-Chief, *IEEE Transactions on Information Theory*, 2004-07  
Board of Governors, IEEE Control Systems Society, 1988-94  
Board of Directors, IEEE, 1991-92  
President, IEEE Information Theory Society, 1990

### Editorial Activities - Regular (Past Five Years)

Editorial Board, *Proceedings of the National Academy of Sciences*, 2021 - present  
Editorial Board, *Minimax Theory and Its Applications*, 2021 - present  
Editorial Board, *Open Access Book Series on Information Sciences and Learning* (NOW publishers), 2021 - present  
Advisory Board, *Entropy*, 2021 - present  
Editorial Board, *Princeton University Library Chronicle*, 2020 - present  
Editorial Board, *Springer-Nature Computer Science*, 2019 - present  
Editorial Board, *Frontiers of Information Technology & Electronic Engineering*, 2019 - present  
Advisory Board, *Journal of Communications and Networks*, 2016 - present  
Advisory Board, *PeerJ Computer Science*, 2015 - present  
Advisory Board, *IEEE Internet of Things Journal*, 2015 - present  
Editorial Board, *Foundations and Trends in Signal Processing*, 2013 - present  
Steering Board, *Journal of Cyber Security and Mobility*, 2012 - present  
Editorial Advisory Board, *Series on Systems and Control* (Birkhauser), 2001 - present  
Advisory Board, *IET Blockchain*, 2020-23  
Advisory Board, *IET Smart Cities*, 2019-23  
Series Editor, *Signals and Communication Technology* (Springer), 2019-23  
Editorial Board, *Foundations and Trends in Commun. & Information Theory*, 2003-22  
Advisory Board, *IEEE Open Journal of Signal Processing*, 2019-21  
Editorial Board, *Harvard Data Science Review*, 2018-21  
Steering Committee, *IEEE Journal on Selected Areas in Information Theory*, 2017-21  
Editorial Board, *Proceedings of the IEEE*, 2016-21  
Founding Co-Editor-in-Chief, *IET Smart Grid*, 2018-20  
Editorial Board, *Philosophical Transactions of the Royal Society A*, 2015-20

### Editorial Activities - Guest Editing (Past Five Years)

Guest Co-Editor (with Xuanyu Cao, Tamer Başar, Suhas Diggavi, Khaled B. Lataief and Junshan Zhang), *IEEE Journal on Selected Areas in Communications - Issue on Communication-Efficient Distributed Learning over Networks* (Vol. 41, No. 4, 2023)  
Guest Co-Editor (with Onur Günlü, Rafael F. Schaefer and Holger Boche). *Entropy - Special Issue on Information Theoretic Methods for Future Communication Systems* (Vol. 23, No. 3, 2023)  
Guest Co-Editor (with Mehdi Bennis, Mingzhe Chen, Aneta Vulgarakis Feljan, Deniz Gündüz, Kaibin Huang and Walid Saad). *IEEE Journal on Selected Areas in Communications - Issue on Distributed Learning over Wireless Edge Networks* (Part I - Vol. 39, No. 12, 2021; Part II - Vol. 40, No. 2, 2022)

- Guest Co-Editor (with Kyeong Jin Kim, Octavia A. Dobre, David López-Pérez, Petar Popovski, Theodoros A. Tsiftsis and Miaowen Wen). *IEEE Journal on Selected Topics in Signal Processing - Issue on Advanced Signal Processing for Local and Private 5G Networks* (Vol. 16, No. 1, 2022)
- Guest Co-Editor (with Randall Berry, Zhu Han, Krishna Narayanan, Christos Verikoukis and Osman Yagan). *Journal of Communications and Networks - Special Issue on Communications and Networking Approaches to Combatting COVID-19* (Vol. 23, No. 5, 2021)
- Guest Co-Editor (with Woon Hau Chin and Chau Yuen). *IEEE Communications Standards Magazine - Special Issue on Emerging Security Technologies for 6G* (Vol. 5, No. 3, 2021)
- Lead Guest Editor (with Matthieu Bloch, Onur Günlü, Frédérique Oggier, Rafael F. Schaefer and Aylin Yener). *IEEE Journal on Selected Areas in Information Theory - Issue on Privacy and Security of Information Systems* (Vol. 2, No. 1, 2021)
- Guest Co-Editor (with Miaowen Wen, Zhiguo Ding, Ertuğrul Başar, Yuanwei Liu, Fuhui Zhou, Ioannis Krikidis and Mojtaba Vaezi.). *IEEE Access - Special Section on Advances in Signal Processing for Non-Orthogonal Multiple Access* (Vol. 8, 2020)
- Guest Co-Editor, (with Arsenia Chorti, Stefano Tomasin, Marco Baldi, Salim El Rouayheb and Xianbin Wang). *EURASIP Journal on Wireless Communications and Networking - Special Issue on Physical Layer Security Solutions for 5G-and-Beyond* (Vol. 2020, No. 1, 2020)
- Guest Co-Editor (with Alex Dytso). *Entropy - Special Issue on Wireless Networks: Information Theoretic Perspectives* (Vols. 21 & 22, 2019 & 2020)

### **Organization of Technical Meetings - Leadership Roles (Past Five Years)**

- Co-Organizer, Workshop on Industrial Private 5G-and-Beyond Wireless Networks, held in conjunction with the 2022 IEEE International Conference on Communications, Seoul, South Korea, May 16 - 20, 2022
- Co-Chair, Special Workshop on Communications and Networking Technologies for Responding to COVID-19, IEEE Global Communications Conference, Taipei, Taiwan, December 7 - 11, 2020
- Co-Organizer, IEEE Workshop on Edge Machine Learning over 5G Networks and Beyond, IEEE Global Communications Conference, Taipei, Taiwan, December 7 - 11, 2020
- Co-Chair, IEEE International Workshop on Privacy and Security for Information Systems, IEEE Conference on Communications and Network Security, Avignon, France, June 29 - July 1, 2020
- Co-Chair, IEEE International Workshop on Intelligent Things and Services (InThingS 2020), 21st IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, Cork, Ireland, June 15 - 18, 2020
- Program Co-Director, 54th Annual Conference on Information Sciences and Systems, Princeton, NJ, March 18 - 20, 2020

### **Organization of Technical Meetings - Other Roles (Past Five Years)**

- Steering Committee, ACM/IEEE NextG Summit Series, 2022 - present
- Steering Committee, International Balkan Conferences on Communications and Networking, 2021 - present
- Technical Program Committees, IEEE International Symposia on Information Theory: 2024 (Athens), 2022 (Espoo), 2020 (Los Angeles - online), 2019 (Paris), 2017 (Aachen), 2016 (Barcelona), 2015 (Hong Kong), 2013 (Istanbul), 2012 (MIT), 2007 (Nice), 2005 (Adelaide), 2004 (Chicago), 2002 (Lausanne), 2001 (Washington, DC), 2000 (Sorrento), 1998 (MIT), 1995 (Whistler), 1993 (San Antonio), 1990 (San Diego), 1988 (Kobe) and 1986 (Ann Arbor)
- International Organizing Committee, Inter-Academy International Workshop on Future Communications and 6G, Glasgow, Scotland, June 24 - 25, 2024
- Advisory Board, Workshop on Wireless Communications for Distributed Intelligence, held in conjunction with the 2022 IEEE Global Communications Conference, Rio de Janeiro, Brazil, December 4 - 8, 2022
- Steering Committee, Workshop on Edge Learning for 5G Mobile Networks and Beyond, held in conjunction with the 2022 IEEE International Conference on Communications, Seoul, South

Korea, May 16 - 20, 2022

Steering Committee, Workshop on Edge Learning for 5G Mobile Networks and Beyond, held in conjunction with the 2021 IEEE Global Communications Conference, Madrid, Spain, December 7 - 11, 2021

Advisory Board, Workshop on Wireless Communications for Distributed Intelligence, held in conjunction with the 2021 IEEE Global Communications Conference, Madrid, Spain, December 7 - 11, 2021

Technical Program Committee, IEEE International Conference on Microwaves, Communications, Antennas and Electronic Systems, Tel Aviv, Israel, November 1 - 3, 2021

Steering Committee, Workshop on Edge Learning for 5G Mobile Networks and Beyond, in conjunction with the 2021 IEEE International Conference on Communications, Montreal, Canada, June 14 - 18, 2021

Steering Committee, FOGML: The First International IEEE INFOCOM Workshop on Distributed Machine Learning and Fog Networks, in conjunction with INFOCOM2021, May 10 - 13, 2021

Steering Committee, Workshop on Privacy and Security of Distributed Machine Learning in 5G/6G, 2020 IEEE Global Communications Conference, Taipei, Taiwan, December 7 - 11, 2020

Steering Committee, Workshop on Edge Machine Learning over 5G Networks and Beyond, 2020 IEEE International Conference on Communications, Dublin, Ireland, June 7 - 11, 2020

Co-organizer, Special Session on “Distributed Machine Learning on Wireless Networks,” at the 2020 IEEE International Conference on Acoustics, Speech and Signal Processing, Barcelona, Spain, May 4 - 8, 2020

#### **Other Recent (Past Five Years)**

Steering Committee, PREPARE: Pandemic Research for Preparedness & Resilience (NSF CISE), 2020 - present

Executive Committee, C3.ai Digital Transformation Institute, 2020 - present

Technical Advisory Board, RIMEDO Labs, Poznań, Poland, 2020 - present

Advisory Board, The Institute of Electronics, Communications and Information Technology, Queen’s University Belfast, UK, 2018 - present

Advisory Committee, CTIF Global Capsule, Aarhus University, Denmark, 2018 - present

International Advisory Board, Department of Electrical & Electronic Engineering, University of Hong Kong, Hong Kong, China, 2010 - present

Wireless Advisory Board, Auburn University, 2017 - present

Dissertation Committee of Aayushya Agarwal, Carnegie Mellon University, to defend in 2025

Panelist, “From High-Order to Filterbanks and Data-driven Signal Processing,” SPCoNet2023 Workshop on Data-driven Signal Processing, NextG Communications, and Networks, Minneapolis, MN, May 16 - 18, 2024

Dissertation Committee of Andrea Grigorescu, Technical University of Munich, Germany, 2024

Dissertation Committee of Yuhan Kang, University of Houston, 2024

Dissertation Committee of Angelo Rodio, Université Côte d’Azur, France, 2024

Dissertation Committee of Maria Raftoupolou, Delft University of Technology, The Netherlands, 2024

