

HAROLD VINCENT POOR

CONTACT INFORMATION:

Electrical and Computer Engineering
Princeton University
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Web: www.princeton.edu/poor

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

Acting Chair, Electrical and Computer Engineering, Fall 2022-23

Interim Dean, School of Engineering and Applied Science, 2019-20

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:

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

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, Acoustical Society of America (elected 1992)
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)
Eric E. Sumner Award, IEEE (2011)
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)
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 Bilimisel 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 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

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)
President's Lecture, Princeton University (2003)
Mong Lecture, Hong Kong University (1997)

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 Managers, Swarthmore College, 2016 - present
Board of Directors, Corporation for National Research Initiatives, 2012 - present
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)
- Guest Co-Editor (with Zheng Ma, Ming Xiao, Yue Xiao, Zhibo Pang and Branka Vucetic). *IEEE Internet of Things Journal - Issue on Low-latency High-reliability Communications for the Internet of Things* (Vol. 6, No. 5, 2019)
- Guest Co-Editor (with Wen Ji, Wenwu Zhu, Christian Timmerer and Zhu Li). *IEEE Journal on Selected Areas in Communications - Multimedia Economics for Future Networks: Theory, Methods and Applications* (Vol. 37, No. 7, 2019)

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
- General Co-chair, Mobiquitous 2019 - 16th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services, Houston, TX, November 12 - 14, 2019
- Co-organizer, 2019 IEEE CNS Workshop on Physical-layer Methods for Security and Privacy in 5G and the IoT, IEEE Conference on Communications and Network Security, Washington, DC, June 11, 2019
- General Co-chair, 5th International Workshop on Non-Orthogonal Multiple Access Techniques for 5G, IEEE International Conference on Communications, Shanghai, China, May 20 - 24, 2019

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
Co-organizer, Special Session on "Data Analytics for Power Systems," at the 2019 IEEE Data Science Workshop, Minneapolis, MN, June 2 - 5, 2019
Steering Committee, Fifth London Symposium on Information Theory, London, UK, May 30 - 31, 2019

Other Recent (Past Five Years)

Class III Membership Committee, National Academy of Sciences, 2024 - present
Class I, Section 5 (Engineering and Technology) Membership Panel, American Academy of Arts and Sciences, 2023 - present
Membership Policy Committee, National Academy of Engineering, 2022 - present
Steering Committee, PREPARE: Pandemic Research for Preparedness & Resilience (NSF CISE), 2020 - present
Vice President (Honorary), Directive Board, World Cultural Council, 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

Wireless Advisory Board, Auburn University, 2017 - present

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

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

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

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

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

International Advisory Board, Department of Electrical & Electronic Engineering, University of Hong Kong, Hong Kong, China, 2010-22

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, Engineering 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 Princeton'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
Panelist, "View on 6G Networks of the 2030s," 30th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communication, Istanbul, September 8 - 11, 2019
Dissertation Committee of Yong Zhuang, Carnegie Mellon University, 2019

Invited Seminars (Past Ten Years)

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)
Distinguished Lecture, Aalto University, Helsinki, Finland (October 9, 2014)
Distinguished Lecture, Northeastern University, Boston, MA (September 18, 2014)
Peking University, Beijing, China (August 19, 2014)
Tsinghua University, Beijing, China (August 19, 2014)
Imperial College, London (July 14, 2014)

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
- “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

Previous (Past Ten Years)

- “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.
- “Robust Socio-Technological Networks: An Inter-Disciplinary Approach to Theoretical Foundation and Experimentation,” National Science Foundation Grant CNS-09-05086 (with Mung Chiang, Matthew Salganik (Sociology) and Jacob Shapiro (Politics)), October 1, 2009 - September 30, 2014
- “Privacy and Utility of Databases: An Information-Theoretic Approach,” National Science Foundation Grant CCF-1016671 (with Lalitha Sankar), Sept. 1, 2010 - Aug. 31, 2014
- “Information Dynamics as Foundation for Network Management,” Air Force Office of Scientific Research MURI Grant FA9550-09-1-0643 (with Mung Chiang, Jennifer Rexford (Computer Science), and researchers from Arizona State University, Caltech, Duke University, EPFL, Stanford University, the University of Pennsylvania and the University of Wisconsin), September 1, 2009 - August 31, 2014

PUBLICATIONS

Books:

- 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:

- “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.
- “Machine Learning and Wireless Communications: An Introduction,” (with Yonina Eldar, Andrea Goldsmith and Deniz Gündüz). Chapter 1 in *Machine Learning and Wireless Communications*, Yonina Eldar, Andrea Goldsmith, Deniz Gündüz and H. Vincent Poor, Eds. (Cambridge University Press: Cambridge, UK, 2022), pp. 1 - 20.
- “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.
- “Information-Theoretic Perspectives on Non-Orthogonal Multiple Access (NOMA),” (with Peng Xu and Zhiguo Ding). Chapter 11 in *Information-Theoretic Perspectives on 5G Systems and Beyond*, Ivana Maric, Osvaldo Simeone and Shlomo Shamai, Eds. (Cambridge University Press, Cambridge, UK, 2022), pp. 394 - 425.
- “Caching with Time-Varying Popularity Profiles,” (with Bettagere N. Bharath, Kyatsandra G. Nagananda and Deniz Gündüz). Chapter 18 in *Edge Caching for Mobile Networks*. Wei Chen and H. Vincent Poor, Eds. (IET Press, London, 2021), pp. 519 - 536.
- “Mobile Edge Caching: An Optimal Auction Approach,” (with Xuanyu Cao and Junshan Zhang). Chapter 15 in *Edge Caching for Mobile Networks*. Wei Chen and H. Vincent Poor, Eds. (IET Press, London, 2021), pp. 439 - 462.
- “Introduction,” (with Wei Chen). Chapter 1 in *Edge Caching for Mobile Networks*. Wei Chen and H. Vincent Poor, Eds. (IET Press, London, 2021), pp. 1 - 16.
- “Differentially Private Federated Learning: Algorithm, Analysis and Optimization,” (with Kang Wei, Jun Li, Ming Ding and Chuan Ma). Chapter 3 in *Federated Learning Systems: Towards Next-generation AI*, Muhammad Habib ur Rehman and Mohamed Medhat Gaber, Eds. (Springer Nature, Cham, Switzerland, 2021), pp. 51 - 78.
- “Federated Learning in 6G Mobile Wireless Networks,” (with Zhaohui Yang, Mingzhe Chen, Walid Saad and Mohammad Shikh-Bahaei and Shuguang Cui). Chapter 16 in *6G Mobile Wireless Networks*, Y. Wu, S. Singh, T. Taleb, A. Roy, A., H. S. Dhillon, M. R. Kanagarathinam and A. De, Eds. (Springer Nature, Cham, Switzerland, 2021), pp. 359 - 378.

