

HAROLD VINCENT POOR

CONTACT INFORMATION:

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EDUCATION:

Princeton University, Princeton, New Jersey

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

Auburn University, Auburn, Alabama

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

EMPLOYMENT AND EXPERIENCE:

Principal Employment

Princeton University

Michael Henry Strater University Professor of Electrical Engineering, 2005 - present
Professor of Electrical 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, Princeton 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
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 Professor in the Coordinated Science Laboratory, 1984-90
Assistant, then Associate, Professor of Electrical Engineering, 1977-84
Research Assistant, then Research Associate, Professor in the Coordinated Science Lab, 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, Mathematics, Fall 2003
Senior Visiting Fellow, Centre for Process Systems Engineering, Fall 1993
Academic Visitor, Electrical Engineering, Fall 1985

Selected Other Visiting Positions:

Moore Distinguished Scholar, California Institute of Technology, 2020-21 (upcoming)
Fellow, Hagler Institute for Advanced Study, Texas A & M University, 2018 - present
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

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, European Alliance for Innovation (elected 2018)
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 (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 (elected 2016)
Honorary Professor, Tsinghua University (elected 2016)
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

Alexander Graham Bell Medal, IEEE (2017)
John Fritz Medal, American Association of Engineering Societies (2016)
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

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)
William E. Sayle Award for Achievement in Education, IEEE Education Society (2005)
Director's Award for Distinguished Teaching Scholars, National Science Foundation (2002)
Leon K. Kirchmayer Graduate Teaching Award, IEEE (2001)

Paper Awards (Journals)

IEEE Communications Society Fred Ellersick Prize (2020)
IEEE Jack Neubauer Memorial Award (2018)
IEEE Heinrich Hertz Prize Paper Award (2018)
IEEE Signal Processing Letters Best Paper Award (2018)
Best Paper Award, IEEE Communications Society CSIM Technical Committee (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 Award, *EURASIP J. Wireless Communications & Networking* (2014)
Best Paper Award, *EMO Bilimisel Dergi* (2013)
IEEE Information Theory Paper Award (2011)
Best Paper Award, *EURASIP J. Wireless Communications & Networking* (2009)
IEEE Marconi Prize Paper Award in Wireless Communications (2007)
Best Paper Award, *EURASIP J. Wireless Communications & Networking* (2006)
Joint Paper Award, IEEE Communications and Information Theory Societies (2000)

Paper Awards (Conferences - Selected)

International Conference on Wireless Communications and Signal Processing (Nanjing, 2020)
IEEE Int'l Symp. Personal, Indoor & Mobile Radio Commun. (London, held online, 2020)
IEEE International Conference on Communications (Dublin, held online, 2020)
IEEE International Conference on Communications (Shanghai, 2019)
IEEE International Conference on Communications (Kansas City, 2018)
IEEE International Conference on Communications (Paris, 2017)
International Conference on Digital Signal Processing (London, 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

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)

Selected Other Awards & Recognition

Distinguished Chair Professor for Research, National Taiwan University, 2014 - present
State of Alabama Engineering Hall of Fame (inducted 2014)
Eminent Member, Eta Kappa Nu (elected 2008)
Distinguished Alumnus Award, Tau Beta Pi (2005)

OTHER PROFESSIONAL ACTIVITIES:

Principal Institutional Leadership

Board of Directors, Hyster-Yale Materials Handling, Inc., 2017 - present
Subsidiary boards: Bolzoni Holdings, Hyster-Yale Group & Nuvera Fuel Cells
Board of Managers, Swarthmore College, 2016 - present (Executive Committee, 2019 - present)
Board of Directors, IEEE Foundation, 2015 - present
Board of Directors, Corporation for National Research Initiatives, 2012 - present
Council, National Academy of Engineering, 2014-20
Council, American Association for the Advancement of Science, 2012-13
Governor at Large, IEEE - Eta Kappa Nu, 2011-13
Chair, Engineering Section, American Association for the Advancement of Science, 2011-12
Chair, Electronics Section, National Academy of Engineering, 2007-09
Editor-in-Chief, *IEEE Transactions on Information Theory*, 2004-07
Board of Directors, IEEE, 1991-92
President, IEEE Information Theory Society, 1990

Selected IEEE Activities (Past Five Years)

Information Theory Society Board of Governors, 1984-92, 1999-2007 & 2015 - present
Distinguished Lecturer, Vehicular Technology Society, 2018-19
Chair, IEEE-HKN Eminent Member Recognition Committee, 2016-19
Fourier Award for Signal Processing Committee, 2013-15

Editorial Activities - Regular (Past Ten Years)

Editorial Board, *Princeton University Library Chronicle*, 2020 - present
Advisory Board, *IET Blockchain*, 2020 - present
Editorial Board, *Springer-Nature Computer Science*, 2019 - present
Advisory Board, *IEEE Open Journal of Signal Processing*, 2019 - present
Advisory Board, *IET Smart Cities*, 2019 - present
Editorial Board, *Frontiers of Information Technology & Electronic Engineering*, 2019 - present
Editorial Board, *Harvard Data Science Review*, 2018 - present
Steering Committee, *IEEE Journal on Selected Areas in Information Theory*, 2017 - present
Founding Co-Editor-in-Chief, *IET Smart Grid*, 2018 - present
Editorial Board, *Proceedings of the IEEE*, 2016 - present
Advisory Board, *Journal of Communications and Networks*, 2016 - present
Editorial Board, *Philosophical Transactions of the Royal Society A*, 2015 - 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
Advisory Board, *Advanced Texts in Communications and Networks* (Wiley), 2008 - present
Editorial Board, *Foundations and Trends in Commun. & Information Theory*, 2003 - present
Editorial Board, *ECTI Trans. Electronics and Communications* (Thailand), 2002 - present
Editorial Advisory Board, *Series on Systems and Control* (Birkhauser), 2001 - present
Editorial Advisory Board, *IEEE Spectrum*, 2017-18
Steering Committee, *IEEE Transactions on Computational Social Systems*, 2014-18
Senior Editor, *IEEE Journal of Selected Topics in Signal Processing*, 2013-18
Advisory Board, *Security and Communication Networks* (Wiley), 2009-16
Editor-at-Large, *IEEE Wireless Communications Letters*, 2012-15
Editor-in-Chief, *Journal of Communications and Networks*, 2011-15
Executive Editorial Board, *IEEE Transactions on Information Theory*, 2013-14
Advisory Board, *Journal of Engineering Education*, 2010-14
Editorial Board, *IEEE Wireless Communications*, 2011-13
Editorial Board, *IEEE Signal Processing Magazine*, 2010-13
Overview Editorial Board, *IEEE Transactions on Signal Processing*, 2009-12

Editorial Activities - Guest Editing (Past Ten Years)