Class III Membership Committee, National Academy of Sciences, 2024

Membership Policy Committee, National Academy of Engineering, 2022-24

Vice President (Honorary), Directive Board, World Cultural Council, 2020-24

Class I, Section 5 (Engineering and Technology) Membership Panel, American Academy of Arts and Sciences, 2023

Chair, Review Committee for the School of Electrical and Computer Engineering, The Technion, 2023

Reviewer, Habilitation à Diriger les Recherches of Laura Luzzi, ENSEA, France 2023

Dissertation Committee of Sepehr Rezvani, Technical University of Braunschweig, 2023

Dissertation Committee of Merkebu Girmay, Ghent University, 2023

External Examiner, Dissertation of Krishna Chaythanya K. V., Indian Institute of Science, 2023

Executive Compensation Committee, National Academy of Engineering, 2019-23  
 Engineering Advisory Council, Brown University, 2018-23  
 Engineering Advisory Council, Purdue University, 2018-23  
 Distinguished Lecturer, IEEE Vehicular Technology Society, 2018-23  
 International Advisory Committee, National Laboratory for Pattern Recognition, Institute of  
 Automation of the Chinese Academy of Sciences, 2015-23  
 Panelist, “Signal and Information Processing Advances for Federated Learning,” 2022 IEEE  
 International Conference on Acoustics, Speech and Signal Processing, Singapore, May 22 -  
 27, 2022  
 Chair, Academic Affairs Committee, Swarthmore College Board of Managers, 2019-22  
 Newton International Fellowships Committee: Physical Sciences, Royal Society, 2017-22  
 Nominating Committee, National Academy of Sciences, 2020-21  
 Interdisciplinary Committee for the Selection of the Albert Einstein World Award of Science,  
 World Cultural Council, 2013-21  
 Chair, Review Committee, Research Center for Information Technology Innovation, Academia  
 Sinica, 2021  
 Dissertation Committee of Dadja Anade, University of Lyon, 2021  
 Jury Chair, Habilitation à Diriger les Recherches of Samir Perlaza, University of Lyon, 2021  
 Dissertation Committee of Felix Sattler, Technical University of Berlin, 2021  
 “Machine Learning and Wireless Communications,” (with Yonina Eldar and Nir Shlezinger).  
 Tutorial presented at the European Signal Processing Conference (EUSIPCO), Amsterdam,  
 Holland, January 18 - 22, 2021 [online]  
 Committee on the Future of Electric Power in the U.S., National Academies of Sciences, Engi-  
 neering and Medicine, 2019-21  
 Executive Compensation Committee, National Academy of Engineering, 2019-23  
 Reviewer, Habilitation à Diriger les Recherches of Pablo Piantanida, CentraleSupélec, 2020  
 “What Physical Layer Security Can Do for 6G,” (with Arsenia Chorti). Tutorial presented at the  
 2020 IEEE Global Communications Conference (GLOBECOM), Taipei, Taiwan, December  
 7 - 11, 2020 [online]  
 Co-organizer and Moderator, Panel on “Security Challenges for a Grid in Transition” at Prince-  
 ton’s Andlinger Center for Energy and Environment Annual Meeting, October 30, 2020  
 [online]  
 Panelist, Webinar “AI for Good,” (with Andrea Goldsmith and Tom Siebel), October 29, 2020  
 Thesis Jury of Daniyal Amir Awan, Technical University of Berlin, 2020  
 Dissertation Committee of Sebastian Johannes Baur, Technical University of Munich, 2020  
 “Machine Learning and Wireless Communications,” (with Yonina Eldar and Nir Shlezinger).  
 Tutorial presented at the IEEE International Conference on Acoustics, Speech and Signal  
 Processing (ICASSP), Barcelona, Spain, May 4 - 8, 2020 [online]  
 Thesis Jury of Lou Salaün, Telecom ParisTech, 2020  
 Board of Advisors, Schaefer School of Engineering and Science, Stevens Institute of Technology,  
 2017-20  
 Chair, Program Committee, NAE Council, 2015-20  
 Trustee, National Academy of Engineering Fund, 2014-20  
 Engineering Advisory Council, Swarthmore College, 2019  
 Corporation Visiting Committee for Undergraduate and Graduate Education, Massachusetts  
 Institute of Technology, Cambridge, MA, 2018-19  
 Class III Temporary Nominating Group, National Academy of Sciences, 2017-19  
 Vice President for Development, IEEE Foundation Board of Directors, 2017-19  
 Chair, Development Committee, IEEE Foundation, 2017-19  
 Scientific Advisory Board, Center for Integrated Quantum Science and Technology, Universities  
 of Ulm and Stuttgart, and the Max Planck Institute for Solid State Research, Germany,  
 2016-19  
 Chair, IEEE-HKN Eminent Member Recognition Committee, 2016-19  
 Visiting Committee, Department of Electrical and Computer Engineering, National University  
 of Singapore, 2019  
 Dissertation Committee of Yong Zhuang, Carnegie Mellon University, 2019

## Invited Seminars (Past Ten Years)

University of California, Berkeley (November 5, 2024)  
Federal Communications Commission, Washington, DC (online April 23, 2024)  
Delft University of Technology, The Netherlands (April 18, 2024)  
Distinguished Lecture, Villanova University, Villanova, PA (March 15, 2024)  
Purdue University, West Lafayette, IN (November 10, 2023)  
Texas Tech, Lubbock, TX (online October 17, 2023)  
Distinguished Lecture, Technical University of Darmstadt (online July 6, 2023)  
German 6G Research Innovation Center, Technical University of Berlin (online June 7, 2023)  
Distinguished Lecture, Clarkson University (April 13, 2023)  
German 6GEM Research Hub, Ruhr-University Bochum (online February 7, 2023)  
Apple Wireless Research, San Diego, CA (online January 31, 2023)  
Nanjing University of Science and Technology (online December 5, 2022)  
*IEEE Transactions on Network Science and Engineering* Distinguished Seminar Series (online October 28, 2022)  
Beijing Institute of Technology (online October 26, 2022)  
Texas A&M University (October 18, 2022)  
Distinguished Lecture, New Jersey Institute of Technology (September 14, 2022)  
University of Ulm, Ulm, Germany (July 14, 2022)  
IEEE VTS Chapters of New South Wales, Victoria, and New Zealand (online June 23, 2022)  
Poznań University of Technology, Poznań, Poland (online May 16, 2022)  
Texas A&M University, College Station (online May 4, 2022)  
Technology Innovation Institute, Dubai (online April 13, 2022)  
International Telecommunications Union, Geneva (online, March 16, 2022)  
IEEE AP/EMC/VTS Joint Chapter, NJ Coast and Princeton Sections (online, March 16, 2022)  
National Academy of Sciences, India, Delhi (online, March 2, 2022)  
University of Science and Technology Beijing (online, January 10, 2022)  
Ian F. Blake Lecture, University of British Columbia (online, November 10, 2021)  
Bilkent University, Ankara, Turkey (online, October 26, 2021)  
Hughes Network Systems, Germantown, MD (online, October 19, 2021)  
Beijing Institute of Technology (online, September 14, 2021)  
Dean's Distinguished Lecture KAUST, Thuwal, Saudi Arabia (online, May 25, 2021)  
Distinguished Lecture, University of Virginia (online, April 30, 2021)  
Global Lecture Series, Zhejiang University, Hangzhou, China (online, April 28, 2021)  
University of Glasgow, Scotland (online, April 15, 2021)  
Distinguished Lecture, NYU Abu Dhabi (online, March 8, 2021)  
Distinguished Lecture, Missouri University of Science & Technology (online, February 8, 2021)  
Information Theory in Singapore Seminar Series (online, November 22, 2020)  
IEEE Cognitive Network Security Special Interest Group (online, November 17, 2020)  
Stellenbosch University, Stellenbosch, South Africa (online, October 14, 2020)  
Carnegie-Mellon University (online, September 30, 2020)  
University of Pennsylvania (online, September 29, 2020)  
C3.ai Digital Transformation Institute (online, September 10, 2020)  
University of California, Berkeley (online, August 28, 2020)  
Distinguished Lecture, Rice University, Houston, TX (online, June 25, 2020)  
Eminent Scholar Lecture, Hagler Inst. for Advanced Study, Texas A&M (November 18, 2019)  
University of Illinois at Chicago (October 25, 2019)  
Dean's Lecture, Rochester Institute of Technology, Rochester, NY (October 18, 2019)  
Institut d'Études Avancées, Université de Cergy-Pointoise, France (September 24, 2019)  
Massachusetts Institute of Technology, Cambridge, MA (August 20, 2019)  
EURECOM, Sophia Antipolis, France (July 5, 2019)  
Distinguished Lecture, University of Waterloo, Canada (June 14, 2019)  
Distinguished Lecture, University of Arizona, Tucson, AZ (April 18, 2019)  
Singapore University of Technology and Design (April 12, 2019)  
Nanyang Technological Institute, Singapore (April 11, 2019)

Distinguished Lecture, University of Maryland, College Park (April 3, 2019)  
Distinguished Lecture, University of Illinois at Urbana-Champaign (March 7, 2019)  
California Institute of Technology (January 29, 2019)  
Distinguished Lecture, University of Southern California (January 24, 2019)  
Institute Lecture, Indian Institute of Technology - Delhi (January 8, 2019)  
Indian Institute of Science, Bangalore (January 4, 2019)  
ShanghaiTech, Shanghai, China (November 20, 2018)  
Distinguished Lecture, Stony Brook University, Stony Brook, NY (August 24, 2018)  
The University of Texas, Austin, TX (October 19, 2017)  
Texas A&M University, College Station, TX (October 18, 2017)  
Rice University, Houston, TX (October 17, 2017)  
University of Ulm, Ulm, Germany (October 12, 2017)  
Tsinghua University, Beijing, China (September 13, 2017)  
Institute of Computing Technology, Chinese Academy of Sciences, Beijing (September 13, 2017)  
Global Fellowship Lecture, Peking University, Beijing, China, (September 11, 2017)  
Distinguished Lecture, University of Tennessee, Knoxville, TN (May 9, 2017)  
Distinguished Lecture, New Jersey Institute of Techn., Newark, NJ (May 1, 2017)  
Chien Distinguished Lecture, Univ. of Illinois at Urbana-Champaign (April 26, 2017)  
Georgia Institute of Technology, Atlanta, GA (April 19, 2017)  
Precourt Institute, Stanford University, Stanford, CA (March 16 & 23, 2017)  
Distinguished Lecture, University of California, Davis, CA (February 16, 2017)  
Miller Institute, University of California, Berkeley, CA (January 31, 2017)  
EECS, University of California, Berkeley, CA (January 30, 2017)  
Imperial College, London, UK (November 3, 2016)  
Isaac Newton Institute, Cambridge University, UK (October 27, 2016)  
University of Bristol, UK (October 14, 2016)  
Shanghai Jiao Tong University, Shanghai (March 22, 2016)  
China Mobile Research Institute, Beijing (March 18, 2016)  
Institute of Computing Technology, Chinese Academy of Sciences, Beijing (March 18, 2016)  
National Lab. for Pattern Recognition, Chinese Academy of Sciences, Beijing (March 15, 2016)  
Technical University of Darmstadt, Darmstadt, Germany (March 1, 2016)  
University of Pennsylvania, Philadelphia, PA (September 22, 2015)  
Distinguished Lecture, University of Toronto, Toronto, Canada (September 17, 2015)  
EURECOM, Sophia-Antipolis, France (September 4, 2015)  
Nunan Lecture, Syracuse University (April 6, 2015)  
Viterbi Lecture, University of Southern California, Los Angeles, CA (March 24, 2015)  
Rochester Institute of Technology, Rochester, NY (March 20, 2015)  
Mercer Lecture, Rensselaer Polytechnic Institute, Troy, NY (March 11, 2015)