- “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.
- “Age Minimization in Energy Harvesting Communications,” (with Ahmed Arafa, Songtao Feng, Jing Yang and Sennur Ulukus). Chapter 8 in *Green Communications for Energy-Efficient Wireless Systems and Networks*, Himel Asanga Suraweera, Jing Yang, Alessio Zappone and John S. Thompson, Eds. (IET Press, London, 2021), pp. 203 - 230.
- “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.
- “Smart Meter Data Privacy,” (with Giulio Giacconi and Deniz Gündüz). Chapter 10 in *Advanced Data Analytics for Power Systems*, Ali Tajer, Samir Perlaza and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2021), pp. 230 - 260.
- “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 Amarasureiya). 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.
- Foreword to *Trends in Digital Signal Processing: A Festschrift in Honour of A. G. Constantinides*. Yong Ching Lim, Hon Keung Kwan and Wan-Chi Siu, Eds. (CRC Press, Boca Raton, FL, 2016), pp. xxi - xxii.
- “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.
- “Key Generation from Wireless Channels,” (with Lifeng Lai, Yingbin Liang and Wenliang Du). Chapter 4 in *Physical Layer Security in Wireless Communications*, Xiangyun Zhou and Lingyang Song, Eds. (Auerbach Publications, CRC Press, Boca Raton, FL, 2014), pp. 47 - 68.
- “Spectrum Exploration and Exploitation,” (with Jarmo Lundén and Visa Koivunen). Chapter 5 in *Principles of Cognitive Radio*, Ezio Biglieri, et al. (Cambridge University Press, Cambridge, UK, 2013), pp. 184 - 258.
- “Distributed State Estimation: A Learning-based Framework,” (with Ali Tajer and Soumya Kar). Chapter 8 in *Smart Grid Communications and Networking*. Ekram Hossain, Zhu Han and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2012), pp. 191 - 201.
- “Bad-data Detection in Smart Grids: A Distributed Approach,” (with Le Xie, Dae-Hyun Choi and Soumya Kar). Chapter 7 in *Smart Grid Communications and Networking*. Ekram Hossain, Zhu Han and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2012), pp. 175 - 190.
- Foreword to *Non-Gaussian Statistical Communication Theory*, by David Middleton (John Wiley & Sons, Hoboken, NJ, 2012), p. xv.
- Foreword to *Fundamentals of Wireless Communications Engineering Technologies*, by Daniel Wong (John Wiley & Sons, Hoboken, NJ, 2012), p. xix.
- “Multiple-Access Interference.” Chapter 12 in *Classical, Semi-Classical and Quantum Noise*. Leon Cohen, H. Vincent Poor, and Marlan Scully, Eds. (Springer-Verlag, New York, 2012), pp. 145 - 156.
- Foreword to *Intermittently Connected Mobile Ad Hoc Networks - From Routing to Content Distribution*, by Abbas Jamalipour and Yaozhou Ma. (Springer, New York, 2011), p. vii.
- “Competition and Collaboration in Wireless Sensor Networks.” Chapter 1 in *Sensor Networks - Where Theory Meets Practice*, Gianluigi Ferrari, Ed. (Springer-Verlag, New York, 2010), pp. 3 - 16.
- “Hybrid-ARQ Schemes for Reliable and Secret Wireless Communications,” (with Xiaojun Tang, Ruoheng Liu and Predrag Spasojevic). Chapter 5 in *Securing Wireless Communications at the Physical Layer*, Ruoheng Liu and Wade Trappe, Eds. (Springer-Verlag, New York, 2010), pp. 89 - 112.
- “Secret Communication Under Channel Uncertainty,” (with Yingbin Liang and Shlomo Shamai). Chapter 6 in *Securing Wireless Communications at the Physical Layer*, Ruoheng Liu and Wade Trappe, Eds. (Springer-Verlag, New York, 2010), pp. 113 - 141.
- “Source Coding under Secrecy Constraints,” (with Deniz Gündüz and Elza Erkip). Chapter 8 in *Securing Wireless Communications at the Physical Layer*, Ruoheng Liu and Wade Trappe, Eds. (Springer-Verlag, New York, 2010), pp. 173 - 200.

- “Message Authentication: Information Theoretic Bounds,” (with Lifeng Lai and Hesham El Gamal). Chapter 14 in *Securing Wireless Communications at the Physical Layer*, Ruoheng Liu and Wade Trappe, Eds. (Springer-Verlag, New York, 2010), pp. 335 - 377.
- “Cross-Layer Cooperative Beamforming for Wireless Networks,” (with Lun Dong and Athina Petropulu). Chapter 7 in *Cooperative Communications for Improved Wireless Network Transmission: Frameworks for Virtual Antenna Array Applications*, Murat Uysal, Ed. (IGI Global, Hershey, PA, 2009), pp. 207 - 237.
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- “Ultra Wideband Communication,” (with A. Anttonen, et al.). Section 7.4.2 in *Technologies for the Wireless Future: Wireless World Research Forum, Volume 3*, Klaus David, Ed. (Wiley, New York, 2008), pp. 323 - 341.
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- “Multiuser MIMO Systems,” (with Daryl Reynolds and Xiaodong Wang). Chapter 20 in *Space-Time Wireless Systems: From Array Processing to MIMO Communications*, H. Bölcskei, D. Gesbert, C. Papadias and A.-J. van der Veen, Eds., (Cambridge University Press, Cambridge, UK, 2006), pp. 406 - 425.
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- “Detection of Stochastic Processes,” (with Thomas Kailath), in *Information Theory: 50 Years of Discovery*, Sergio Verdú and Steven McCloughlin, Eds. (IEEE Press, New York, 2000), pp. 186 - 215.
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- “Adaptive Interference Suppression,” (with Michael L. Honig), Chapter 2 in *Wireless Communications: Signal Processing Perspectives*, H. V. Poor and G. W. Wornell, Eds. (Prentice-Hall, Upper Saddle River, NJ, 1998), pp. 64 - 128.
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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 *6th 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):