- Guest Co-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*, under development for publication in 2021.
- Guest Co-Editor (with Ping Zhang, Sherman Shen, et al.). *Engineering - Special Issue on 6G: Requirements, Vision, and Enabling Technologies*, under development for publication in 2021
- Guest Co-Editor (with Randall Berry, Zhu Han, Krishna Narayanan, Christos Verikoukis and Osman Yağan). *Journal of Communications and Networks - Special Issue on Communications and Networking Approaches to Combatting COVID-19*, under development for publication in 2021.
- Guest Co-Editor (with Yuen Chau, Thomas Mortsyn, Tapan Saha and Wayes Tushar). *Applied Energy - Special Issue on Peer-to-Peer Energy Trading*, under development for publication in 2021.
- Guest Co-Editor (with Woon Hau Chin and Chau Yuen). *IEEE Communications Standards Magazine - Special Issue on Emerging Security Technologies for 6G*, under development for publication in 2021.
- 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*, under development for publication in 2021.
- 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*, under development for publication in 2021.
- Guest Co-Editor (with Alex Dysto). *Entropy - Special Issue on Wireless Networks: Information Theoretic Perspectives*, under development for publication in 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*, under development for publication in 2020.
- 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 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)
- Guest Co-Editor (with Maria Sabrina Greco, Silvija Kokalj-Filipovic George Stantchev and Liang Xiao). *IEEE Journal on Selected Topics in Signal Processing - Machine Learning for Cognition in Radio Communications and Radar* (Vol. 12, No. 1, 2019)
- Guest Co-Editor (with Bruno Clerckx, Rui Zhang, Robert Schober, Derrick Wing Kwan Ng and Dong In Kim). *IEEE Journal on Selected Areas in Communications - Wireless Transmission of Information and Power - Parts I & II* (Vol. 36, Nos. 1 & 2, 2019)
- Guest Co-Editor (with Moe Z. Win, Michael Beuhler, George Chrisikos and Andrea Conti), *Proceedings of the IEEE - Foundations and Trends in Localization Technologies, Parts I & II* (Vol. 106, Nos. 6 & 7, 2018)
- Guest Co-Editor (with Stefano Buzzi, Chih-Lin I, Thierry E. Klein, Chenyang Yang and Alessio Zappone). *IEEE Journal on Selected Areas in Communications - Energy-Efficient Techniques for 5G Wireless Communication Systems*. (Vol. 34, No. 4, 2016)
- Guest Co-Editor (with Walid Saad, Xiangyun Zhou and Mérouane Debbah). *IEEE Communications Magazine - Wireless Physical Layer Security - Parts I & II*. (Vol. 53, Nos. 6 & 12, 2015)
- Guest Co-Editor (with Mugen Peng, Tony Q. S. Quek, Zhiguo Ding and Vincent Lau). *IEEE*

- Wireless Communications - Heterogeneous Cloud Radio Access Networks*. (Vol. 22, No. 3, 2015)
- Guest Co-editor (with Kwang-Cheng Chen, Vikram Krishnamurthy, Devavrat Shah and Patrick Wolfe). *IEEE Journal of Selected Topics in Signal Processing - Signal Processing for Social Networks* (Vol. 8, No. 4, 2014).
- Guest Co-editor (with Kwang-Cheng Chen and Ramjee Prasad). *IEEE Wireless Communications - Mobile Social Networks* (Vol. 21, No. 1, 2014)
- Guest Co-editor (with Eduard Jorswieck, Lifeng Lai, Wing-Kin (Ken) Ma, Walid Saad and A. Lee Swindlehurst). *IEEE Journal on Selected Areas in Communications - Signal Processing Techniques for Wireless Physical Layer Security* (Vol. 31, No. 9, 2013)
- Guest Co-editor (with Mérouane Debbah, Kannan Ramchandran, Lalitha Sankar and Wade Trappe). *IEEE Signal Processing Magazine - Signal Processing for Cyber-Security and Privacy* (Vol. 30, No. 5, 2013)
- Guest Co-editor (with Pingzhi Fan, P. Takis Mathiopoulos and Erdal Panayırçı). *EURASIP Journal on Wireless Communications and Networking - Broadband Mobile Communications at Very High Speeds* (Vol. 2012)
- Guest Co-editor (with Stephen McLaughlin, Jacques Palicot and Honggang Zhang). *EURASIP Journal on Wireless Communications and Networking - Green Radio* (Vol. 2012)
- Guest Co-editor (with Eduard Jorswieck, Eric G. Larsson, Amir Leshem and Marco Luise). *IEEE Journal of Selected Topics in Signal Processing - Game Theory in Signal Processing* (Vol. 6, No. 2, 2012)
- Guest Co-editor (with Alireza Attar, Tamer Başar, Mérouane Debbah and Qing Zhao). *IEEE Journal on Selected Areas in Communications - Game Theory in Wireless Communications* (Vol. 30, No. 1, 2012)
- Guest Co-editor (with Wade Trappe, Aylin Yener, Hisato Iwai, Joao Barros and Paul Prucnal). *IEEE Transactions on Information Forensics and Security - Using the Physical Layer for Securing the Next Generation of Communication Systems* (Vol. 6, No. 3, 2011)

Organization of Technical Meetings - Leadership Roles (Past Ten Years)

- 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 [online]
- 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 [online]
- 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
- General Co-chair, 4th International Workshop on Non-Orthogonal Multiple Access Techniques for 5G, IEEE Global Communications Conference, Abu Dhabi, UAE, December 9 - 13, 2018
- General Co-chair, 3rd International Workshop on Non-Orthogonal Multiple Access Techniques for 5G, IEEE Conference on Communications, Kansas City, MO, May 20 - 24, 2018

Program Co-Director, 52nd Conference on Information Sciences and Systems, Princeton University, Princeton, NJ, March 21 - 23, 2018

General Co-chair, 2nd International Workshop on Non-Orthogonal Multiple Access Techniques for 5G, IEEE Global Communications Conference, Singapore, December 4 - 8, 2017

Co-Organizer, 4th Workshop on Physical-layer Methods for Wireless Security, IEEE Conference on Communications and Network Security, Las Vegas, NV, October 9 - 11, 2017

Co-Organizer, Workshop on Emerging Non-Orthogonal Multiple Access Techniques for 5G, IEEE Vehicular Technology Conference - Spring, Sydney, Australia, June 4 - 7, 2017

General Co-Chair, 4th IEEE GLOBECOM Workshop on Trusted Communications with Physical Layer Security, IEEE Global Communications Conference, Washington, DC, December 2016

Technical Chair, Symposium on Machine Learning for Characterization of Cognitive Communications and Radar, IEEE Global Conference on Signal and Information Processing, Washington, DC, December 2016

Co-Organizer, Third Workshop on Physical-Layer Methods for Wireless Security, IEEE Conference on Communications and Network Security, Philadelphia, PA, October 2016