## EXTERNAL RESEARCH GRANTS AS (CO-)PRINCIPAL INVESTIGATOR:

### Current

“NeuroComm: Brain-Inspired Wireless Communications – From Theoretical Foundations to Implementation for 6G and Beyond,” National Science Foundation Grant ECCS-2335876 (with researchers from King’s College London), October 1, 2023 - September 30, 2026

### Previous (Past Ten Years)

“Nonlinear and Inseparable Radar And Data (NIRAD) Transmission Framework for Pareto Efficient Spectrum Access in Future Wireless Networks,” National Science Foundation Grant CNS-2128448 (with researchers from the University of Houston and Purdue University), October 1, 2021 - September 30, 2024

“Innovations in Mean-Field Game Theory for Scalable Computation and Diverse Applications,” Air Force Office of Scientific Research MURI Grant FA9550-18-1-0502 (with researchers from UCLA, the University of Houston and the University of Maryland), September 28, 2018 - September 27, 2024

“Statistical Learning Theory and Graph Neural Networks for Identifying Attack Sources,” C3.ai Digital Transformation Institute (with researchers from the University of Illinois at Urbana-Champaign and the University of Michigan), May 1, 2022 - June 30, 2024

“Efficient Ultra Endpoint IoT-enabled Coordinated Architecture (EUREICA),” Department of Energy Grant DE-OE0000920 (with Prateek Mittal and researchers from MIT, National Renewable Energy Lab, Pacific Northwest National Lab and Washington State University), August 1, 2020 - January 31, 2024

“Blockchain Graphs as Testbeds of Power Grid Resilience and Functionality Metrics,” National Science Foundation Grant ECCS-2039716 (with researchers from the University of Texas at Dallas), November 15, 2020 - October 31, 2023

“A Learning-based Influence Model Approach to Cascading Failure Prediction,” C3.ai Digital Transformation Institute (with researchers from MIT), July 1, 2021 - June 30, 2023

“A Unified View of Estimation and Information Relationships for Networks and Beyond,” National Science Foundation Grant CCF-1908308 (with researchers from the Technion), July 1, 2019 - June 30, 2023

“Machine Learning for Power Electronics-enabled Power Systems: A Unified ML Platform for Power Electronics,” C3.ai Digital Transformation Institute, (with Minjie Chen, Prateek Mittal and researchers from KTH Stockholm), July 1, 2021 - June 30, 2023

“Modeling and Analytics for COVID-19 Outbreak Response in India,” National Science Foundation RAPID Grant CCF-2142997 (with Simon Levin and researchers from the University of Virginia, and the Center for Disease Dynamics, Economics & Policy). October 1, 2021 - June 30, 2022

“The Effects of Evolutionary Adaptations on the Spreading of COVID-19,” National Science Foundation RAPID Grant IIS-2026982 (with researchers from Carnegie-Mellon University), May 1, 2020 - April 30, 2022

“Computationally Efficient Signal Processing via Adversarial Networks (CESPAN),” Defense Advanced Research Projects Agency (with Northrop Grumman Corporation and Intelligent Automation, Inc.), April 1, 2020 - October 31, 2021

“Modeling and Control of COVID-19 Propagation for Assessing and Optimizing Intervention Policies,” C3.ai Digital Transformation Institute Award (with Simon Levin and researchers from Carnegie-Mellon University and the University of Pennsylvania), July 1, 2020 - October 31, 2021

“Data-driven Modeling of Information Propagation in Multilayer and Multiplex Networks,” Army Research Office Grant W911NF-17-1-0587 (with researchers from Carnegie-Mellon University), September 28, 2017 - September 28, 2021

“Local Topological Properties of Power Flow Networks, and Their Role in Power System Functionality,” National Science Foundation Grant ECCS-1824710 (with researchers from the University of Texas at Dallas), August 15, 2018 - August 31, 2021

“Assessing the Effectiveness of Countermeasures Against the Spread of COVID-19 Through

- a New Mathematical Model,” Army Research Office Grant W911NF-20-1-0204 (with researchers from Carnegie-Mellon University), June 8, 2020 - June 7, 2021
- “Analysis of Local Power Grid Properties: From Network Motifs to Tensors,” National Science Foundation Grant DMS-1736417 (with researchers from the University of Texas at Dallas), September 1, 2017 - August 31, 2020
- “Integrated Cognitive Mobile and Social Networking,” Army Research Office Grant W911NF-16-1-0448 (with researchers from Arizona State University), August 8, 2016 - May 7, 2020
- “Secure Li-Fi Wireless Communication Systems: From Fundamental Limits to Practical Schemes,” KAUST Grant No. OSR-2016-CRG5-2958-02 (with researchers from KAUST), April 1, 2017 - March 31, 2020
- “Secure Inference in the Internet of Things,” National Science Foundation Grant CNS-1702808 (with researchers from Aalto University and Lehigh University), April 1, 2017 - March 31, 2019
- “Physical-Layer Security for the Internet of Things,” National Science Foundation Grant ECCS-1647198, September 1, 2016 - August 31, 2018
- “Foundations of Prosumer-Centric Grid Energy Management,” National Science Foundation Grant ECCS-1549881 (with researchers from Rutgers University and Virginia Tech), September 15, 2015 - August 31, 2018
- “Machine-Intelligence for Advanced Notification of Threats and Energy-Grid Survivable Situational Awareness (MANTESSA),” Defense Advanced Research Projects Agency Contract FA8750-16-C-0054 (with Prateek Mittal and researchers from Applied Communication Sciences, Carnegie Mellon University and Columbia University), August 1, 2016 - July 17, 2018
- “Towards Universal Signal Recovery Algorithms,” National Science Foundation Grant CCF-1420575 (with Shirin Jalali), July 1, 2014 - June 30, 2018
- “Sequential Inference and Learning for Agile Spectrum Use,” National Science Foundation Grant CNS-1456793 (with researchers from Aalto University and Worcester Polytechnic Institute), March 15, 2015 - February 28, 2018
- “Fundamental Limits of Spectrum Sensing,” National Science Foundation Grant ECCS-1343210 (with researchers from RPI), October 1, 2013 - September 30, 2017
- “Network Protection Under Uncertainty,” National Science Foundation Grant CMMI-1435778 (with researchers from Rutgers University), September 1, 2014 - August 31, 2017
- “Measuring, Understanding, and Responding to Covert Social Networks,” Army Research Office MURI Grant W911NF-11-1-0036 (with Mung Chiang, Jacob Shapiro (Politics), and researchers from Harvard University, MIT, Northeastern University, and the University of Florida), November 23, 2010 - November 22, 2016
- “Mathematical Challenges in Distributed Quickest Detection,” National Science Foundation Grant DMS-1118605 (with researchers from the University of Michigan and Worcester Polytechnic Institute), August 15, 2011 - July 31, 2015.

## PUBLICATIONS

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- Peer-to-Peer Energy Sharing: A Comprehensive Review*. With Wayes Tushar, Sohrab Nizami, M. Imran Azim, Chau Yuen, David B. Smith and Tapan Saha. (Now Publishers, Hanover, MA, 2023) [Also published in *Foundations and Trends in Electric Energy Systems*, Vol 6, No. 1, pp. 1 - 82, 2023.]
- Information Theoretic Methods for Future Communication Systems*. Edited, with Onur Günlü, Rafael F. Schaefer and Holger Boche. (MDPI, Basel, Switzerland, 2023) [Also published as a special issue of *Entropy*, Vol. 23, No. 3, 2023.]
- Machine Learning and Wireless Communications*. Edited, with Yonina Eldar, Andrea Goldsmith and Deniz Gündüz. (Cambridge University Press, Cambridge, UK, 2022)
- Wireless for Machine Learning: A Survey*. With Henrik Hellström, José Mairton B. da Silva Jr., Mohammad Mohammadi Amiri, Mingzhe Chen, Viktoria Fodor and Carlo Fischione. (Now Publishers, Hanover, MA, 2022) [Also published in *Foundations and Trends in Signal Processing*, Vol 15, No. 4, pp. 290 - 399, 2022.]
- Edge Caching for Mobile Networks*. Edited, with Wei Chen. (IET Press, London, UK, 2021)
- Advanced Data Analytics for Power Systems*. Edited, with Ali Tajer and Samir Perlaza. (Cambridge University Press, Cambridge, UK, 2021)
- Multiple Access Techniques for 5G Wireless Networks and Beyond*. Edited, with Mojtaba Vaezi and Zhiguo Ding. (Springer International Publishing, Cham, Switzerland, 2019)
- Information Theoretic Security and Privacy of Information Systems*. Edited, with Rafael Schaefer, Holger Boche, and Ashish Khisti. (Cambridge University Press, Cambridge, UK, 2017)
- Trusted Communications with Physical Layer Security for 5G and Beyond*. Edited, with Trung Duong and Sean Zhou. (IET Press, London, 2017)
- Smarter Energy: From Smart Metering to the Smart Grid*. Edited, with Hongjian Sun, Nikos Hatziargyriou, Laurence Carpanini and Miguel Angel Sánchez Fornié. (IET Press, London, 2016)
- Mechanisms and Games for Dynamic Spectrum Allocation*. Edited, with Tansu Alpcan, Holger Boche and Michael Honig. (Cambridge University Press, Cambridge, UK, 2014)
- Principles of Cognitive Radio*. With Ezio Biglieri, Andrea Goldsmith, Larry Greenstein and Narayan Mandayam. (Cambridge University Press, Cambridge, UK, 2013)
- Cooperative Wireless Cellular Systems: An Information-Theoretic View*. With Osvaldo Simeone, Nathan Levy, Amichai Sanderovich, Oren Somekh, Benjamin M. Zaidel and Shlomo Shamai. (Now Publishers, Hanover, MA, 2012) [Also published in *Foundations and Trends in Communications and Information Theory*, Vol. 8, Nos. 1-2, pp. 1 - 177, 2012.]
- Smart Grid Communications and Networking*. Edited, with Ekram Hossain and Zhu Han. (Cambridge University Press, Cambridge, UK, 2012) [Chinese translation published by PHEI, Beijing, 2013.]
- Classical, Semi-Classical and Quantum Noise*. Edited, with Leon Cohen and Marlan Scully. (Springer-Verlag, New York, 2012)
- Information Theoretic Security*. With Yingbin Liang and Shlomo Shamai. (Now Publishers, Hanover, MA, 2009) [Also published in *Foundations and Trends in Communications and Information Theory*, Vol. 5, Nos. 4 - 5, pp. 355 - 580, 2009.]
- Quickest Detection*. With Olympia Hadjiladis. (Cambridge University Press, Cambridge, UK, 2009)
- MIMO Wireless Communications*. With Ezio Biglieri, A. Robert Calderbank, Anthony G. Constantinides, Andrea Goldsmith and A. Paulraj. (Cambridge University Press, Cambridge, UK, 2007). [Japanese translation published by Tokyo Denki University Press, Tokyo, in 2009.]
- Wireless Networks: Multiuser Detection in Cross-Layer Design*. With Cristina Comaniciu and Narayan Mandayam. (Springer, New York, 2005)
- Wireless Communication Systems: Advanced Techniques for Signal Reception*. With Xiaodong Wang. (Prentice-Hall, Upper Saddle River, NJ, 2004). [Chinese translation published by Electronic Industry Publishers, Beijing, in 2005.]