- “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, to appear.
- “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, to appear.
- “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. to appear.
- “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. to appear.
- “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. to appear.
- “On the Rate-Distortion Function for Sampled Cyclostationary Gaussian Processes with Memory,” (with Zikun Tan and Ron Dabora). *Proceedings of the 2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 7 - 12, 2024. to appear.
- “Multivariate Priors and the Linearity of Optimal Bayesian Estimators under Gaussian Noise,” (with Leighton P. Barnes, Alex Dytso and Jingbo Liu). *Proceedings of the 2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 7 - 12, 2024. to appear.
- “On the Non-Computability of Convex Optimization Problems,” (with Andrea Grigorescu, Holger Boche and Rafael F. Schaefer). *Proceedings of the 2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 7 - 12, 2024. to appear.
- “Equivalence of Empirical Risk Minimization to Regularization of the Family of f-Divergences,” (with Francisco Daunas, Iñaki Esnaolo and Samir Perlaza). *Proceedings of the 2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 7 - 12, 2024. to appear.
- “SignSGD-FV: Communication-Efficient Distributed Learning through Heterogeneous Edges,” (with Chanho Park and Namyoong Lee). *Proceedings of the 2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 7 - 12, 2024. to appear.
- “Blind Co-channel Interference Cancellation Using Fast Fourier Convolutions,” (with Mostafa Naseri, Eli de Poorter, Ingrid Moerman and Adnan Shahid). *Proceedings of the 2024 IEEE Vehicular Technology Conference - Spring (Recent Results)*, Singapore, June 24 - 27, 2024, to appear.
- “Reliability and Latency of Wireless Communication Systems with a Secret-Key Budget,” (with Karl-Ludwig Besser and Rafael F. Schaefer). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Integrated Safe Motion Planning and Distributed Cyclic Delay Diversity,” (with Kyeong Jin Kim and Yuming Zhu). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Model-Based Learning for Network Clock Synchronization in Half-Duplex TDMA Networks,” (with Itai Zino and Ron Dabora). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Integrated Sensing and Communications for Statistical-QoS Provisioning Over 6G M-MIMO Mobile Networks Using FBC,” (with Xi Zhang and Qixuan Zhu). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Statistical Delay and Error-Rate Bounded QoS Provisioning for Rate Splitting Based 6G Mobile Wireless Networks in the Non-Asymptotic Regime,” (with Xi Zhang and Qixuan Zhu). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.

- “Sphere Packing Analysis for Performance Trade-off in Joint Communications and Sensing - Part I: General Principle,” (with Husheng Li and Zhu Han). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Sphere Packing Analysis for Performance Trade-off in Joint Communications and Sensing - Part II: Fourier Analysis of Volume,” (with Husheng Li and Zhu Han). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Distributed Stochastic Optimization with Random Communication and Computational Delays: Optimal Policies and Performance Analysis,” (with Siyuan Yu and Wei Chen). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “On the Information Leakage Performance of Secure Finite Blocklength Transmissions over Rayleigh Fading Channels,” (with Milad Tatar Mamaghani, Xiangyun Zhou, Nan Yang and A. Lee Swindlehurst). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Stacked Intelligent Metasurface Performs a 2D DFT in the Wave Domain for DOA Estimation,” (with Jiancheng An, Chau Yuen, Marco Di Renzo, Mérouane Debbah and Lajos Hanzo). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Digital Versus Analog Transmissions for Federated Learning over Wireless Networks,” (with Jiacheng Yao, Wei Xu, Zhaohui Yang, Xiaohu You and Mehdi Bennis). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Characterization of the Complexity of Computing the Capacity of Colored Noise Gaussian Channels,” (with Holger Boche, Andrea Grigorescu and Rafael F. Schaefer). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “On the Solvability of Resource Allocation Problems for Wireless Systems on Digital Computers,” (with Holger Boche, Andrea Grigorescu and Rafael F. Schaefer). *Proceedings of the 2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “RIS-Empowered LEO Satellite Networks for 6G: Promising Usage Scenarios and Future Directions,” (with Mesut Toka, Byungju Lee, Jaehyup Seong, Aryan Kaushik, Juhwan Lee, Jungwoo Lee, Namyoon Lee and Wonjae Shin). To be presented at the *2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Secure Federated Learning for Cognitive Radio Sensing,” (with Magorzata Wasilewska and Hanna Bogucka). To be presented at the *2024 IEEE International Conference on Communications*, Denver, CO, June 9 - 13, 2024, to appear.
- “Prescribed Robustness in Optimal Power Flow,” (with Robert Mieth). *Proceedings of the XXIII Power Systems Computation Conference*, Paris-Saclay, France, June 4 - 7, 2024, to appear.
- “Vehicular Intelligence at the Edge: A Decentralized Federated Learning Approach for Technology Recognition,” (with Hojjat Navidan, Merkebu Girmay, Mohamed Seif, Ingrid Moerman and Adnan Shahid). *Proceedings of the 2024 IEEE Vehicular Networking Conference*, Kobe, Japan, May 29 - 31, 2024.
- “Over-the-air Aggregation-based Federated Learning for Technology Recognition in Multi-RAT Networks,” (with Merkebu Girmay, Mohamed Seif, Vasilis Maglogiannis, Dries Naudts, Adnan Shahid and Ingrid Moerman). *Proceedings of the IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*, Washington, DC, May 13 - 16, 2024.
- “Learning Based Dynamic Cluster Reconfiguration for UAV Mobility Management with 3D Beamforming,” (with Irshad A. Meer, Karl-Ludwig Besser, Mustafa Ozger, Dominic Schupke and Cicek Cavdar). *Proceedings of the IEEE International Conference on Machine Learning for Communication and Networking*, Stockholm, Sweden, May 5 - 8, 2024.
- “Federated Learning via Active RIS Assisted Over-the-Air Computation,” (with Deyou Zhang, Ming Xiao and Mikael Skoglund). *Proceedings of the IEEE International Conference on Machine Learning for Communication and Networking*, Stockholm, Sweden, May 5 - 8, 2024.
- “Stochastic Approximation with Delayed Updates: Finite-Time Rates under Markovian Sampling,” (with Arman Abidi, Nicol Dal Fabbro, Luca Schenato, Sanjeev Kulkarni, George J. Pappas, Hamed