General Co-Chair, 2016 IEEE International Conference on Digital Signal Processing, Beijing, China, October 2016

Co-Organizer, Third Workshop on Trusted Communication with Physical Layer Security, IEEE Global Communications Conference, San Diego, CA, December 2015

Co-Organizer, Second Workshop on Physical-layer Methods for Wireless Security, IEEE Conference on Communications and Network Security, Florence Italy, September 2015

Co-Organizer, Second Workshop on Trusted Communications with Physical Layer Security, IEEE Global Communications Conference, Austin, TX, December 2014

Co-Organizer, Second Princeton Workshop on Classical, Semi-classical and Quantum Noise, Princeton, NJ, March 2014

General Co-Chair, Global Wireless Summit, comprising four conferences: the 16th International Symposium on Wireless Personal Multimedia Communications (WPMC), Wireless VITAE 2013, the 5th International Conference on Security and Privacy in Mobile Information and Communication Systems (MOBISec), and the 2013 World Wide Security and Mobility Conference (WWSMC), Atlantic City, NJ, June 2013

Technical Area Chair (Networks), 46th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, November 2012

Co-Chair, "Smart Grid Cyber Security and Privacy" Symposium, Third IEEE Conference on Smart Grid Communications, Tainan, Taiwan, November 2012

General Co-Chair, 9th International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt11), Princeton, NJ, May 2011

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

Steering Committee, IEEE 5G Summit Series (> 63 Summits to Date Worldwide), 2015 - present

Steering Committee, Workshop on Edge Learning for 5G Mobile Networks and Beyond, held 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

Technical Program Committees, IEEE International Symposia on Information Theory: 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)

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 [online]

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

Steering Committee, 6th IEEE GLOBECOM Workshop on Trusted Communications with Physical Layer Security, IEEE Global Communications Conference, Abu Dhabi, UAE, December 9 -13, 2018

Technical Program Committee, 2018 International Conference on Network Games, Control and Optimization, New York, November 14 - 16, 2018

Technical Program Committee, 2018 International Symposium on Information Theory and its Applications (ISITA2018), Singapore, October 28 - 31, 2018

Technical Program Committee, 26th European Signal Processing Conference (EUSIPCO), Rome, Italy, September 3 - 7, 2018

Technical Program Committee, 2018 IEEE Statistical Signal Processing Workshop, Freiberg, Germany, June 10 - 13, 2018

Steering Committee, 5th IEEE GLOBECOM Workshop on Trusted Communications with Physical Layer Security, IEEE Global Communications Conference, Singapore, December 4 - 8, 2017

Program Committee, International Conference on Digital Signal Processing, London, UK, August 23 - 25, 2017

Co-Organizer, Special Session on “Physical Layer Security for 5G,” at the 17th IEEE International Workshop on Signal Processing Advances in Wireless Communications, Edinburgh, UK, July 3 - 6, 2016

Co-Chair, Steering Committee, IEEE 5G Summit Aalborg, Aalborg, Denmark, July 1, 2016

Co-Organizer, Special Session on “Statistical Signal Processing and Learning in Smart Grid,” at the 2016 IEEE Statistical Signal Processing Workshop, Palma de Mallorca, Spain, June 26 - 29, 2016

Co-Organizer, Special Session on “Physical Layer Security,” at the 7th IEEE International Workshop on Information Forensics and Security, Rome, Italy, November 16 - 19, 2015

Other Recent (Past Five Years)

Nominating Committee, National Academy of Sciences, 2020 - present

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

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

Nomination Council, Infosys Prize, 2020 - present

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

Committee on Modernizing the U.S. Electricity System, National Academies of Sciences, Engineering and Medicine, 2019 - present

Chair, Academic Affairs Committee, Swarthmore College Board of Managers, 2019 - present

Executive Compensation Committee, National Academy of Engineering, 2019 - present

Engineering Advisory Council, Swarthmore College, 2019 - present

Engineering Advisory Council, Brown University, 2018 - present

Engineering Advisory Council, Purdue University, 2018 - 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

Newton International Fellowships Committee: Physical Sciences, Royal Society, 2017 - present

Advisory Board, Gordian Knot Analytics Group, LLC, 2017 - present

Chair, Wireless Engineering Advisory Board, Auburn University, 2017 - present

NAE Campaign Planning Working Group, 2017 - present

International Advisory Committee, National Laboratory for Pattern Recognition, Institute of

Automation of the Chinese Academy of Sciences, 2015 - present

Referee, John Simon Guggenheim Memorial Foundation Fellowship Competition, 2013 - present

Interdisciplinary Committee for the Selection of the Albert Einstein World Award of Science, World Cultural Council, 2013 - present

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

“Machine Learning and Wireless Communications,” (with Yonina Eldar and Nir Shlezinger). Tutorial to be presented at the European Signal Processing Conference (EUSIPCO), Amsterdam, Holland, January 18 - 22, 2021.

Dissertation Committee of Sebastian Johannes Baur, Technical University of Munich, 2020

“What Physical Layer Security Can Do for 6G, (with Arsenia Chorti). Tutorial to be presented at the 2020 IEEE Global Communications Conference (GLOBECOM), Taipei, Taiwan, December 7 - 11, 2020

“Machine Learning and Wireless Communications,” (with Yonina Eldar and Nir Shlezinger). Tutorial to be presented at the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Barcelona, Spain, May 4 - 8, 2020 [on-line]

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

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

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

Panelist, “The Future of DSP Research,” DSP50, Rice University, April 26, 2019

Panelist, “Opportunities and Challenges in Applying IoT to Sustain Critical Urban Infrastructures,” ACM International Conference on Distributed Computing and Networking, Bangalore, India, January 4 - 7, 2019

Dissertation Committee of Nima Tavangaran, Technical University of Munich, 2018

Corporation Visiting Committee for the Dean of Undergraduate Education, Massachusetts Institute of Technology, Cambridge, MA, 2011-18

Dissertation Committee of Victor Quintero, University of Lyon, 2017

Dissertation Committee of Wonjae Shin, Seoul National University, 2017

Panelist, “Research Funding Opportunities in Signal Processing at NSF,” IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, LA, March 5 - 9, 2017

Panelist, “Open Problems in Signal Processing,” IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, LA, March 5 - 9, 2017

Advisory Committee, Laboratory for Information and Decision Systems (LIDS), Massachusetts Institute of Technology, Cambridge, MA, 2009-17

Scientific Advisory Committee, Programme on Theoretical Foundations of Statistical Network Analysis, Isaac Newton Institute for Mathematical Sciences, Cambridge University, Cambridge, UK, July - December 2016

External Reviewer, Ph.D. Thesis of Alexander López-Parrado, Universidad del Valle, Cali, Colombia, 2016

Opponent, Ph.D. Dissertation of Jayaprakash Rajasekharan, Aalto University, Helsinki, Finland,