- Communications, Information and Network Security*. Edited, with Vijay Bhargava, Vahid Tarokh and Seokho Yoon. (Kluwer, Boston, 2002)
- Signal Processing for Wireless Communication Systems*. Edited, with Lang Tong. (Kluwer, Boston, 2002)
- Wireless Communications: Signal Processing Perspectives*. Edited, with Gregory W. Wornell. (Prentice-Hall, Upper Saddle River, NJ, 1998)
- An Introduction to Signal Detection and Estimation*. (Springer-Verlag, New York, 1988; Second Edition, 1994) [Chinese translation published by China Machine Press, Beijing, in 2015.]
- Advances in Statistical Signal Processing - Vol. 2: Signal Detection*. Edited, with John B. Thomas. (JAI Press, Greenwich, CT, 1993)
- Advances in Statistical Signal Processing - Vol. 1: Estimation*. Edited. (JAI Press, Greenwich, CT, 1987)
- Communications and Networks: A Survey of Recent Advances*. Edited, with Ian F. Blake. (Springer-Verlag, New York, 1986)

## Contributions to Books:

- “The Optimal Causal Linear Predictor Is Not Turing Computable,” (with Holger Boche and Volker Pohl). Chapter in *Information Theory and Related Fields (Festschrift in Memory of Ning Cai)*, Lecture Notes in Computer Science, Christian Deppe, Andreas Winter, Raymond Yeung, Holger Boche, Ingo Althöfer, Jens Stoye and Ulrich Tamm, Eds. (Springer Nature: Cham, Switzerland, 2025), to appear.
- “Graph Signal Processing in Wireless Sensor Networks,” (with Tirza Routtenberg). Chapter in *Wireless Sensor Networks in Smart Environments: Enabling Digitalization*, Domenico Ciuonzo and Pierluigi Salvo Rossi, Eds. (Wiley-IEEE Press, 2024), to appear.
- “Power Allocation Strategies for Localization in Distributed Multiple-radar Architectures,” (with Hana Godrich and Athena Petropulu). Chapter in *Information Theoretic Radar Signal Processing*, Yujie Gu and Yimin D. Zhang, Eds. (Wiley-IEEE Press, 2024), to appear.
- “Economics of Fresh Data Trading,” (with Meng Zhang, Ahmed Arafa and Jianwei Huang). Chapter 17 in *Age of Information: Foundations and Applications*, Nikolaos Pappas, Mohamed A. Abd-Elmagid, Bo Zhou, Walid Saad and Harpeet Dillon, Eds. (Cambridge University Press: Cambridge, UK, 2023), pp. 429 - 455.
- “AI Techniques for Forecasting Epidemic Dynamics: Theory and Practice,” (with Aniruddha Adiga, Bryan Lewis, Simon Levin, Madhav V. Marathe, S. S. Ravi, Daniel J. Rosenkrantz, Richard E. Stearns, Srinivasan Venkatramanan, Anil Vullikanti and Lijing Wang). Chapter 9 in *Artificial Intelligence in COVID-19*, Niklas Lidströmer and Yonina Eldar, Eds. (Springer Nature, Cham, Switzerland, 2022), pp. 193 - 228.
- “Quantized Federated Learning,” (with Nir Shlezinger, Mingzhe Chen, Yonina C. Eldar and Shuguang Cui). Chapter 14 in *Machine Learning and Wireless Communications*, Yonina Eldar, Andrea Goldsmith, Deniz Gündüz and H. Vincent Poor, Eds. (Cambridge University Press: Cambridge, UK, 2022), pp. 409 - 433.
- “Collaborative Learning over Wireless Networks: An Introductory Overview,” (with Emre Ozfatura and Deniz Gündüz). Chapter 12 in *Machine Learning and Wireless Communications*, Yonina Eldar, Andrea Goldsmith, Deniz Gündüz and H. Vincent Poor, Eds. (Cambridge University Press: Cambridge, UK, 2022), pp. 353 - 384.
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- “A Broadcast Approach to Fading Channels under Secrecy Constraints,” (with Lifeng Lai, Yingbin Liang and Shlomo Shamai). Chapter 18 in *Information-Theoretic Perspectives on 5G Systems and Beyond*, Ivana Maric, Osvaldo Simeone and Shlomo Shamai, Eds. (Cambridge University Press, Cambridge, UK, 2022), pp. 653 - 682.
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- “Enhancing the Physical Layer Security of NOMA Systems,” (with Ming Zeng, Phong Nguyen and Octavia Dobre). Chapter 19 in *Flexible and Cognitive Radio Access Technologies for 5G and Beyond*, Ertuğrul Başar and Huseyin Arslan, Eds. (IET Press, London, 2021), pp. 589 - 612.
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- “Compression Codes for Compressed Sensing,” (with Shirin Jalali). Chapter 3 in *Information-Theoretic Methods in Data Science*, Miguel Rodrigues and Yonina Eldar, Eds. (Cambridge University Press, Cambridge, UK, 2021), pp. 72 - 103.
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- “Graph-Theoretic Analysis of Power Grid Robustness,” (with Dorcas Ofori-Boateng, Asim Kumer Dey and Yulia Gel). Chapter 8 in *Advanced Data Analytics for Power Systems*, Ali Tajer, Samir Perlaza and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2021), pp. 175 -194.
- “Physical Layer Security: Authentication, Integrity and Confidentiality,” (with Mahdi Shakiba Herfeh and Arsenia Chorti). Chapter 6 in *Physical Layer Security*, Khoa N. Le, Ed. (Springer Nature, Cham, Switzerland, 2021), pp. 129 - 150.
- Foreword to *Stochastic Disorder Problems*, Albert N. Shiryaev (Springer Nature, Cham, Switzerland, 2019), pp. v - vi.
- “NOMA: An Information Theoretic Perspective,” (with Mojtaba Vaezi). Chapter 5 in *Multiple Access Techniques for 5G Wireless Networks and Beyond*, Mojtaba Vaezi, Zhiguo Ding and H. Vincent Poor, Eds. (Springer International Publishing, Cham, Switzerland, 2019), pp. 167 - 193.
- “Dynamic Social Networks: Search and Data Routing,” (with Hazer Inaltekin). Chapter 23 in *Cooperative and Graph Signal Processing: Principles and Applications*, Petar M. Djurić and Cédric Richard, Eds. (Elsevier, Amsterdam, 2018), pp. 623 - 650.
- “Data-Driven Approaches for Detecting and Identifying Anomalous Data Streams,” (with Shaofeng Zou, Yingbin Liang and Xinghua Shi). Chapter 4 in *Signal Processing and Machine Learning for Biological Big Data*, Ervin Sejdić and Tiago H. Falk, Eds. (CRC Press, Boca Raton, FL, 2018), pp. 57 - 72.
- “Privacy in Networks of Interacting Agents.” Chapter 19 in *Emerging Applications of Control and System Theory: A Festschrift in Honor of Mathukumalli Vidyasagar*, Roberto Tempo, Stephen Yurkovich and Pradeep Misra, Eds. (Springer, New York, 2018), pp. 259 - 268.
- “Privacy in the Smart Grid: Information, Control and Games.” Chapter 18 in *Information Theoretic Security and Privacy of Information Systems*. Rafael Schaefer, Holger Boche, Ashish Khisti and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2017), pp. 498 - 518.
- “Super-Activation as a Unique Feature of Secure Communication Over Arbitrarily Varying Channels,” (with Rafael F. Schaefer and Holger Boche). Chapter 11 in *Information Theoretic Security and Privacy of Information Systems*. Rafael Schaefer, Holger Boche, Ashish Khisti and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2017), pp. 314 - 330.
- Foreword to *Cloud Radio Access Networks: Principles, Technologies, and Applications*, Tony Q. S. Quek, Mugen Peng, Osvaldo Simeone and Wei Yu, Eds. (Cambridge University Press, Cambridge, UK, 2017), p. xiii.
- “Nonorthogonal Multiple Access (NOMA) for 5G Systems,” (with Zhiguo Ding). Chapter 6 in *Key Technologies for 5G Wireless Systems*, Vincent Wong, et al., Eds. (Cambridge University Press, Cambridge, UK, 2017), pp. 109 - 132.

