

CURRICULUM VITAE

K. J. RAY LIU, Ph.D.

Founder, Chairman, and CEO/CTO
Origin Wireless, Inc.
ray.liu@originwirelessai.com; <https://kjayliu.org>

2022 IEEE President and CEO
kjrlu@ieee.org

Distinguished University Professor (Ret.)
Distinguished Scholar-Teacher
Christine Kim Eminent Professor of Information Technology
University of Maryland, College Park
kjrlu@umd.edu

September 27, 2022

Education

Ph.D., Electrical Engineering Department, University of California, Los Angeles, 1990.

Dissertation: *Efficient and Reliable Parallel Processing Algorithms and Architectures for Modern Signal Processing*

M.S.E., Department of Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, 1987.

B.S., Electrical Engineering Department, National Taiwan University, Taipei, Taiwan, 1983.

Entrepreneurship and Industrial Experiences

- Founder, President, and CEO/CTO, 2013-present, Origin Wireless. (Pioneering AI for wireless sensing and tracking/positioning, <https://www.originwirelessai.com/>)
- Founder; President and Chief Executive Officer, 97-99; Board of Director, Odyssey Technologies, 1997-2000. (Multimedia software package bundled by IBM Thinkpad used by millions of users. Pioneered the world's first digital video surveillance systems (<http://remoteeyes.com/>)).
- Co-Founder; Board of Director, Hermes Technologies, Greece, 2001-2004. (Developed first smart antenna chipset for WLAN; bought by Broadcom)
- Chief Scientist, NeoParadigm Laboratories, San Jose, 1996-97 (developed first single chip H.263 video Codec at the time when SONY's state-of-the-art solution still featuring two chips).
- Serve in various capacity as legal expert consultant.

Academic Experiences

- *Distinguished University Professor* - the highest honor the university bestows, this title is conferred in recognition of extraordinary achievement as a teacher, scholar, and public servant, 2019 - 2021.

- Christine Kim Eminent Professor of Information Technology, 2010 - 2021; Professor, Electrical and Computer Engineering Department; Institute for Systems Research; Applied Mathematics and Scientific Computation Program; Bioengineering Program; University of Maryland, College Park, 2000 - 2010; Associate Professor, 1995 - 2000; Assistant Professor, 1990 - 1995.
- Director of Graduate Studies and Research, and Associate Chair of Electrical and Computer Engineering Department, University of Maryland, College Park, 2006 - 2013. (in charge of MS and Ph.D. graduate programs of ECE (about 500-600 graduate students), and Master of Telecommunications Program (grow from 60 to about 250 students), a joint program between ECE and Smith School of Business)
- Director, Communication and Signal Processing Laboratory (of about twenty faculty members), Electrical and Computer Engineering Department and Institute for Systems Research, University of Maryland, College Park, 2001 - 2021. (<http://www.cspl.umd.edu/>)
- Visiting Associate Professor, Electrical Engineering Department, Information System Laboratory, Stanford University, 1996-97.
- Founding Director, Digital Signal Processing Laboratory, University of Maryland, College Park, 1993 - 1998.