2016

National Academy of Sciences Award Committee on “Industrial Applications of Science”, 2016
Chair, Nominations & Appointments Committee, IEEE Foundation, 2016
Review Panel, “Progress and Research in Cybersecurity: Supporting a Resilient and Trustworthy System for the UK,” The Royal Society, London, UK, July 2016
External Member, Ph.D. Dissertation Committee of Alex Dytso, University of Illinois at Chicago, 2016
Chair, External Review Committee, Department of Electrical & Computer Engineering, University of Illinois at Urbana-Champaign, May 1 - 3, 2016
Invited Speaker, Shannon Centennial Celebration, Bell Labs, Murray Hill, NJ, April 28 - 29, 2016
External Member, Ph.D. Dissertation Committee of Michael Fauß, Technical University of Darmstadt, 2016
Board of Directors, Siebel Energy Institute, 2015-16
National Academies Panel on Information Science at the Army Research Lab., 2013-16
External Examiner, Master of Science in Electrical and Electronic Engineering Program, University of Hong Kong, 2013-16
International Advisory Committee, Tsinghua National Laboratory for Information Science and Technology, Tsinghua University, Beijing, China, 2008-16
Advisory Committee, School of Engineering, Hong Kong University of Science & Technology, Hong Kong, China, 2006-16
IET A. F. Harvey Engineering Research Prize Search and Selection Committee, 2011-15
Advisory Board, Department of Electrical Engineering, UCLA, 2009-15
Chair, External Review Committee, School of Engineering, Brown University, 2015

Invited Seminars (Past Ten Years)

Information Theory in Singapore Seminar Series (November 22, 2020)
IEEE Cognitive Network Security Special Interest Group (November 17, 2020)
Stellenbosch University, Stellenbosch, South Africa (October 14, 2020)
Carnegie-Mellon University (September 30, 2020)
University of Pennsylvania (September 29, 2020)
C3.ai Digital Transformation Institute (September 10, 2020)
University of California, Berkeley (August 28, 2020)
Distinguished Lecture, Rice University, Houston, TX (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, 2016)
EECS, University of California, Berkeley, CA (January 30, 2016)
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, 2015)
University of Pennsylvania, Philadelphia, PA (September 22, 2015)
Distinguished Lecture, University of Toronto, Toronto, Canada (September 17, 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)
 Distinguished Lecture, University of Miami, FL (April 7, 2014)
 Distinguished Lecture, Carnegie-Mellon - Silicon Valley, Mountain View, CA (March 5, 2014)
 Rutgers University, Piscataway, NJ (February 28, 2014)
 Stanford University, Stanford, CA (January 27, 2014)
 Institute of Automation, Chinese Academy of Sciences, Beijing, China (October 31, 2013)
 Tsinghua Vision Lecture, Tsinghua University, Beijing, China (October 31, 2013)
 Institute of Computing Technology, Chinese Academy of Sciences, Beijing (October 30, 2013)
 Peking University, Beijing, China (October 29, 2013)
 Linnaeus Distinguished Lecture, Royal Institute of Technology, Stockholm (October 24, 2013)
 Distinguished Lecture, Chinese University of Hong Kong (September 17, 2013)
 Vienna University of Technology (September 6, 2013)
 Technical University of Munich (September 2, 2013)
 Institute of Computer Science, FORTH, Heraklion, Greece (July 5, 2013)
 The Technion, Haifa, Israel (June 12, 2013 & June 13, 2013)
 Distinguished Lecture, Northwestern University, Evanston, IL (May 15, 2013)
 Eminent Scholars Lecture, University of South Florida, Tampa (March 29, 2013)
 Arizona State University, Tempe, AZ (March 15, 2013)
 Distinguished Speaker, North Carolina State University, Raleigh, NC (March 1, 2013)
 Massachusetts Institute of Technology, Cambridge, MA (February 14, 2013)
 Distinguished Speaker, University of Texas at Dallas (February 8, 2013)
 Stanford University, Stanford, CA (January 17, 2013)
 Hong Kong University of Science & Technology, Hong Kong, China (November 16, 2012)
 Rutgers Business School, New Brunswick, NJ (November 5, 2012)
 University of York, UK (October 29, 2012)
 University of Edinburgh, UK (October 26, 2012)
 London School of Economics and Political Science, London, UK (October 23, 2012)
 University College London, UK (October 18, 2012)
 Imperial College London, UK (October 15, 2012)
 King's College London, UK (October 10, 2012)
 University of California, Berkeley (July 16, 2012)
 Distinguished Speaker, Carnegie-Mellon University, Pittsburgh, PA (March 8, 2012)
 University of British Columbia, Vancouver, BC (February 17, 2012)
 Rice University, Houston, TX (December 5, 2011)
 Distinguished Lecture, Texas A&M University at Qatar, Doha (November 21, 2011)
 Distinguished Lecture, University of Delaware, Newark, DE (November 16, 2011)
 Aalborg University, Aalborg, Denmark (November 10, 2011)
 Aalto University, Helsinki, Finland (August 9, 2011)
 University of Edinburgh, UK (June 27, 2011)
 University of Pennsylvania, Philadelphia, PA (April 5, 2011)
 Hong Kong University of Science and Technology, Hong Kong, China (March 21, 2011)
 Harvard University, Cambridge, MA (March 4, 2011)
 MIT Lincoln Laboratories, Lexington, MA (March 3, 2011)
 University of California, Irvine, CA (January 14, 2011)
 Imperial College, London, UK (November 23, 2010)

EXTERNAL RESEARCH GRANTS AS (CO-)PRINCIPAL INVESTIGATOR:

Current

- “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), July 20, 2018 - July 19, 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, 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 - December 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.
- “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 - June 30, 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.
- “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, 2021.

Previous (Past Ten Years)

- “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.
- “Energy Efficient Secrecy for Wireless Sensor Networks: An Information Theoretic Framework,” Office of Naval Research Grant N00014-12-1-0767 (with researchers from the Stevens Institute of Technology), May 15, 2012 - September 30, 2013.
- “Cooperative Beamforming for Efficient and Secure Wireless Communication,” National Science Foundation Grant CNS-09-05398 (with researchers from the Colorado School of Mines, the University of Houston and Rutgers University), September 1, 2009 - August 31, 2012.
- “Cooperative MIMO Radar,” Office of Naval Research Grant N00014-09-1-0342 (with researchers from Rutgers University), January 1, 2009 - March 31, 2012.
- “Complex Network Information Exchange in Random Wireless Environments,” Air Force Office of Scientific Research Grant FA9550-08-1-0480 (with researchers from Stanford University), September 30, 2008 - September 30, 2011.