- Hassani and Aritra Mitra). *Proceedings of the 27th International Conference on Artificial Intelligence and Statistics (AISTATS)*, Valencia, Spain, May 2 - 4, 2024
- “YOLO: An Efficient Integrated Sensing and Communications Scheme with Beam Squint in Clutter Environment” (with Hongliang Luo, Feifei Gao, Hai Lin and Shaodan Ma). *Proceedings of the 2024 IEEE Wireless Communications and Networking Conference*, Dubai, UAE, April 21 - 24, 2024.
- “Vision-aided Reference Signal Receiving Power Prediction for Smart Factory,” (with Yuan Feng, Feifei Gao, Xiaoming Tao and Shaodan Ma). *Proceedings of the 2024 IEEE Wireless Communications and Networking Conference*, Dubai, UAE, April 21 - 24, 2024.
- “Trellis Shaping in Joint Communications and Sensing: A Duality to PAPR Mitigation,” (with Husheng Li and Zhu Han). *Proceedings of the 4th IEEE International Symposium on Joint Communications and Sensing*, Leuven, Belgium, March 19 - 21, 2024, to appear.
- “Understanding a Power Grid’s Cyber-Physical Interdependence Through Higher-order Motifs,” (with Hao Huang, Mohammad Al-Muhaini and David Flynn). *Proceedings of the 2024 IEEE Conference on Innovative Smart Grid Technologies, North America*, Washington, DC, February 19 - 22, 2024.
- “Gaussian Primitive Diamond Channel: Correlated Noise and Applications,” (with Asif Katz, Michael Peleg and Shlomo Shamai). *Proceedings of the 2023 IEEE International Conference on Microwaves, Communications, Antennas, Biomedical Engineering and Electronic Systems*, Tel Aviv, Israel, November 6 - 8, 2023, to appear. [Postponed.]
- “Inclusion of Reactive Power into Ecological Robustness-Oriented Optimal Power Flow for Enhancing Power System Resilience,” (with Hao Huang and Kate Davis). *Proceedings of the Hawaii International Conference on System Science*, Honolulu, HI, January 3 - 4, 2024.
- “Efficient RL with Impaired Observability: Learning to Act with Delayed and Missing Observations,” (with Minshuo Chen and Mengdi Wang). *Advances in Neural Information Processing Systems* (Proceedings of the Thirty-seventh Conference on Neural Information Processing Systems), Vancouver, BC, December 10 - 16, 2023.
- “The Wiener Theory of Causal Linear Prediction Is Not Effective,” (with Holger Boche and Volker Pohl). *Proceedings of the 62nd IEEE Conference on Decision and Control*, Singapore, December 13 - 15, 2023.
- “On Differential Privacy for Wireless Federated Learning with Non-coherent Aggregation,” (with Mohamed Seif and Andrea J. Goldsmith). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.
- “Robust Rate-Matching Framework for Multibeam Satellite Communications with Phase Perturbations,” (with Jaehyup Seong, Juha Park, Juhwan Lee, Jungwoo Lee and Wonjae Shin). *Proceedings of the IEEE Workshop on Cellular, UAV and Satellite Communications*, in conjunction with of the *IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.
- “A Broadcast Channel Framework for Joint Communications and Sensing - Part I: Feasible Region,” (with Husheng Li and Zhu Han). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.
- “A Broadcast Channel Framework for Joint Communications and Sensing - Part II: Superposition Coding,” (with Husheng Li and Zhu Han). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.
- “Physical-Layer Challenge-Response Authentication for Drone Networks,” (with Francesco Mazzo, Stefano Tomasin, Hongliang Zhang and Arsenia Chorti). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.
- “Joint Coding of eMBB and URLLC in Vehicle-to-Everything (V2X) Communications,” (with Homa Nikbakht, Eric Ruzomberka, Michèle Wigger and Shlomo Shamai). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.
- “Algorithmic Computability of the Capacity of Additive Colored Gaussian Noise Channels,” (with Andrea Grigorescu, Holger Boche and Rafael F. Schaefer). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023. [Best Paper Award]
- “Communication-Constrained Distributed Learning: TSI-Aided Asynchronous Optimization with Stale Gradient,” (with Siyuan Yu and Wei Chen). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.