- “Relaying for Massive MIMO,” (with Gayan Amarasuriya). Chapter 2 in *Advanced Relay Technologies in Next Generation Wireless Communications*, Ioannis Krikidis and Gan Zheng, Eds., (IET Press, London, 2016), pp. 39 - 70.
- “Arbitrarily Varying Channels - A Model for Robust Communication in the Presence of Unknown Interference,” (with Rafael F. Schaefer and Holger Boche). Chapter 12 in *Communications in Interference Limited Networks*, Wolfgang Utschick, Ed., (Springer-Verlag, Cham, Switzerland, 2016), pp. 259 - 283.
- “Broadcast Channels with Confidential Messages: Channel Uncertainty, Robustness, and Continuity,” (with Rafael F. Schaefer, Andrea Grigorescu and Holger Boche). Chapter 5 in *Physical and Data-Link Security Techniques for Future Communication Systems*, Marco Baldi and Stefano Tomasin, Eds., (Springer-Verlag, Cham, Switzerland, 2016), pp. 69 - 91.
- “Physical Layer Security: A Paradigm Shift in Data Confidentiality,” (with Arsenia Chorti, Camilla Hollanti and Jean-Claude Belfiore). Chapter 1 in *Physical and Data-Link Security Techniques for Future Communication Systems*, Marco Baldi and Stefano Tomasin, Eds., (Springer-Verlag, Cham, Switzerland, 2016), pp. 1 - 15.
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- “Big Data Processing for Smart Grid Security,” (with Lanchao Liu, Zhu Han and Shuguang Cui). Chapter 8 in *Big Data over Networks*, Shuguang (Robert) Cui, Alfred O. Hero III, Zhi-Quan (Tom) Luo, and José M. F. Moura, Eds. (Cambridge University Press, Cambridge, UK, 2015), pp. 217 - 244.
- “Cooperation in Cognitive Radio Networks: From Monitoring to Access,” (with Walid Saad). Chapter 8 in *Mechanisms and Games for Dynamic Spectrum Allocation*, Tansu Alpcan, et al., Eds. (Cambridge University Press, Cambridge, UK, 2014), pp. 233 - 265.
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- “Understanding Power Grid Network Vulnerability through the Stochastic Lens of Network Motif Evolution,” (with Yuzhou Chen, Hon Keung Tony Ng and Yulia R. Gel). *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, to appear.
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- “Minimax Control of Linear Stochastic Systems with Noise Uncertainty,” (with Douglas P. Looze, Kenneth S. Vastola and John C. Darragh). *IEEE Transactions on Automatic Control*, Vol. AC-28, No. 3, pp. 882 - 888, September 1983.
- “Signal Selection for Robust Matched Filtering,” (with Sergio Verdú). *IEEE Transactions on Communications*, Vol. COM-31, No. 5, pp. 667 - 670, May 1983.
- “An Analysis of the Effects of Spectral Uncertainty on Wiener Filtering,” (with Kenneth S. Vastola). *Automatica*, Vol. 19, No. 3, pp. 289 - 293, May 1983.
- “Minimax Robust Discrete-time Matched Filters,” (with Sergio Verdú). *IEEE Transactions on Communications*, Vol. COM-31, No. 2, pp. 208 - 215, February 1983.
- “Robust Signal Processing for Communication Systems,” (with Saleem A. Kassam). *IEEE Communications Magazine*, Vol. 21, No. 1, pp. 20 - 28, January 1983.
- “Asymptotic Efficiencies of Truncated Sequential Tests,” (with Sawasd Tantaratana). *IEEE Transactions on Information Theory*, Vol. IT-28, No. 6, pp. 911 - 923, November 1982.
- “Signal Detection in the Presence of Weakly Dependent Noise - Part II: Robust Detection,” *IEEE Transactions on Information Theory*, Vol. IT-28, No. 5, pp. 744 - 753, September 1982.
- “Signal Detection in the Presence of Weakly Dependent Noise - Part I: Optimum Detection,” *IEEE Transactions on Information Theory*, Vol. IT-28, No. 5, pp. 735 - 744, September 1982.
- “On the Performance of Two Simplified Approaches to Memoryless Discrete Time Detection in Dependent Noise,” (with Donald R. Halverson and Gary L. Wise). *Journal of Combinatorics, Information, and System Sciences*, Vol. 7, No. 3, pp. 171 - 179, September 1982.
- “A State Estimation Algorithm for Linear Systems Driven Simultaneously by Wiener and Poisson Processes,” (with Samuel P. Au and Abraham H. Haddad). *IEEE Transactions on Automatic Control*, Vol. AC-27, No. 3, pp. 617 - 626, June 1982.
- “Minimax Linear Smoothing for Capacities,” *Annals of Probability*, Vol. 10, No. 2, pp. 504 - 507, May 1982.
- “A Relative Efficiency Study of Some Popular Detectors,” (with Douglas L. Michalsky and Gary L. Wise). *Journal of the Franklin Institute*, Vol. 313, No. 3, pp. 135 - 148, March 1982.
- “A Two-stage Version of the Kassam-Thomas Nonparametric Dead-zone Limiter Detection System,” (with Sawasd Tantaratana). *Journal of the Acoustical Society of America*, Vol. 67, No. 1, pp. 110 - 115, January 1982.
- “The Rate-distortion Function on Classes of Sources Determined by Spectral Capacities,” *IEEE Transactions on Information Theory*, Vol. IT-28, No. 1, pp. 19 - 26, January 1982.
- “The Segment Method as an Alternative to Minimax in Hypothesis Testing,” (with Bruce H. Krogh). *Information Sciences*, Vol. 27, pp. 9 - 37, 1982.
- “Minimax State Estimation for Linear Stochastic Systems with Noise Uncertainty,” (with Douglas P. Looze). *IEEE Transactions on Automatic Control*, Vol. AC-26, No. 4, pp. 902 - 906, August 1981.
- “Input Amplitude Compression in Digital Signal-detection Systems,” (with Yousef Rivani). *IEEE Transactions on Communications*, Vol. COM-29, No. 5, pp. 707 - 710, May 1981.
- “Optimum Memoryless Tests Based on Dependent Data,” *Journal of Combinatorics, Information, and System Sciences*, Vol. 6, No. 2, pp. 111 - 122, 1981.
- “Robust Decision Design Using a Distance Criterion,” *IEEE Transactions on Information Theory*, Vol. IT-26, No. 5, pp. 575 - 587, September 1980.
- “The Analysis and Design of Data Quantization Schemes for Stochastic Signal Detection Systems,” (with Dimitrios Alexandrou). *IEEE Transactions on Communications*, Vol. COM-28, No. 7, pp. 983 - 991, July 1980.
- “Memoryless Quantizer-Detectors for Constant Signals in  $m$ -Dependent Noise,” (with John B. Thomas). *IEEE Transactions on Information Theory*, Vol. IT-26, No. 4, pp. 423 - 432, July 1980.
- “On Robust Wiener Filtering,” *IEEE Transactions on Automatic Control*, Vol. AC-25, No. 3, pp. 531 - 536, June 1980.
- “A General Relationship between Two Quantizer Design Criteria,” (with Dimitrios Alexandrou). *IEEE Transactions on Information Theory*, Vol. IT-26, No. 2, pp. 210 - 212, March 1980.

- “Minimum-Distortion Functional for One-Dimensional Quantisation,” *Electronics Letters*, Vol. 16, pp. 23 - 25, January 1980.
- “On Robust Detection of Discrete-Time Stochastic Signals,” (with Mohamed Mami and John B. Thomas). *Journal of the Franklin Institute*, Vol. 309, No. 1, pp. 29 - 53, January 1980.
- “Memoryless Discrete-Time Detection of a Constant Signal in  $m$ -Dependent Noise,” (with John B. Thomas). *IEEE Transactions on Information Theory*, Vol. IT-25, No. 1, pp. 54 - 61, January 1979.
- “Asymptotically Robust Quantization for Detection,” (with John B. Thomas). *IEEE Transactions on Information Theory*, Vol. IT-24, No. 2, pp. 222 - 229, March 1978.
- “Locally-Optimum Detection of Discrete-Time Stochastic Signals in Non-Gaussian Noise,” (with John B. Thomas). *Journal of the Acoustical Society of America*, Vol. 63, No. 1, pp. 75 - 80, January 1978.
- “Applications of Ali-Silvey Distance Measures in the Design of Generalized Quantizers for Binary Decision Systems,” (with John B. Thomas). *IEEE Transactions on Communications*, Vol. COM-25, No. 9, pp. 893 - 900, September 1977.
- “Optimum Quantization for Local Decisions Based on Independent Samples,” (with John B. Thomas). *Journal of the Franklin Institute*, Vol. 303, No. 6, pp. 549 - 561, June 1977. [Also reprinted in *Benchmark Papers in Electrical Engineering and Computer Science: Quantization*, P.F. Swaszek, Ed. (Dowden, Hutchinson & Ross: Stroudsburg, PA, 1985).]

### Invited Plenary and Keynote Addresses:

- “Spreading Processes with Mutations.” Presented at the *Netherlands Platform Complex Systems Annual Conference*, Utrecht, The Netherlands, April 17, 2024.
- “Integrated Sensing and Communications: Some Recent Advances.” Presented at the *NSF Workshop on the Convergence of Smart Sensing Systems, Applications, Analytics, and Decision Making*, Washington, DC, December 7 - 8, 2023.
- “Learning at the Wireless Edge.” Presented at the *16th International Symposium on Signals, Circuits, and Systems*, Iasi, Romania, July 13 - 14, 2023.
- “Federated Learning in V2X Networks.” Presented at the *International Conference on Computing, Networking and Communications*, Honolulu, HI, February 20 - 22, 2023.
- “Federated Learning at the Wireless Edge.” Presented at the *11th International Conference on Computational Data and Social Networks (CSoNet 2022)*, Tampa, FL, December 5 - 7, 2022.
- “Federated Learning at the Wireless Edge.” Presented at the *14th International Conference on Wireless Communications and Signal Processing*, Nanjing, China, November 1 - 3, 2022.
- “Challenge-Response Physical Layer Authentication Over Partially Controllable Channels.” Presented at the *Workshop on Physical Layer Security in 6G Security Protocols*, in conjunction with the *2022 IEEE Future Networks World Forum*, October 12, 2022.
- “Federated Learning in V2X Networks.” Presented at the *2022 IEEE 96th Vehicular Technology Conference: VTC2022-Fall*, London-Beijing, September 26 - 29, 2022.
- “Machine Learning at the Wireless Edge.” Presented at the *Fifth International Balkan Conference on Communications and Networking*, Sarajevo, Bosnia-Herzegovina, August 22 - 26, 2022.
- “Smart Grid: The Internet of Energy.” Presented at the *Summer Meeting of the Heidelberg Academy of Sciences and Humanities*, Heidelberg, Germany, July 16, 2022.
- “Federated Learning at the Wireless Edge.” Presented at the *Workshop on Edge Artificial Intelligence for 6G*, held in conjunction with the *IEEE International Conference on Communications*, Seoul, South Korea, May 16 - 20, 2022.
- “Machine Learning at the Wireless Edge.” Presented online at *Machine Learning for Communications*, Haifa, Israel, March 27, 2022.
- “Machine Learning at the Wireless Edge.” Presented online at the *2nd Global 6G Conference*, Nanjing, China, March 22 - 24, 2022.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at *5G Italy*, Rome, Italy, November 30 - December 2, 2021.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *Panel on Edge Computing, 6G and Satellite Communications*, European Parliament, December 1, 2021.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *21st IEEE International Conference on Communication Technology*, Tianjin, China, October 13 - 16, 2021.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *IEEE 5G World Forum*, Montreal, Canada, October 13 - 15, 2021.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *XXXIX Brazilian Telecommunications and Signal Processing Symposium*, Fortaleza, Brazil, September 26 - 29, 2021.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *12th International Symposium on Image and Signal Processing and Analysis*, Zagreb, Croatia, September 13 - 15, 2021.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *17th International Symposium on Wireless Communication Systems*, Berlin, Germany, September 6 - 9, 2021.

- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *World Artificial Intelligence Conference*, Shanghai, July 9 - 11, 2021.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *International Workshop on Future Communications*, Singapore University of Technology and Design, Singapore, June 23 - 24, 2021.
- “Towards 6G Wireless Communication Networks: Vision, Enabling Technologies, and New Paradigm Shifts.” Presented online at the *International Symposium 7-in-1*, Aarhus University, Denmark, June 21 - 22, 2021.
- “Machine Learning at the Wireless Edge.” Presented online at *Cryptic Commons*, Aalborg University, Denmark May 20 - 21, 2021.
- “Machine Learning at the Wireless Edge.” Presented online at the *6th International Conference on Wireless Communications, Signal Processing and Networking*, Chennai, India, March 25 - 27, 2021.
- “Physical Layer Security: Security for 6G.” Presented online at the *6G Knowledge Lab Opening and 36th Virtual GISFI Workshop*, Aarhus University, Denmark, December 21 - 22, 2020.
- “Learning at the Wireless Edge.” Presented online at the *ITU AI/ML in 5G Challenge*, December 17, 2020.
- “Opportunities in 6G Wireless Communications.” Presented online at the *Strategy Workshop for 2030 ICT Technology*, Ministry of Economic Affairs, Taipei, Taiwan, December 11 - 12, 2020.
- “Learning at the Wireless Edge.” Presented at the *IEEE Workshop on AI/ML in Networks and Cloud*, Rutgers University, New Brunswick, NJ, February 17, 2020.
- “Learning at the Wireless Edge.” Presented at the *IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*, Newark, NJ, November 11 - 14, 2019.
- “Machine Learning Meets Mobile Communications.” Presented at the *Conasense Symposium Four in One*, Aarhus University, Herning, Denmark, October 14 - 16, 2019.
- “Learning at the Edge.” Presented at the *Second IEEE 5G Workshop on Tactical and First Responder Networks*, Laurel, MD, October 7, 2019.
- “Machine Learning Meets Mobile Communications.” Presented at the *30th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communication*, Istanbul, Turkey, September 8 - 11, 2019.
- “Fundamentals for IoT Networks: Secure and Low-Latency Communications.” Presented at the *IEEE International Conference on Communications*, Shanghai, China, May 20 - 24, 2019.
- “Fundamentals for IoT Networks: Secure and Low-Latency Communications.” Presented at the *ACM International Conference on Distributed Computing and Networking*, Bangalore, India, January 4 - 7, 2019.
- “Security in the Internet of Things: Information Theoretic Insights.” Presented at the *6th IEEE Global Symposium on Signal and Information Processing*, Anaheim, CA, November 26 - 29, 2018.
- “Fundamentals for Low Latency Communications.” Presented at the *52nd Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 28 - 31, 2018.
- “Smart Grid: Games, Games and More Games.” Presented at the *7th EAI International Conference on Game Theory for Networks (GAMENETS)*, Knoxville, TN, May 9 - 10, 2017.
- “Privacy-Utility Tradeoffs in the Smart Grid.” Presented at the *International Conference on Computing, Networking and Communications*, Santa Clara, CA, January 26 - 29, 2017.
- “Secure Broadcasting with Independent Secret Keys.” Presented at the *Symposium on Information Theoretic Approaches to Security and Privacy, 2016 IEEE Global Conference on Signal and Information Processing*, Washington, DC, December 7 - 9, 2016.
- “Feedback in Wireless Networks: Recent Results and Discoveries.” Presented at the *2015 Workshop on High Mobility Wireless Communications*, Xi’an, China, October 21 - 23, 2015.
- “Privacy in the Smart Grid: Information, Control and Games.” Presented at the *2015 International Workshop on Advances in Information Coding and Wireless Communications*, Chengdu, China, October 18 - 20, 2015.

- “Anomaly Detection in Large Data Sets.” Presented at the *7th International Conference on Wireless Communications and Signal Processing*, Nanjing, China, October 15 - 17, 2015.
- “Smart Grid: The Role of the Information Sciences.” Presented at the *IEEE International Conference on Communications*, London, UK, June 8 - 12, 2015.
- “Privacy in Networks of Interacting Agents.” Presented at the *IEEE ICC Workshop on Advances in Network Localization and Navigation*, London, UK, June 8 or 12, 2015.
- “Privacy-Utility Tradeoffs for Information Sources.” Presented at the *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Atlanta, GA, December 3 - 5, 2014.
- “Security and Privacy of Information Sources: Information Theoretic Insights.” Presented at the *IEEE Conference on Communications and Network Security*, San Francisco, CA, October 29 - 31, 2014.
- “Cooperation in Cognitive Radio Networks.” Presented at the *Inauguration Ceremony of CorteXlab: The Cognitive Radio Testbed of the FIT Project*, INSA, Lyon, France, October 28, 2014.
- “Privacy of Information Sources: Fundamental Limits and Tradeoffs.” Presented at the *IEEE/CIC International Conference on Communications in China*, Shanghai, October 13 - 15, 2014.
- “Games, Privacy and Distributed Inference for the Smart Grid.” Presented at the *KAUST-NSF Conference on Electronic Materials, Devices and Systems for Sustainable Future*, KAUST, Saudi Arabia, February 8 - 10, 2014.
- “Games, Privacy and Distributed Inference for the Smart Grid.” Presented at the *UCLA Smart Grid Thought Leadership Forum*, Los Angeles, CA, October 15, 2013
- “Privacy-Utility Tradeoffs for Data Sources, with Applications in Smart Grid.” Presented at the *27th Annual IFIP WG 11.3 Working Conference on Data Applications Security and Privacy*, Rutgers University, Newark, NJ, July 15 - 17, 2013.
- “Games, Privacy and Distributed Inference for the Smart Grid.” Presented at the *Tenth International Symposium on Wireless Communication Systems*, Ilmenau, Germany, August 27 - 30, 2013.
- “Privacy-Utility Tradeoffs in Biometric and Other Systems.” Presented at the *18th International Conference on Digital Signal Processing*, Santorini, Greece, July 1 - 3, 2013.
- “Feedback in Wireless Networks: Recent Results and Discoveries.” Presented at the *14th IEEE Workshop on Signal Processing Advances in Wireless Communications*, Darmstadt, Germany, June 16 - 19, 2013.
- “The Nonlinear Fourier Transform and Signal Processing.” Presented at the *2013 Constantinides International Workshop on Signal Processing*, London, UK, January 25, 2013.
- “Privacy-Utility Tradeoffs for Data Sources, with Applications in Smart Grid.” Presented at the *6<sup>th</sup> SmartEN (Smart Management for Sustainable Human Environment) Marie Curie ITN Multi-Disciplinary Workshop*, London, UK, October 8 - 10, 2012.
- “Fundamental Limits on Information Security and Privacy.” Presented at the *2012 World Wide Security and Mobility Conference*, Taipei, Taiwan, September 24, 2012.
- “Privacy-Utility Tradeoffs in Smart Grid Communications.” Presented at the *15th International Symposium on Wireless Personal Multimedia Communications*, Taipei, Taiwan, September 24 - 27, 2012.
- “An Information-Theoretic Approach to Privacy of Data Sources.” Presented at *Wireless Advanced*, King’s College, London, June 25 - 26, 2012.
- “Fundamental Limits on Information Security and Privacy.” Presented at the *IEEE International Conference on Communications*, Ottawa, ON, Canada, June 10 - 15, 2012.
- “Physical Layer Security in Wireless Networks.” Presented at the *2012 Symposium and Summer School on Wireless Communications*, Virginia Tech, Blacksburg, VA, May 20 - June 1, 2012.
- “Bridging the Disciplines in Teaching and Research.” Presented at the *IEEE Integrated STEM Conference*, Ewing, NJ, March 9, 2012.
- “Fundamentals of Cooperation in Cellular Networks.” Presented at the *IEEE Workshop on Multicell Cooperation for Next Generation Communication Systems* (in conjunction with the *2011 IEEE Global Communications Conference*), Houston, TX, December 9, 2011.