PUBLICATIONS

Books:

- Advanced Data Analytics for Power Systems*. Edited, with Ali Tajer and Samir Perlaza. (Cambridge University Press, Cambridge, UK, 2021), in press.
- 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, Wahid 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:

- “Quantized Federated Learning,” (with Nir Shlezinger, Mingzhe Chen, Yonina C. Eldar and Shuguang Cui). Chapter in *Machine Learning and Wireless Communications*, Andrea Goldsmith, Deniz Gündüz, Yonina Eldar and H. Vincent Poor, Eds. (Cambridge University Press: Cambridge, UK, 2021), to appear
- “Differentially Private Federated Learning: Algorithm, Analysis and Optimization,” (with Kang Wei, Jun Li, Ming Ding and Chuan Ma). Chapter in *Federated Learning Systems: Towards Next-generation AI*, Muhammad Habib ur Rehman and Mohamed Medhat Gaber, Eds. (Springer: 2021), to appear.
- “Economics of Fresh Data Trading,” (with Meng Zhang, Ahmed Arafa and Jianwei Huang.) Chapter in *Age of Information: Foundations and Applications*, Bo Zhou, Walid Saad, Harpeet Dillon, Nikolaos Pappas and Mohamed A. Abd-Elmagid, Eds. (Cambridge University Press: Cambridge, UK, 2021), to appear.
- “Mobile Edge Caching: An Optimal Auction Approach,” (with Xuanyu Cao and Junshan Zhang). Chapter in *Edge Caching for Mobile Networks*. Wei Chen and H. Vincent Poor, Eds. (IET Press, London, 2021), to appear.
- “Caching with Time-Varying Popularity Profiles, (with Bettagere N. Bharath, Kyatsandra G. Nagananda and Deniz Gündüz). Chapter in *Edge Caching for Mobile Networks*. Wei Chen and H. Vincent Poor, Eds. (IET Press, London, 2021), to appear.
- “Enhancing the Physical Layer Security of NOMA Systems,” (with Ming Zeng, Phong Nguyen and Octavia Dobre). Chapter in *Flexible and Cognitive Radio Access Technologies for 5G and Beyond*, Ertuğrul Başar and Huseyin Arslan, Eds. (IET Press, London, 2021), to appear.
- “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), to appear.
- “Physical Layer Security: Authentication, Integrity and Confidentiality,” (with Mahdi Shakiba Herfeh and Arsenia Chorti). Chapter in *Physical Layer Security*, Khoa N. Le, Ed. (Springer Nature, Cham, Switzerland, 2021), to appear.
- “Smart Meter Privacy,” (with Giulio Giaconi and Deniz Gündüz). Chapter in *Advanced Data Analytics for Power Systems*, Ali Tajer, Samir Perlaza and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2021), to appear.
- “Graph-Theoretic Analysis of Power Grid Robustness,” (with Dorcas Ofori-Boateng, Asim Kumer Dey and Yulia Gel). Chapter in *Advanced Data Analytics for Power Systems*, Ali Tajer, Samir Perlaza and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2021), to appear.
- “Compression Codes for Compressed Sensing,” (with Shirin Jalali). Chapter in *Information-Theoretic Methods in Data Science*, Miguel Rodrigues and Yonina Eldar, Eds. (Cambridge University Press, Cambridge, UK, 2021), to appear.
- “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, 2021), to appear.
- “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, 2021), to appear.
- Foreword to *Stochastic Disorder Problems*, Albert N. Shiryaev (Springer Nature, Cham, Switzerland, 2019), pp. v - vi.
- “NOMA: An Information Theoretic Perspective,” (with Mojtaba Vaezi). Chapter 5 in *Multiple Access Techniques for 5G Wireless Networks and Beyond*, Mojtaba Vaezi, Zhiguo Ding and H. Vincent Poor, Eds. (Springer International Publishing, Cham, Switzerland, 2019), pp. 167 - 193.

- “Dynamic Social Networks: Search and Data Routing,” (with Hazer Inaltekin). Chapter 23 in *Cooperative and Graph Signal Processing: Principles and Applications*, Petar M. Djurić and Cédric Richard, Eds. (Elsevier, Amsterdam, 2018), pp. 623 - 650.
- “Data-Driven Approaches for Detecting and Identifying Anomalous Data Streams,” (with Shaofeng Zou, Yingbin Liang and Xinghua Shi). Chapter 4 in *Signal Processing and Machine Learning for Biological Big Data*, Ervin Sejdić and Tiago H. Falk, Eds. (CRC Press, Boca Raton, FL, 2018), pp. 57 - 72.
- “Privacy in Networks of Interacting Agents.” Chapter 19 in *Emerging Applications of Control and System Theory: A Festschrift in Honor of Mathukumalli Vidyasagar*, Roberto Tempo, Stephen Yurkovich and Pradeep Misra, Eds. (Springer, New York, 2018), pp. 259 - 268.
- “Privacy in the Smart Grid: Information, Control and Games.” Chapter 18 in *Information Theoretic Security and Privacy of Information Systems*. Rafael Schaefer, Holger Boche, Ashish Khisti and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2017), pp. 498 - 518.
- “Super-Activation as a Unique Feature of Secure Communication Over Arbitrarily Varying Channels,” (with Rafael F. Schaefer and Holger Boche). Chapter 11 in *Information Theoretic Security and Privacy of Information Systems*. Rafael Schaefer, Holger Boche, Ashish Khisti and H. Vincent Poor, Eds. (Cambridge University Press, Cambridge, UK, 2017), pp. 314 - 330.
- Foreword to *Cloud Radio Access Networks: Principles, Technologies, and Applications*, Tony Q. S. Quek, Mugen Peng, Osvaldo Simeone and Wei Yu, Eds. (Cambridge University Press, Cambridge, UK, 2017), p. xiii.
- “Nonorthogonal Multiple Access (NOMA) for 5G Systems,” (with Zhiguo Ding). Chapter 6 in *Key Technologies for 5G Wireless Systems*, Vincent Wong, et al., Eds. (Cambridge University Press, Cambridge, UK, 2017), pp. 109 - 132.
- “Relaying for Massive MIMO,” (with Gayan Amarasuriya). Chapter 2 in *Advanced Relay Technologies in Next Generation Wireless Communications*, Ioannis Krikidis and Gan Zheng, Eds., (IET Press, London, 2016), pp. 39 - 70.
- “Arbitrarily Varying Channels - A Model for Robust Communication in the Presence of Unknown Interference,” (with Rafael F. Schaefer and Holger Boche). Chapter 12 in *Communications in Interference Limited Networks*, Wolfgang Utschick, Ed., (Springer-Verlag, Cham, Switzerland, 2016), pp. 259 - 283.
- “Broadcast Channels with Confidential Messages: Channel Uncertainty, Robustness, and Continuity,” (with Rafael F. Schaefer, Andrea Grigorescu and Holger Boche). Chapter 5 in *Physical and Data-Link Security Techniques for Future Communication Systems*, Marco Baldi and Stefano Tomasin, Eds., (Springer-Verlag, Cham, Switzerland, 2016), pp. 69 - 91.
- “Physical Layer Security: A Paradigm Shift in Data Confidentiality,” (with Arsenia Chorti, Camilla Hollanti and Jean-Claude Belfiore). Chapter 1 in *Physical and Data-Link Security Techniques for Future Communication Systems*, Marco Baldi and Stefano Tomasin, Eds., (Springer-Verlag, Cham, Switzerland, 2016), pp. 1 - 15.
- 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.
- “Fundamentals of Multi-User MIMO Communications,” (with Luca Sanguinetti). Chapter 6 in *New Directions in Wireless Communications Research*, Vahid Tarokh, Ed. (Springer-Verlag, New York, 2009), pp. 139 - 173.
- “Blind Multiuser Detection in Fading Channels,” (with Daryl Reynolds and Xiaodong Wang). Chapter 3 in *Advances in Multiuser Detection*, Michael Honig, Ed. (Wiley, New York, 2009), pp. 127 -187.
- “Impact of Cooperative Transmission on Network Routing,” (with Zhu Han). Chapter 13 in *Cooperative Wireless Communications*, Yan Zhang, Hsiao-Hwa Chen and Mohsen Guizani, Eds. (Taylor & Francis, London, 2009), pp. 283 - 316.
- “Random Array Theory and Collaborative Beamforming,” (with Hideki Ochiai, Patrick Mitran and Vahid Tarokh). Chapter 5 in *Handbook on Advancements in Smart Antenna Technologies for Wireless Networks*, Chen Sun, Jun Cheng and Takashi Ohira, Eds. (IGI Global, Hershey, PA, 2009), pp. 94 - 106.
- “UWB Localization Algorithms,” (with Sinan Gezici). Chapter 10 in *Short Range Wireless Communication: Emerging Technologies and Applications*, Rolf Kraemer and Marcos Katz, Eds. (Wiley, New York, 2008), pp. 73 - 84.