Professional Leadership Experiences

- 2022 IEEE President and CEO, President-Elect 2021; Past President 2023, in charge of the largest professional organization in the world with 420,000 members worldwide and about \$550M annual revenue with about 2000 conferences and 200 journals.
- 2019 IEEE Vice President - Technical Activities, in charge of about fifty societies/councils in IEEE, VP-Elect 2018; Past VP 2020 (elected by over 220,000 members of IEEE societies).
- IEEE Board of Director - Division IX Director, representing IEEE Aerospace and Electronic Systems Society; IEEE Geoscience and Remote Sensing Society; IEEE Information Theory Society; IEEE Intelligent Transportation Systems Society; IEEE Oceanic Engineering Society; IEEE Signal Processing Society; IEEE Vehicular Technology Society, 2016-17 (Director-Elect 2015).
- President, IEEE Signal Processing Society, 2012-2013 (President-Elect 2010-11; Past President 2014-15).
- Co-Founder, Asia-Pacific Signal and Information Processing Association (APSIPA), 2007; Board of Governor, 2014-17.
- Vice President - Publication, IEEE Signal Processing Society, 2006 - 2008 (developed processes and management structure for high quality publications; started the SPS e-newsletter; reduced SPS journals backlogs to zero; enforced fast turn-around time in manuscript reviews; established AE training at flagship conferences, and developed the AE nomination process).
- Editor-in-Chief, IEEE Signal Processing Magazine, 2003 - 2005 (Introduced new management system and features that significantly improve the scope and content appealing to broader readership, and undertook the leadership to reach the top-ranked Thomson JCI citation impact out of more than 200 journals in the electrical and electronic area).

- Founding Editor-in-Chief, EURASIP Journal on Advances in Signal Processing, 2000- 2002. (provided the vision of special issue oriented journal and led EURASIP JASP to become a highly respected, leading journal for signal processing and communications research in less than two years.)

Awards, Honors, and Recognitions in Research/Innovations

- *2021 Distinguished Alumni Award of National Taiwan University* - for outstanding research performance in the field of international electrical and electronics, and outstanding contribution to leading the innovation and development of IEEE and the global academic community and industrial advancement.
- *IEEE Fourier Award for Signal Processing* - an IEEE Technical Field Award "For outstanding leadership in and pioneering contributions to signal processing for wireless sensing and communications", 2021.
- *CES 2021 Best of Innovation Award* - for contact-free Remote Patient Monitoring using wireless AI.
- *CES 2021 Innovation Award* - for Hex Home, a DIY WiFi motion sensing home security system using wireless AI.
- *CES 2020 Innovation Award* - for Linksys Aware, a Belkin's WiFi motion sensing home security software enabled by wireless AI, 2020.
- *Fellow, National Academy of Inventors* - for the invention of wireless AI, 2019.
- *Distinguished University Professor* - "for extraordinary scholarly achievement and outstanding contributions to the intellectual life of the university", July 1, 2019.
- *APSIPA 2018 Grand Award* - "for Founding the APSIPA, and pioneering contributions for the advances of signal processing in multimedia forensics, security, and wireless communications".
- *2017 CEATEC Grand Prix* - The debut of Time-Reversal Machine of Origin Wireless won the Grand Prix in the Community Innovation Category at CEATEC, Japan, 2017.
- *2017 CEATEC Innovation Award* - "Selected by U.S. Journalists", CEATEC, Japan, 2017.
- *Clarivate Analytics Web of Science Highly Cited Researcher* (used to be called ISI or Thomson Reuters) - "In recognition of the worlds most influential minds as determined by ranking among the top 1% of researchers for most cited papers, in their specific field", 2001-2014, 2016, 2017.
- *IEEE Signal Processing Society 2014 Society Award (now called Norbert Wiener Society Award)* - "for influential technical contributions and profound leadership impact", (the highest award bestowed by IEEE SPS).
- *Selected to participate National Academies Keck Futures Initiative on Imaging Science*, 2010.
- *IEEE Signal Processing Society 2009 Technical Achievement Award (now called Claude Shannon-Harry Nyquist Technical Achievement Award)* - "for pioneering and outstanding contributions for the advances of signal processing in multimedia forensics, security, and wireless communications".