- “Privacy-Utility Tradeoffs in the Smart Grid.” Presented at the *IEEE International Workshop on Smart Grid Communications and Networks* (in conjunction with the *2011 IEEE Global Communications Conference*), Houston, TX, December 5, 2011.
- “Physical Layer Security in Wireless Networks.” Presented at the *Eighth International Symposium on Wireless Communication Systems*, Aachen, Germany, November 6 - 9, 2011.
- “College Admission Games in Wireless Femtocell Networks.” Presented at the *IEEE Workshop on Game Theory and Resource Allocation for 4G* (in conjunction with the *2011 IEEE International Conference on Communications*), Kyoto, Japan, June 5, 2011.
- “Privacy-Utility Tradeoffs of Data Sources.” Presented at *Secure Wireless Networks*, Paris, France, May 20, 2011.
- “Physical Layer Security in Wireless Networks.” Presented at the *2010 IEEE Global Communications Conference*, Miami, FL, December 6 - 10, 2010.
- “The APP and the PHY in Wireless Networks.” Presented at the *21st Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communication*, Istanbul, Turkey, September 26 - 30, 2010.
- “Information and Inference in the Wireless Physical Layer.” Presented at the *Workshop on Information Theoretic Methods in Science and Engineering*, Tampere, Finland, August 17 - 19, 2010.
- “New Directions in Wireless Research.” Presented at the *TNList Academic Summit on IT Vision 2010*, Tsinghua University, Beijing, China, July 12 - 14, 2010.
- “Application-Driven Problems in the Wireless Physical Layer.” Presented at *Wireless Advanced*, King’s College, London, June 27 - 29, 2010.
- “Research on Socio-Technological Networks: Delay of Information Delivery and the Sharing Mart System.” Presented at the *First IEEE International Workshop on Social Networking* (in conjunction with the *2010 IEEE International Conference on Communications*). Cape Town, South Africa, May 23, 2010.
- “Collaborative Signal Processing in Wireless Sensor Networks.” Presented at the *6th International Symposium on Image and Signal Processing*, Salzburg, Austria, September 16 - 18, 2009.
- “APP-PHY Interactions in Wireless Networks.” Presented at the *2009 Canadian Workshop on Information Theory*, Ottawa, ON, Canada, May 13 - 15, 2009.
- “APP-PHY Interactions in Wireless Networks.” Presented at the *4th Annual LIDS Student Conference*, MIT, Cambridge, MA, January 29 - 30, 2009.
- “Node Interaction in Wireless Networks: Competition and Cooperation.” Presented at the *IET Workshop on Wideband and Ultrawideband Systems and Technologies*, London, UK, November 6, 2008.
- “Physical Layer Security in Wireless Networks.” Presented at the *Annual Meeting of the Gruppo Telecomunicazioni Teoria dell’Informazione*, Florence, Italy, June 18, 2008.
- “Information Theory: Past and Present.” Presented at the *First School of Information Theory*, State College, PA, June 1 - 5, 2008.
- “The Future of Wireless Networks: A Researcher’s Perspective.” Presented at the *2008 IEEE International Conference on Communications*, Beijing, China, May 19 - 23, 2008.
- “Physical Layer Security in Wireless Networks.” Presented at the *3rd International Symposium on Communications, Control and Signal Processing*, St. Julians, Malta, March 12 - 14, 2008.
- “Competition and Collaboration in Wireless Networks.” Presented at the *2007 IEEE International Symposium on Information Theory*, Nice, France, June 24 - 29, 2007. [A summary is published in the *IEEE Information Theory Society Newsletter*, Vol. 57, No. 4, pp. 24 - 27, December 2007.]
- “Physical Layer Security in Wireless Networks.” Presented at the *Fifth Workshop on Signal Processing for Wireless Communications*, King’s College, London, UK, June 7 - 9, 2007.
- “Energy and Inference in Wireless Sensor Networks.” Presented at the *2007 IEEE Sarnoff Symposium*, Princeton, NJ, April 30 - May 2, 2007.
- “Energy and Bandwidth in Wideband Systems.” Presented at the *2006 IEEE International Conference on Ultra-Wideband*, Waltham, MA, September 24 - 27, 2006.

- “Signal Processing Across the Layers in Wireless Networks.” Presented at the *2006 European Signal Processing Conference*, Florence, Italy, September 4 - 8, 2006.
- “Energy Efficiency and Distributed Inference in Wireless Sensor Networks.” Presented at the *Fourth Workshop on Signal Processing for Wireless Communications*, King’s College, London, UK, May 30 - 31, 2006.
- “Energy and Inference in Wireless Sensor Networks.” Presented at the *2006 IEEE Communication Theory Workshop*, Dorado, Puerto Rico, May 21 - 24, 2006.
- “Signal Processing Issues in Wireless Sensor Networks.” Presented at the *SPIE Conference on Advanced Signal Processing Algorithms, Architectures and Implementations XV*, San Diego, CA, July 31 - August 4, 2005.
- “Signal Processing and Wireless Networks.” Presented at the *IEEE 7th Emerging Technologies Workshop: Circuits and Systems for 4G Mobile Wireless Communications*, St. Petersburg, Russia, June 23 - 24, 2005.
- “Signal Processing and the Efficiency of Wireless Networks.” Presented at the *2005 IEEE Wireless Communications and Networking Conference*, New Orleans, LA, March 13 - 17, 2005.
- “Signal Processing and the Efficiency of Wireless Networks.” Presented at the *2004 International Conference on Signal Processing and Communications*, Indian Institute of Science, Bangalore, India, December 11 - 14, 2004.
- “Challenges of the Wireless Revolution.” Presented at the *31st International Symposium of the National Academy of Sciences*, Republic of Korea, Seoul, October 17, 2003.
- “Signal Processing in Communications: Possibilities and Probabilities.” Presented at the *2002 IEEE Global Telecommunications Conference*, Taipei, Taiwan, November 17 - 20, 2002.
- “Turbo Fusion.” Presented at the *Fifth International Conference on Information Fusion*, Annapolis, MD, July 8 - 11, 2002.
- “Advances in Multiuser Detection.” Presented at the *2001 IEEE-EURASIP Workshop on Nonlinear Signal and Image Processing*, Baltimore, MD, June 3-6, 2001.
- “Advances in Multiuser Detection.” Presented at the *Third IEEE Signal Processing Workshop on Signal Processing Advances in Wireless Communications*, Taoyuan, Taiwan, March 20 - 23, 2001.
- “The Wireless Revolution: Signal Processing as the ‘Great Enabler’.” Presented at the *Audio Engineering Society 18th International Conference: Audio for Information Appliances*, Burlingame, CA, March 2001
- “The Wireless Revolution: Signal Processing as the ‘Great Enabler’.” Presented at the *International Conference on Signal Processing Applications and Technology 2000*, Dallas, TX, October 16 - 19, 2000.
- “The Wireless Revolution: A Signal Processing Perspective.” Presented at the *2000 IEEE “Silver Anniversary” Conference on Acoustics, Speech and Signal Processing*, Istanbul, Turkey, June 5 - 9, 2000
- “Enabling the Wireless Revolution.” Presented at the *20th Biennial Symposium on Communications*, Queens University Kingston, Ontario, May 29 - 31, 2000.
- “Intelligent Signal Processing in Wireless Systems.” Presented at the *1999 IEEE International Symposium on Intelligent Signal Processing and Communication Systems*, Phuket, Thailand, December 8 - 10, 1999.
- “The Role of Signal Processing in Wireless Communications.” Presented at the *1999 IASTED Conference on Signal and Image Processing*, Nassau, The Bahamas, October 18 - 21, 1999.
- “Multiuser Detection: Interference Suppression as Integer Regression.” Presented at the *1999 IEEE Information Theory Workshop on Detection, Estimation, Classification and Imaging*, Santa Fe, NM, February 23 - 27, 1999.
- “Adaptive Multiuser Detection.” Presented at the *First Signal Processing Workshop on Signal Processing Applied to Wireless Communications*, Paris, France, April 15 - 18, 1997.
- “Finite-field Wavelet Transforms.” Presented at the *Canadian Workshop on Information Theory*, Lac Delage, PQ, Canada, May 28 - 31, 1995.

“Maximum Entropy and Robust Prediction on a Simplex.” Presented at the *1994 IEEE/IMS Workshop on Information Theory and Statistics*, Alexandria, VA, October 27 - 29, 1994.

### Conference Papers (Asterisks Denote Invited Papers):

- “DASA: Delay-Adaptive Multi-Agent Stochastic Approximation,” (with Nicolò Dal Fabbro, Arman Adibi, Sanjeev R. Kulkarni, Aritra Mitra and George J. Pappas). *Proceedings of the 63rd IEEE Conference and Decision and Control*, Milan, Italy, December 16 - 19, 2024, to appear.
- “Computing Orthogonal Projections Can Be Too Computational Expensive,” (with Holger Boche and Volker Pohl). *Proceedings of the 63rd IEEE Conference and Decision and Control*, Milan, Italy, December 16 - 19, 2024, to appear.
- “Downlink Multiuser Communications Relying on Flexible Intelligent Metasurfaces,” (with Jiancheng An, Chau Yuen, Marco Di Renzo, Mérouane Debbah and Lajos Hanzo). *Proceedings of the IEEE Global Communications Conference*, Cape Town, South Africa, December 8 - 12, 2024, to appear.
- “Optical Coded GSSK with Physical Layer Security in the Presence of Dimming,” (with Sumeyra Hassan, Erdal Panayirci and Tor Hellesteth). *Proceedings of the IEEE Globecom Workshop on Optical Wireless Communications* in conjunction with the IEEE Global Communications Conference, Cape Town, South Africa, December 8 - 12, 2024, to appear.
- “Near-field Multipath MIMO Channel Model for Imperfect Surface Reflection,” (with Mohamadreza Delbari, George C. Alexandropoulos, Robert Schober and Vahid Jamali). *Proceedings of the IEEE Globecom Workshop on Intelligent and Reconfigurable Antennas for Future Wireless Communication and Sensing* in conjunction with the IEEE Global Communications Conference, Cape Town, South Africa, December 8 - 12, 2024, to appear.
- “Hierarchical Codebook Design Using Scale-Changeable Reconfigurable Holographic Surfaces in Near-Far Field Communications,” (with Shupeí Zhang, Hongliang Zhang and Boya Di). *Proceedings of the IEEE Global Communications Conference*, Cape Town, South Africa, December 8 - 12, 2024, to appear.
- “Integrated Sensing and Communications for Unsources Random Access: Fundamental Limits,” (with Mohammad Javad Ahmad and Rafael F. Schaefer). *Proceedings of the IEEE Global Communications Conference*, Cape Town, South Africa, December 8 - 12, 2024, to appear.
- “Distributed Combinatorial Optimization of Downlink User Assignment in mmWave Cell-free Massive MIMO Using Graph Neural Networks,” (with Bile Peng, Bihan Guo, Karl-Ludwig Besser, Luca Kunz, Ramprasad Raghunath, Anke Schmeink, Eduard A. Jorswieck and Giuseppe Caire) *Proceedings of the IEEE Global Communications Conference*, Cape Town, South Africa, December 8 - 12, 2024, to appear.
- “Waveform Shaping in Integrated Sensing and Communications,” (with Husheng Li and Zhu Han). Demo presented at the *IEEE Military Communications Conference*, Washington, DC, October 28 - November 1, 2024.
- “Over-the-Air Collaborative Inference with Feature Differential Privacy,” (with Mohamed Seif, Yuqi Nie and Andrea J. Goldsmith). *Proceedings of the 57th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 27 - 30, 2024.
- “A Memory-Based Reinforcement Learning Approach to Integrated Sensing and Communication,” (with Homa Nikbakht, Michèle Wigger and Shlomo Shamai). *Proceedings of the 57th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 27 - 30, 2024.
- “AI-based Physical Layer Secret Key Exchange in Non-Terrestrial Wireless Communication Networks,” (with Asim Ul Haq, Albená Mihovska, Pavlos Lazaridis, Vladimir K. Poulkov and Michail J. Be-liatis). *Proceedings of the 57th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 27 - 30, 2024.
- “Age of Information in Mobile Networks: Fundamental Limits and Tradeoffs,” (with Meng Zhang, Howard H. Yang and Ahmed Arafa). *Proceedings of the 25th ACM International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (MOBIHOC)*, Athens, Greece, October 14 - 17, 2024.
- \*“Private Online Community Detection for Censored Block Models,” (with Mohamed Seif, Liyan Xie and Andrea J. Goldsmith). *Proceedings of the 59th Annual Allerton Conference on Communication, Control and Computing*, Monticello, IL, September 25 - 27, 2024.