- “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.
- “Distributed Learning in Wireless Sensor Networks,” (with Joel B. Predd and Sanjeev R. Kulkarni). Chapter 8 in *Wireless Sensor Networks: Signal Processing and Communications Perspectives*, Ananthram Swami, Yao-Win Hong, Qing Zhao and Lang Tong, Eds. (Wiley, New York, 2007), pp. 185 - 214.
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Invited Plenary and Keynote Addresses:

- “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):

- “Tackling the Objective Inconsistency Problem in Heterogeneous Federated Optimization,” (with Jianyu Wang, Qinghua Liu, Hao Liang and Gauri Joshi). *Advances in Neural Information Processing Systems* (Proceedings of the Thirty-fourth Conference on Neural Information Processing Systems), Vancouver, BC, December 5 - 12, 2020, to appear.
- “Convergence of Meta-Learning with Task-Specific Adaptation over Partial Parameters,” (with Kaiyi Ji, Jason Lee and Yingbin Liang). *Advances in Neural Information Processing Systems* (Proceedings of the Thirty-fourth Conference on Neural Information Processing Systems), Vancouver, BC, December 5 - 12, 2020, to appear.
- “Age of Information in Random Access Networks: A Spatiotemporal Study,” (with Howard H. Yang, Ahmed Arafa and Tony Q. S. Quek). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Resource Allocation for Wireless Communications with Distributed Reconfigurable Intelligent Surfaces,” (with Zhaohui Yang, Mingzhe Chen, Walid Saad, Wei Xu, Mohammad Shikh-Bahaei and Shuguang Cui). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Flexible LED Index Modulation for MIMO Optical Wireless Communications,” (with Anil Yesilkaya, Ardimas Andi Purwita, Erdal Panayirci and Harald Haas). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Trajectory Optimization for UAV-to-Device Underlaid Cellular Networks by Mean-Field-Type Control,” (with Hongliang Zhang and Zhu Han). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Meta-Reinforcement Learning for Trajectory Design in Wireless UAV Networks,” (with Ye Hu, Mingzhe Chen, Walid Saad and Shuguang Cui). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Deep Reinforcement Learning for IoT Networks: Age of Information and Energy Cost Tradeoff,” (with Xiongwei Wu, Xiuhua Li, Jun Li and P. C. Ching). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “User Preference Aware Lossy Data Compression for Edge Caching,” (with Yawei Lu and Wei Chen). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “AoI Minimization for UAV-to-Device Underlay Communication by Multi-agent Deep Reinforcement Learning,” (with Fanyi Wu, Hongliang Zhang, Jianjun Wu, Lingyang Song and Zhu Han). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Joint Resource Allocation Optimization Over Energy Harvesting Based 6G THz-Band Big-Data-Driven Nano-Networks,” (with Xi Zhang and Jingqing Wang). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Age of Information Based Effective Capacity Over QoS-Driven Multimedia Mobile Wireless Networks,” (with Xi Zhang and Qixuan Zhu). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Interference Modeling and Mutual Information Maximization Over 6G THz Wireless Ad-Hoc Nano-Networks,” (with Xi Zhang and Jingqing Wang). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Energy-efficient Velocity Control for Massive Numbers of Rotary-Wing UAVs: A Mean Field Game Approach,” (with Hao Gao, Wonjun Lee, Wuchen Li, Zhu Han and Stanley Osher). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “AoI Minimization for Grant-Free Massive Access with Short Packets Using Mean-Field Evolutionary Games,” (with Hongliang Zhang, Yuhan Kang and Zhu Han). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.