- “Channel Capacity of RIS-assisted Symbiotic Radios with Imperfect Knowledge of Channels,” (with Qianqian Zhang, Hu Zhou, Ying-Chang Liang and Wei Zhang). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.
- “Statistical AoI, Delay, and Error-Rate Bounded QoS Provisioning for Satellite-Terrestrial Integrated Networks,” (with Jingqing Wang and Wenchi Cheng). *Proceedings of the IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, December 4 - 8, 2023.
- “On Pseudolinear Codes for Correcting Adversarial Errors, (with Eric Ruzomberka, Homa Nikbakht and Christopher G. Brinton). *Proceedings of the 64th IEEE Symposium on Foundations of Computer Science (FOCS 2023)*, Santa Cruz, CA, November 6 - 9, 2023.
- “Random Orthogonalization for Private and Secure Wireless Federated Learning,” (with Sadaf ul Zuhra, Mohamed Seif and Karim Banawan). *Proceedings of the Asilomar Conference on Signals, Systems, and Computers 2023*, Pacific Grove, CA, October 29 - November 1, 2023.
- “Reinforcement Learning Based Dynamic Power Control for UAV Mobility Management,” (with Irshad A. Meer, Karl-Ludwig Besser and Cicek Cavdar). *Proceedings of the Asilomar Conference on Signals, Systems, and Computers 2023*, Pacific Grove, CA, October 29 - November 1, 2023.
- “Motif-Based Reliability Analysis for Cyber-Physical Power Systems,” (with Hamed Binqadhi, Mohammed Al-Muhaini and Hao Huang). *Proceedings of IEEE PES ISGT Europe 2023*, Grenoble, France, October 23 - 26, 2023.
- “Data Valuation from Data-Driven Optimization,” (with Robert Mieth). Presented at the *2023 INFORMS Annual Meeting*, Phoenix, AZ, October 15 -18, 2023.
- “Derandomizing Codes for the Binary Adversarial Wiretap Channel of Type II,” (with Eric Ruzomberka, Homa Nikbakht, Christopher Brinton and David Love). *Proceedings of the 58th Annual Allerton Conference on Communication, Control and Computing*, Monticello, IL, September 26 - 29, 2023.
- *“Low Complexity Optimization for Line-of-Sight RIS-Aided Holographic Communications,” (with Juan Carlos Ruiz Sicilia, Marco Di Renzo and Mérouane Debbah). *Proceedings of the 31st European Signal Processing Conference*, Helsinki, Finland, September 4 - 8, 2023.
- “Reconstructing Graph Diffusion History from a Single Snapshot,” (with Ruizhong Qiu, Dingsu Wang, Lei Ying, Yifang Zhang and Hanghang Tong). *Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, Washington, DC, August 14 - 18, 2023.
- “Efficient RL with Impaired Observability: Learning to Act with Delayed and Missing Observations,” (with Minshuo Chen and Mengdi Wang). Presented at the *New Frontiers in Learning, Control, and Dynamical Systems Workshop at the International Conference on Machine Learning*, Honolulu, HI, July 23 - 29, 2023.
- “Cellular System Based Integrated Sensing and Communications for Wide-Area Monitoring,” (with Husheng Li and Zhu Han). *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium*, Pasadena, CA, July 16 - 21, 2023.
- “An Extended Model for Ecological Robustness to Capture Power System Resilience,” (with Hao Huang and Katherine R. Davis). *Proceedings of the 2023 IEEE Power & Energy Society General Meeting*, Orlando, FL, July 16 - 20, 2023.
- “ L_1 Optimization in Gaussian Noise: On the Optimality of Linear Estimators,” (with Leighton Barnes and Alex Dytso). *Proceedings of the 2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 25 - 30, 2023.
- “Modeling Statistical Delay, Error-Rate, and Joint-Delay/Error-Rate QoS-Exponents over M-MIMO Mobile Wireless Networks Using FBC,” (with Xi Zhang and Jingqing Wang). *Proceedings of the 2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 25 - 30, 2023.
- “Quickest Inference of Susceptible-Infected Cascades in Sparse Networks,” (with Anirudh Sridhar and Tirza Routtenberg). *Proceedings of the 2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 25 - 30, 2023.
- “The Capacity of Channels with $O(1)$ -Bit Feedback,” (with Eric Ruzomberka and David Love). *Proceedings of the 2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 25 - 30, 2023.