- *Panellist, IEEE 125th Anniversary Media Event* - "research featured as one of seven technologies that IEEE believes will have the world changing implications on the way humans interact with machines, the world and each other, in honor of IEEE's 125th anniversary", New York City, March 10, 2009.
- *Fellow, American Association for the Advancement of Science (AAAS)* - "for distinguished contributions to signal processing for wireless communications, multimedia, and information forensics and security", Nov 2008.
- *A. James Clark School of Engineering Faculty Outstanding Research Award*, - "to recognize exceptionally influential research accomplishments for pioneering work on information forensics and security, wireless communications, and bioinformatics", (one per year for the entire college), 2008.
- *Distinguished Scholar-Teacher Award* - "for outstanding scholarly accomplishment, combined with excellence in teaching, personify the image of the professorate", (up to five per year selected from the entire university, officially conferred in an annual university convocation), Office of the Provost, University of Maryland, 2007.
- *Distinguished Lecturer*, IEEE Signal Processing Society, 2004.
- *IEEE Fellow* - "for contributions to algorithms, architectures, and implementations for signal processing", 2003.
- Listed in *Who's Who in Science and Engineering* and *Who's Who in America*, since 1999.
- *Outstanding Systems Engineering Faculty Award* - "in recognition of outstanding interdisciplinary research and in all other aspects of the ISR programs", Institute for Systems Research, University of Maryland", 1996.
- *National Science Foundation Young Investigator Award* - "for recognition of the Nation's most outstanding and promising young faculty in science and engineering", 1994.
- *Research Initiation Award*, Signal Processing Program, National Science Foundation, 1993.

Awards, Honors, and Recognitions in Teaching/Education

- *2016 IEEE Leon K. Kirchmayer Award for Graduate Teaching and Mentoring* - an IEEE Technical Field Award "for exemplary teaching and curriculum development, inspirational mentoring of graduate students, and broad educational impact in signal processing and communications".
- *Fellow, Academy for Excellence in Teaching and Learning*, University of Maryland, College Park, 2007.
- *Distinguished Scholar-Teacher Award* - "for outstanding scholarly accomplishment, combined with excellence in teaching, personify the image of the professorate", (up to five per year selected from the entire university, officially conferred in an annual university convocation), Office of the Provost, University of Maryland, 2007.

- *Poole and Kent Senior Faculty Teaching Award* - "for significant and dedicated contribution to undergraduate and graduate teaching and leadership in modernization/revision of graduate curriculum", (one selected from all of engineering per year), A. James Clark School of Engineering (College of Engineering), University of Maryland, 2005.
- *George Corcoran Award* - "for outstanding contributions to electrical engineering education", Electrical Engineering Department, University of Maryland, 1994.
- *Hortense Fishbaugh Memorial Scholarship* - "for outstanding academic achievement" (only three awards per year for the entire graduate school), UCLA, 1989-90.
- *Achievement Award*, Taiwanese-American Foundation, 1989.
- *University Fellowship* - "for highest distinguished graduate students" (only one award in Electrical Engineering), UCLA, 1987-90.
- *President Research Partnership* - "for high quality research project and outstanding academic record", University of Michigan, Ann Arbor, 1987.
- *Prof. Feng Memorial Scholarship* - "for outstanding undergraduate students in College of Engineering" (three per year), National Taiwan University, 1982.
- *Book Coupon Award* - "for top 5% students", National Taiwan University, 1979-80.

Awards, Honors, and Recognitions in Services

- *2021 IEEE Technical Activities Board Hall of Honors* - for starting the financial transparency movement, initializing and realizing of IEEE DataPort and IEEE App.
- *IEEE Signal Processing Society 2016 Meritorious Service Award* - for exemplary service to and leadership in the Signal Processing Society.
- *A. James Clark School of Engineering Faculty Outstanding Service Award*, - "for outstanding service, dedication, and commitment to the graduate programs", (one per year selected from the entire college), A. James Clark School of Engineering, University of Maryland, 2012.
- *EURASIP Meritorious Service Award* - "for leadership in establishing EURASIP Journal on Applied Signal Processing (JASP) as a leading journal in the field", European Association for Signal, Speech and Image Processing (EURASIP), 2004.
- *Service Award* - "for outstanding and dedicated voluntary service as a Director of the Board of Mei-Hwa Chinese School", Silver Spring, MD, 1995.