- “Reconfigurable Intelligent Surface Assisted D2D Networks: Power and Discrete Phase Shift Design,” (with Yali Chen, Bo Ai, Hongliang Zhang, Yong Niu, Lingyang Song and Zhu Han) *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Reinforcement Learning for Minimizing Age of Information under Realistic Physical Dynamics,” (with Sihua Wang, Mingzhe Chen, Walid Saad, Changchuan Yin and Shuguang Cui). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “PLS for Wireless Interference Networks in the Short Blocklength Regime with Strong Wiretap Channels,” (with Zhichao Sheng, Hoang D. Tuan and Ali A. Nasir). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Backhaul Reliability Analysis on Cluster-Based Transmit Diversity Schemes in Private Networks,” (with Kyeong Jin Kim, Hongwu Liu, Phee Lep Yeoh and Philip V. Orlik). *Proceedings of the 2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 - 11, 2020, to appear.
- “Modeling COVID-19 with Mean Field Evolutionary Dynamics: Social Distancing and Seasonality,” (with Hao Gao, Wuchen Li and Zhu Han). *Proceedings of the Special Workshop on Communications and Networking Technologies for Responding to COVID-19*, held in conjunction with the *2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 -11, 2020, to appear.
- “Online Learning to Precode for FDD Massive MIMO Systems,” (with Daeun Kim and Namyeon Lee). *Proceedings of the Open Workshop on Machine Learning in Communications*, held in conjunction with the *2020 IEEE Global Communications Conference*, Taipei, Taiwan, December 7 -11, 2020.
- “A Prospect Theoretic Extension of a Non-Zero-Sum Stochastic Eavesdropping and Jamming Game.” (with Andrey GarnaeV, Wade Trappe and Narayan B. Mandayam). *Proceedings of the IEEE International Workshop on Information Forensics and Security*, December 6 - 11, 2020, to appear.
- *“Coordinated Rate Splitting Multiple Access for Multi-Cell Downlink Networks,” (with Nohgyeom Ha, Wonjae Shin, Mojtaba Vaezi). *Proceedings of the 54th Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, November 1 - 4, 2020.
- *“Secure Communication in an IRS Assisted Massive MIMO Downlink,” (with Saba Asaad, Ali Bereyhi, Rafael F. Schaefer and Ralf R. Müller). *Proceedings of the 54th Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, November 1 - 4, 2020.
- “Physics-based Modeling of Large Intelligent Reflecting Surfaces for Scalable Optimization,” (with Marzieh Najafi, Vahid Jamali and Robert Schober). *Proceedings of the 54th Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, November 1 - 4, 2020.
- “MMSE Bounds Under Kullback-Leibler Divergence Constraints on the Joint Input-Output Distribution.” (with Michael Fauß and Alex Dytso). *Proceedings of the 54th Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, November 1 - 4, 2020.
- “Sequential Estimation of Network Cascades,” (with Anirudh Sridhar). *Proceedings of the 54th Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, November 1 - 4, 2020.
- “Optimizing Resource Efficiency for Federated Edge Intelligence in IoT Networks,” (Yong Xiao, Yingyu Li and Guangming Shi). *Proceedings of the 12th International Conference on Wireless Communications and Signal Processing*, Nanjing, China, October 21 - 23, 2020. [Best Paper Award]
- “Truthful Mobile Crowd Sensing with Interdependent Valuations,” (with Meng Zhang, Brian Swenson and Jianwei Huang). *Proceedings of ACM Mobihoc: International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing*, October 11 - 14, 2020. [online]
- “A Power Control Problem for a Dual Communication-Radar System Facing a Jamming Threat,” (with Andrey GarnaeV, Athina Petropulu and Wade Trappe). *Proceedings of the 2020 IEEE Radar Conference*, Florence, Italy, September 21 - 25, 2020.
- *“Evolutionary Adaptations and Spreading Processes in Complex Networks.” Presented at the *C3.ai Workshop on Dynamics over Networks: Epidemics, Opinions and Information*, September 8 - 11, 2020.
- “Power Efficient Deployment of VLC-enabled UAVs,” (with Zhiyu Zhu, Yang Yang, Caili Guo, Mingzhe Chen and Shuguang Cui). *Proceedings of the IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, London, UK, August 31 - September 3, 2020.

- “Energy-Efficient Spatially-Correlated Data Aggregation Using Unmanned Aerial Vehicles,” (with Ahmed A. Al-habob and Octavia A. Dobre). *Proceedings of the IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, London, UK, August 31 - September 3, 2020.
- “Communication Rounds Discounting in Federated Learning with Differentially Privacy,” (with Kang Wei, Jun Li, Ming Ding and Chuan Ma). To be presented at the *21st IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks*, Cork, Ireland, August 31 - September 3, 2020.
- *“Topological and Geometric Methods for Resilience Analysis of Power Grid Networks,” (with Asim Kumer Dey and Yulia R. Gel). Presented at the 2020 Joint Statistical Meetings, Philadelphia, PA, August 1 - 6, 2020.
- “Delay Minimization for Federated Learning Over Wireless Communication Networks,” (with Zhaohui Yang, Mingzhe Chen, Walid Saad, Choong Seon Hong, Mohammad Shikh-Bahaei and Shuguang Cui). *Proceedings of the International Workshop on Federated Learning for User Privacy and Data Confidentiality*, in conjunction with the *International Conference on Machine Learning*, Vienna, Austria, July 17 - 18, 2020.
- “Uncertainty Quantification for Nonconvex Tensor Completion: Confidence Intervals, Heteroscedasticity and Optimality,” (with Changxiao Cai and Yuxin Chen). *Proceedings of the Thirty-seventh International Conference on Machine Learning (ICML)*, Vienna, Austria, July 12 - 18, 2020.
- “On the Algorithmic Computability of Achievability and Converse: Epsilon-Capacity of Compound Channels and Asymptotic Bounds of Error-Correcting Codes,” (with Holger Boche and Rafael F. Schaefer). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “Incremental ADMM with Privacy-Preservation for Decentralized Consensus Optimization,” (with Yu Ye, Hao Chen, Ming Xiao and Mikael Skoglund). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “Recovering Structure of Noisy Data through Hypothesis Testing,” (with Minoh Jeong, Alex Dytso and Martina Cardone). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “Biometric and Physical Identifiers with Correlated Noise for Controllable Private Authentication,” (with Onur Günlü and Rafael F. Schaefer). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “On Nonparametric Estimation of the Fisher Information,” (with Wei Cao, Alex Dytso, Michael Fauß and Gang Feng). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “A General Derivative Identity for the Conditional Mean Estimator in Gaussian Noise and Some Applications,” (with Alex Dytso and Shlomo Shamai). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “An Efficient Neural Network Design for Rate Maximization of Energy Harvesting Downlink Channels,” (with Heasung Kim, Taehyun Cho, Jungwoo Lee and Wonjae Shin). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “On MIMO Gaussian Wiretap Channels with Optimal Energy Harvesting,” (with Nima Tavangaran and Mojtaba Vaezi). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “Timely Estimation Using Coded Quantized Samples,” (with Ahmed Arafa, Karim Banawan and Karim G. Seddik). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “A Compression Perspective on Secrecy Measures,” (with Yanina Y. Shkel). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “Update Aware Device Scheduling for Federated Learning at the Wireless Edge,” (with Mohammad Amiri, Deniz Gündüz and Sanjeev Kulkarni). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.