- “The Impact of Data Aggregation on the Validation of the Gibbs Algorithm,” (with Iñaki Esnaola, Samir Perlaza and Gaetan Bisson). *Proceedings of the 2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 25 - 30, 2023.
- “Analysis of the Relative Entropy Asymmetry in the Regularization of Empirical Risk Minimization,” (with Francisco Daunas, Iñaki Esnaola and Samir Perlaza). *Proceedings of the 2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 25 - 30, 2023.
- “Collaborative Mean Estimation over Intermittently Connected Networks with Peer-To-Peer Privacy,” (with Rajarshi Saha, Mohamed Seif, Michel Yemeni and Andrea J. Goldsmith). *Proceedings of the 2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 25 - 30, 2023.
- “Higher-order Spatio-temporal Neural Networks for COVID-19 Forecasting,” (with Sotirios Batsakis and Yuzhou Chen). *Proceedings of the 2023 IEEE International Conference on Acoustics, Speech and Signal Processing*, Rhodes, Greece, June 4 - 9, 2023.
- “Unveiling the Importance of NOMA for Reducing AoI,” (with Zhiguo Ding and Robert Schober). *Proceedings of the 2023 IEEE International Conference on Communications*, Rome, Italy, May 28 - June 1, 2023.
- “Federated Edge Learning via Integrated Sensing, Computation, and Communication,” (with Peixi Liu, Guangxu Zhu, Shuai Wang, Miaowen Wen, Wu Luo and Shuguang Cui). *Proceedings of the 2023 IEEE International Conference on Communications*, Rome, Italy, May 28 - June 1, 2023.
- “Joint Transmit Precoding and Rate Allocation in Rate-Splitting Multiple Access-Based Wireless Backhaul HetNets,” (with Guangyuan Zheng, Miaowen Wen, Yingyang Chen and Yik-Chung Wu). *Proceedings of the 2023 IEEE International Conference on Communications*, Rome, Italy, May 28 - June 1, 2023.
- “FLORAS: Differentially Private Wireless Federated Learning Using Orthogonal Sequences,” (with Xizixiang Wei, Tianhao Wang, Ruiquan Huang, Cong Shen and Jing Yang). *Proceedings of the 2023 IEEE International Conference on Communications*, Rome, Italy, May 28 - June 1, 2023.
- “Reconfigurable Intelligent Surface Aided Full Duplex Networking Systems,” (Yuncong Li, Yingyang Chen, Miaowen Wen, Duoying Zhang, Bingli Jiao, Zhiguo Ding and Theodoros A. Tsiftsis). *Proceedings of the 2023 IEEE International Conference on Communications*, Rome, Italy, May 28 - June 1, 2023.
- “On the Capacity Region of Reconfigurable Intelligent Surface Assisted Symbiotic Radios,” (with Qianqian Zhang, Ying-Chang Liang and Wei Zhang). *Proceedings of the 2023 IEEE International Conference on Communications*, Rome, Italy, May 28 - June 1, 2023.
- “Adversarial Learning for Implicit Semantic-Aware Communications,” (with Zhimin Lu, Yong Xiao, Zijian Sun, Yingyu Li, Guangming Shi and Walid Saad). *Proceedings of the 2023 IEEE International Conference on Communications*, Rome, Italy, May 28 - June 1, 2023.
- “Fast-Adapting Environment-Agnostic Device-Free Indoor Localization via Federated Meta-Learning,” (with Bing-Jia Chen and Ronald Chang). *Proceedings of the 2023 IEEE International Conference on Communications*, Rome, Italy, May 28 - June 1, 2023.
- “Alternating Differentiation for Optimization Layers,” (with Tuan Huang, Jingya Wang, Dacheng Tao and Ye Shi). *Proceedings of the Eleventh International Conference on Learning Representations*, Kigali, Rwanda, May 1 - 5, 2023.
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- “Review of *Detection of Abrupt Changes: Theory and Application* (M. Basseville and I. Nikiforov).” *Automatica*, Vol. 32, No. 8, pp. 1235 - 1236, August 1996.
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- *“Discussion of ‘Influence Functionals for Time Series’,” *Annals of Statistics*, Vol. 14, No. 3, pp. 829 - 831, 1986.