- “Neuromorphic Semantic Communications with Wake-Up Radios,” (with Jiechen Chen, Sangwoo Park, Petar Popovski and Osvaldo Simeone). *Proceedings of the 25th International Workshop on Signal Processing Advances in Wireless Communications*, Lucca, Italy, September 10 - 13, 2024
- “Power Control for Resilient Communication Systems with a Secret-Key Budget,” (with Karl-Ludwig Besser and Rafael F. Schaefer). *Proceedings of the IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, Valencia, Spain, September 2 - 5, 2024.
- “Lightweight Digital Self-Interference Cancellation,” (with Lifeng Lin, Dongsheng Zheng, Jingze Ding and Bingli Jiao). *Proceedings of the 13th IEEE/CIC International Conference on Communications in China*, Hangzhou, China, August 7 - 9, 2024.
- “Environment Sensing-aided Beam Prediction with Transfer Learning for Smart Factory,” (with Yuan Feng, Chuanbing Zhao, Feifei Gao, Yong Zhang and Shaodan Ma). *Proceedings of the 13th IEEE/CIC International Conference on Communications in China*, Hangzhou, China, August 7 - 9, 2024.
- “On the Complexity of Computing the Minimum Mean Square Error of Causal Prediction,” (with Holger Boche and Volker Pohl). *Proceedings of the 2024 American Control Conference*, Toronto, ON, July 8 - 12, 2024.
- “PAC Learnability for Reliable Communication over Discrete Memoryless Channels,” (with Jiakun Liu and Wenyi Zhang). *Proceedings of the 2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 7 - 12, 2024.
- “Integrated Sensing and Communication in the Finite Blocklength Regime,” (with Homa Nikbakht, Michle Wigger and Shlomo Shamai). *Proceedings of the 2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 7 - 12, 2024.
- “An Achievable Scheme for Channels with an Amplitude Constraint using Walsh Functions,” (with Ron Dabora and Shlomo Shamai). *Proceedings of the 2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 7 - 12, 2024.
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### Other (Asterisks Denote Invited Items):

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- “Nonlinear Fourier Analysis in Optical Systems,” (with Sander Wahls). U. S. Patent No. 9,407,374. Issued August 2, 2016.
- “System and Method for Initial Ranging in Wireless Communication Systems,” (with Michele Morelli and Luca Sanguinetti). U. S. Patent No. 9,166,856. Issued October 20, 2015.
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- “Method and System for Acquiring a Received Impulse Radio Signal,” (with Andreas Molisch, et al.). European Patent No. 1599982. Granted October 15, 2008. [Assigned to Mitsubishi.] [Also, Japanese Patent No. 4335913, granted July 3, 2009, and Chinese Patent No. ZL200480000177.6, granted April 28, 2010.]
- “Method, System and Apparatus for Acquiring a Received Impulse Radio Signal,” (with Andreas Molisch, et al.). European Patent No. 1599983. Granted August 20, 2008. [Assigned to Mitsubishi.] [Also, Japanese Patent No. 4335912, granted September 30, 2009, and Chinese Patent No. 100521667, granted July 29, 2009.]
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## Ph.D. THESES SUPERVISED:

### Princeton University:

- Inference of Cascades and Correlated Networks* (2023), by Anirudh Sridhar (now with the Massachusetts Institute of Technology; co-supervised with Miklós Rácz)
- Machine Learning and Optimization with Latent Variables* (2023), by Yanxi Chen (now with Alibaba, Hangzhou, China; co-supervised with Yuxin Chen)
- Topics in Machine Learning* (2022), by Andy Su (now with Apple, Cupertino, CA; co-supervised with John Mulvey)
- Methods Toward the Design of Estimation and Control for Networked Multiagent Systems* (2022), by Anthony J. Savas (co-supervised with Naomi Leonard)
- Topics in Information and Estimation Theory: Parameter Estimation, Lossless Compression, Constrained Channels, and Error Exponents* (2021), by Semih Yagli (now with Walmart Labs, Hoboken, NJ)
- Efficient Estimation and Inference in Nonconvex Low-Complexity Models* (2021), by Changxiao Cai (now with the University of Pennsylvania; co-supervised with Yuxin Chen)
- A New Approach to Lossy Compression and Applications to Security* (2015), by Eva Song (now with FutureWei Technologies, Bridgewater, NJ; co-supervised with Paul Cuff)
- New Approaches to Reconstructing Geometric Models From Noisy Measurements* (2012), by Jieqi Yu (now with Facebook, Menlo Park, CA; co-supervised with Sanjeev Kulkarni)
- Topics in Probabilistic Judgment Aggregation* (2011), by Arvid Wang (now with Baidu, Beijing, China; co-supervised with Sanjeev Kulkarni)
- Distributed Learning: Regression on Attribute-Distributed Data and Consensus Clustering* (2011), by Haiping Zheng (now with Virtu Financial; co-supervised with Sanjeev Kulkarni)
- Channel Coding: Non-Asymptotic Fundamental Limits* (2010), by Yury Polyanskiy (now with the Massachusetts Institute of Technology; co-supervised with Sergio Verdú)
- Stochastic Network Utility Maximization: Modeling, Analysis and Applications* (2009), by Jiaping Liu (now an attorney with Haynes Boone, San Francisco, CA; co-supervised with Mung Chiang)
- Energy Efficient Communication in Wireless Networks* (2008), by Sharon M. Betz (now with Mitre Corporation, McLean, VA)
- Topics in Distributed Inference* (2006), by Joel B. Predd (now with the RAND Corporation, Pittsburgh, PA; co-supervised with Sanjeev Kulkarni)
- Game Theoretic Approaches to Energy-Efficient Radio Resource Management in Multiple-Access Networks* (2006), by Farhad Meshkati (now with Qualcomm Corporation, San Diego, CA; co-supervised with Stuart C. Schwartz)
- Design and Analysis of Impulse Radio Ultra Wideband Receivers for Communications and Geolocation* (2006), by Sinan Gezici (now with Bilkent University, Ankara, Turkey; co-supervised with Hisashi Kobayashi)
- Side Information in Bandit Problems and Low-Density Parity-Check Codes for Non-Symmetric Channels* (2005), by Chih-Chun Wang (now with Purdue University; co-supervised with Sanjeev Kulkarni)
- Performance Analysis of Multiuser Detection Based Receivers in Fading CDMA Channels* (2005), by Husheng Li (now with the University of Tennessee)
- Topics in Stochastic Processes and Their Applications* (2004), by Erhan Bayraktar (now with the University of Michigan (Mathematics))
- Non-Coherent Fading Channels: Spectral Efficiency and Efficient Signaling* (2004), by Mustafa Gursoy (now with Syracuse University; co-supervised with Sergio Verdú)
- Affine and Quadratic Markov Processes and Their Applications in Finance* (2004), by Li Chen (now with Merrill Lynch, New York, NY)
- Time-Frequency and Time-Scale Representations of Doubly Spread Channels* (2003), by Scott Rickard (now with Citadel, Chicago, IL; co-supervised with Sergio Verdú)

*Multi-Antenna Wireless Communication Systems: Capacity, Coding and Receiver Design* (2003), by Sudharman K. Jayaweera (now with the University of New Mexico)

*Capacity and Coverage of Two-Tier Cellular CDMA Networks* (2003), by Shaline Kishore (now with Lehigh University; co-supervised with Stuart Schwartz)

*Topics in DS/CDMA Systems* (2002), by Yingwei Yao (now with the University of Florida)

*Signal Detection in Multiaccess Quantum Channels* (2002), by Julio Ignacio Concha (now with Pragma Securities, New York, NY)

*Wireless Cellular Communications with Antenna Arrays* (2002), by Huaiyu Dai (now with North Carolina State University)

*Multi-Alternative Online Change Detection with Applications in Wireless Communications* (2001), by Taragay Oskiper (now with SRI International, Princeton, NJ)

*Rate Scheduling Techniques and Delay Quality of Service Guarantees for Heterogeneous Networks* (2001), by Aikaterini Varsou (now with Sound View Innovations, Parsippany, NJ)

*The Linear Structure of Self-Similar Processes* (2000), by Carl Jeremy Nuzman (now with the Mathematics Research Center, Nokia Bell Labs, Murray Hill, NJ)

*Topics in Multiuser Detection* (1998), by Xiaodong Wang (now with Columbia University)

*Statistical Models for Rapidly Sampled Data* (1997), by Lih-Huah Yiin (now with KAL Instruments, San Jose, CA)

*Finite-field Wavelet Transforms and Error Control Coding* (1996), by Sandip Sarkar (now with Capgemini, San Diego, CA)

*Multiuser Detection for Radio-frequency and Optical Code-division Multiple Access Channels* (1995), by Laurie B. Nelson (now with the IDA Center for Communications Research, Princeton, NJ)

*Interference Suppression in Spread Spectrum Code Division Multiple Access Communications* (1994), by Leslie Ann Rusch (now with Université Laval, Québec City, Canada)

*Adaptive Multi-user Detection* (1994), by Urbashi Mitra (now with the University of Southern California)

#### **University of Illinois:**

*Topics in Decentralized Detection* (1992), by Venugopal V. Veeravalli (now with the University of Illinois at Urbana-Champaign; co-supervised with Tamer Başar)

*Difference-Operator-Based Models in Statistical Signal Processing* (1991), by Rajiv Vijayan (now with Qualcomm Corporation, San Diego, CA)

*Identification of Impulsive Interference Channels* (1989), by Serena M. Zabin (formerly with the Georgia Institute of Technology)

*Signal Detection in Fractional Gaussian Noise and an RKHS Approach to Robust Detection and Estimation* (1988), by Richard J. Barton (formerly with the NASA Johnson Space Center, Houston, TX)

*Performance Analysis of DS/SSMA Communications in Impulsive Channels* (1986), by Behnaam Aazhang (now with Rice University)

*Optimum Multi-user Signal Detection* (1984), by Sergio Verdú (formerly with Princeton University)

*Topics in Robust Statistical Signal Processing* (1982), by Kenneth Steven Vastola (formerly with the Rensselaer Polytechnic Institute)

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