- “Sequential Hypothesis Criterion Based Optimal Caching Schemes in Wireless Networks,” (with Xi Zhang and Qixuan Zhu). *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, June 21 - 26, 2020.
- “Partial Recovery of Erdős-Rényi Graph Alignment via k -Core Alignment,” (with Daniel Cullina, Negar Kiyavash and Prateek Mittal). *Proceedings of ACM SIGMETRICS 2020*, Boston, MA, June 8 - 12, 2020.
- “A dCDD-Based Transmit Diversity for NOMA Systems,” (with Kyeong Jin Kim, Hongwu Liu, Hongjiang Lei, Zhiguo Ding and Philip V. Orlik). *Proceedings of the IEEE International Conference on Communications*, Dublin, Ireland, June 7 - 11, 2020.
- “Data-Aided Channel Estimator for MIMO Systems Via Reinforcement Learning,” (with Yo-Seb Jeon, Jun Li and Nima Tavangaran). *Proceedings of the IEEE International Conference on Communications*, Dublin, Ireland, June 7 - 11, 2020.
- “Convergence Time Minimization of Federated Learning over Wireless Networks,” (with Mingzhe Chen, Walid Saad and Shuguang Cui). *Proceedings of the IEEE International Conference on Communications*, Dublin, Ireland, June 7 - 11, 2020.
- “Remote Short Block Length Process Monitoring: Trade-off Between Resolution and Data Freshness,” (with Stefan Roth, Ahmed Arafa and Aydin Sezgin). *Proceedings of the IEEE International Conference on Communications*, Dublin, Ireland, June 7 - 11, 2020.
- “Learning Centric Power Allocation for Edge Intelligence,” (with Shuai Wang, Rui Wang, Qi Hao and Yik-Chung Wu). *Proceedings of the IEEE International Conference on Communications*, Dublin, Ireland, June 7 - 11, 2020.
- “Sensing and Communication Trade-off Design for Age of Information Minimization in a Cellular Internet of UAVs,” (with Shuhang Zhang, Hongliang Zhang, Lingyang Song and Zhu Han). *Proceedings of the IEEE International Conference on Communications*, Dublin, Ireland, June 7 - 11, 2020.
- “Framing and Finite-Blocklength Coding for URLLC in Multi-user Downlinks,” (with Xiaoyu Zhao and Wei Chen). *Proceedings of the IEEE International Conference on Communications*, Dublin, Ireland, June 7 - 11, 2020.
- “Belief and Opinion Evolution in Social Networks Based on a Multi-Population Mean Field Game Approach,” (with Reginald A. Banez, Hao Gao, Lixin Li, Chungang Yang and Zhu Han). *Proceedings of the IEEE International Conference on Communications*, Dublin, Ireland, June 7 - 11, 2020.
- “Energy-Efficient Joint Power Control and Receiver Design for Uplink mmWave-NOMA,” (with Ming Zeng, Wanming Hao, Animesh Yadav, Nam-Phong Nguyen and Octavia A. Dobre). *Proceedings of the 6th IEEE International Workshop on NOMA for 5G and Beyond*, held in conjunction with the IEEE International Conference on Communications, Dublin, Ireland, June 7 - 11, 2020.
- “Sum-Throughput Maximization for NOMA-Based WPCN with Signal Alignment,” (with Dongyeong Song, Wonjae Shin and Jungwoo Lee). *Proceedings of the 6th IEEE International Workshop on NOMA for 5G and Beyond*, held in conjunction with the IEEE International Conference on Communications, Dublin, Ireland, June 7 - 11, 2020.
- *“Linear Precoder Design for Physical Layer Secure Communications with Reconfigurable Intelligent Surfaces,” (with Gayan Amarasuriya Aruma Baduge and Rafael F. Schaefer). *Proceedings of the 21st IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Atlanta, GA, May 26 - 29, 2020.
- *“Performance Optimization of Federated Learning over Mobile Wireless Networks,” (with Mingzhe Chen, Walid Saad and Shuguang Cui). *Proceedings of the 21st IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Atlanta, GA, May 26 - 29, 2020.
- “Information-Theoretic Bounds on the Generalization Error and Privacy Leakage in Federated Learning,” (with Semih Yagli and Alex Dytso). *Proceedings of the 21st IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Atlanta, GA, May 26 - 29, 2020.
- “A Class of Lower Bounds for Bayesian Risk with a Bregman Loss,” (with Alex Dytso and Michael Fauß). *Proceedings of the 21st IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Atlanta, GA, May 26 - 29, 2020.

- “Analyses of Age of Information Supporting URLLC Over Multimedia Wireless Networks,” (with Xi Zhang and Qixuan Zhu). *Proceedings of the 21st IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Atlanta, GA, May 26 - 29, 2020.
- “Statistical QoS Provisioning Over Cell-Free M-MIMO-NOMA Based 5G+ Mobile Wireless Networks in the Non-Asymptotic Regime,” (with Xi Zhang and Jingqing Wang). *Proceedings of the 21st IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Atlanta, GA, May 26 - 29, 2020.
- “Symbiotic Radio: A New Application of Large Intelligent Surface/Antennas (LISA),” (with Qianqian Zhang and Ying-Chang Liang). *Proceedings of the IEEE Wireless Communications and Networking Conference*, Seoul, South Korea, May 25 - 28, 2020.
- *“Learning at the Wireless Edge.” Presented at the *KTH Workshop on Fundamentals of Machine Learning over Networks*, Stockholm, Sweden, May 18 - 19, 2020, presented online.
- *“Age-Based Scheduling for Federated Learning in Mobile Edge Networks,” (with Howard H. Yang, Ahmed Arafa, Yaru Fu and Tony Q. S. Quek). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- *“Federated Learning with Quantization Constraints,” (with Nir Shlezinger, Mingzhe Chen, Yonina Eldar and Shuguang Cui). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- *“Hybrid Precoding for Secure Transmission in Reflect-Array-Assisted Massive MIMO Systems,” (with Saba Asaad and Rafael F. Schaefer). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- *“An Empirical Bayes Approach to Partially Labeled and Shuffled Data Sets,” (with Alex Dytso). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- *“On Distributed Stochastic Gradient Algorithms for Global Optimization,” (with Brian Swenson and Anirudh Sridhar). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- “A Switching Transmission Game with Latency as the Users Communication Utility,” (with Andrey Garnae, Wade Trappe and Athina Petropulu). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- “Bayesian Multiple Change-Point Detection with Limited Communication,” (with Topi Halme, Eyal Nitzan and Visa Koivunen). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- “On Polar Coding for Finite Blocklength Secret Key Generation over Wireless Channels,” (with Henri Hentil, Yanina Y. Shkel and Visa Koivunen) *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- “Robust Transmission Over Channels with Channel Uncertainty: An Algorithmic Perspective,” (with Holger Boche and Rafael F. Schaefer). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
- “Latency-Minimized Design of Secure Transmission in UAV-Aided Communications,” (with Xiongwei Wu, Qiang Li, Yawei Lu, Victor C. M. Leung and P. C. Ching). *Proceedings of the 45th IEEE International Conference on Acoustics, Speech and Signal Processing*, Barcelona, Spain, May 4 - 8, 2020.
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- “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:

- 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 Haley Guiliano, New York, NY; 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 University College, Dublin, Ireland; 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 Shalinee Kishore (now with Lehigh University; co-supervised with Stuart Schwartz)
- Topics in DS/CDMA Systems* (2002), by Yingwei Yao (now with the University of Illinois, Chicago)
- 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 Sarnoff Corp., 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 Qualcomm Corporation, 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 (now 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 (now with the Rensselaer Polytechnic Institute)

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