Patents:

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- “System and Method for Disintegrated Channel Estimation in Wireless Networks,” (with Jia-Chin Lin and Kao-Peng Chou). U. S. Patent No. 10,298,418. Issued May 21, 2019.
- “System and Method for Pricing and Exchanging Content,” (with Mung Chiang and Hazer Inaltekin). U. S. Patent No. 10,055,739. Issued August 21, 2018.
- “System and Method for Securing Backscatter Wireless Communication,” (with Zhu Han and Walid Saad). U. S. Patent No. 9,672,394. Issued June 6, 2017.
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- “System and Method for Synchronizing Phases and Frequencies of Devices in Multi-User, Wireless Communication Systems,” (with D. Richard Brown, III, and Boyang Zhang). U. S. Patent No. 9,042,367. Issued May 26, 2015.
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- “System and Method for Blind Estimation of Multiple Carrier Frequency Offsets and Separation of User Signals in Wireless Communication Systems,” (with Visa Koivunen, et al.). U. S. Patent No. 7,929,937. Issued April 19, 2011.
- “Method and Apparatus for Regenerative Based Interference Cancellation Within a Communication System,” (with Alexander Flaig, et al.). U. S. Patent No. 7,697,594. Issued April 13, 2010. [Assigned to Texas Instruments.] [Also European Patent 1274177, granted May 11, 2015.]
- “Methods and Systems for Using Pulsed Radar for Communications Transparent to Radar Function,” (with David W. Meyers, et al.). U. S. Patent No. 7,486,221. Issued February 3, 2009. [Assigned to Honeywell.]
- “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.]
- “Linear Receivers for Time-Hopping Impulse Radio Systems,” (with Sinan Gezici, et al.). U. S. Patent No. 7,349,458. Issued March 25, 2008. [Assigned to Mitsubishi.]
- “Method and System for Acquiring Ultra-Wide-Bandwidth Communications Signals Using Sequential Block Searches,” (with Andreas Molisch, et al.). U. S. Patent No. 7,292,619. Issued November 6, 2007. [Assigned to Mitsubishi.]
- “Method and System for Acquiring Ultra-Wide-Bandwidth Communications Signals Using Average Block Searches,” (with Andreas Molisch, et al.). U. S. Patent No. 7,164,720. Issued January 16, 2007. [Assigned to Mitsubishi.] [Also, Japanese Patent No. 4335913, granted September 30, 2009.]

- “Method and Apparatus for Received Uplinked-Signal Based Adaptive Downlink Diversity Within a Communication System,” (with Louis R. Brothers, Jr., et al.). U. S. Patent No. 7,095,987. Issued August 22, 2006. [Assigned to Texas Instruments.]
- “Method and Apparatus for Scheduling of Switched Multibeam Antennas in a Multiple Access Environment,” (with Andrew Logothetis). U. S. Patent No. 6,968,022. Issued November 22, 2005.
- “Method and Apparatus for High-Resolution Tracking Via Mono-Pulse Beam-Forming in a Communication System,” (with Louis R. Brothers, Jr., et al.). U. S. Patent No. 6,930,637. Issued August 16, 2005. [Assigned to Texas Instruments.]

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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*Karl-Ludwig Besser (Technical University of Braunschweig)
*Hao Huang (Texas A&M University)
*Homa Nikbakth (Telecom Paris)
*Eric Ruzomberka (Purdue University)
*Mohamed Seif (University of Arizona)
*Henry Wang (Purdue University)
*Sadaf ul Zuhra (Indian Institute of Technology Bombay)
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Huaiyu Dai (Princeton University; now with North Carolina State University)
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Iñaki Esnaola (University of Delaware; now with Sheffield University, UK)
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Hana Godrich (New Jersey Institute of Technology; now with Rutgers University)

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Hongliang Zhang (Peking University; now with Peking University)

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