Best Paper and Invention Awards and Recognitions

- *ACM International Workshop on Intelligent Acoustic Systems and Applications Best Paper Award*, by ACM SIGMobile, for the paper "Beyond Microphone: mmWave-Based Interference-Resilient Voice Activity Detection", 2022.
- *IEEE 7th World Forum on Internet of Things Best Student Paper Award (First Place)* (Yuqian Hu) - Advisor and co-author, for the paper: Universal Virtual Keyboard Using 60 GHz mmWave Radar, June 2021

- Origin Wireless Included in Crunchbase CB Insights 2021 AI 100 Startups Redefining Industries as one of the 100 most promising private AI companies in the world .
- 2021 Red Dot Design Award - Hex Home Wins Red Dot Award for Innovative Design Award Showcases System as the Next Generation of Home Security, a standout amongst more than 18,000 entries.
- International Business Times selects Hex Home as "Best of CES 2021".
- Forbes selects Hex Home as "The Best Intros At The Show" in CES 2021.
- CNN Underscored selects Linksys Aware as "Best of CES 2021", the only one in Smart Home.
- Popular Science selects Linksys Aware as "The Most Significant Security Innovations of 2020".
- Newsweek selects Linksys Aware as "Best of CES 2020".
- *2020 IEEE Internet of Things Journal Best Paper Award*, by IEEE Sensors Council for the paper "WiSpeed: A Statistical Electromagnetic Approach for Device-Free Indoor Speed Estimation", June 2018.
- *IEEE ICASSP 2016 Best Student Paper Award* (Chen Chen and Yi Han) - Advisor and co-author, for the paper: "High Accuracy Indoor Localization: A WiFi-Based Approach", (selected from among 1200+ presented papers)IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Shanghai, March 2016.
- *2015 IEEE Signal Processing Society Overview Paper Award* - for the paper: "Advances in Cognitive Radios: A Survey", *IEEE Journal of Selected Topics on Signal Processing*, 2011.
- *2013 IEEE Global Communications Conference (Globecom) Best Paper Award*, Atlanta, (selected from among 850 presented papers), for the paper: "Evolutionary Game for Joint Spectrum Sensing and Access in Cognitive Radio Networks".
- *2013 Jimmy Lin Award for Invention*, in recognition of the invention "Time-Reversal Division Multiple Access for Wireless Broadband Communications", Electrical and Computer Engineering Department, University of Maryland, 2013.
- *Invention of the Year Award* - for the invention, "Time-Reversal Division Multiple Access for Wireless Broadband Communications", Office of Technology Commercialization, University of Maryland, 2012.
- *2011 Jimmy Lin Award for Invention*, in recognition of the invention "Active Sensing for Dynamic Spectrum Access", Electrical and Computer Engineering Department, University of Maryland, 2011.
- *Invention of the Year Award* - for the invention, "Active Sensing for Dynamic Spectrum Access", Office of Technology Commercialization, University of Maryland, 2010.
- *IEEE Signal Processing Society 2008 Young Author Best Paper Award* (H. Vicky Zhao), Advisor and Co-author, for the paper: "Behavior Forensics for Scalable Multiuser Collusion: Fairness vs. Effectiveness", *IEEE Trans. on Information Forensics and Security*, 2006.

- *Award of Excellence in Cover Design* - the Society for Technical Communication's Technical Art competition, (as Editor-in-Chief of IEEE Signal Processing Magazine leading the effort in the redesign of the Magazine), 2005-2006
- *Horizon Awards - Honorable Mention*, "for technology development of Multimedia Fingerprinting Forensics for Traitors Tracing", Computerworld Magazine, 2006.
- *IEEE Signal Processing Society 2005 Best Paper Award* - for the paper: "Anti-Collusion Fingerprinting for Multimedia", *IEEE Trans. on Signal Processing*, 2003.
- *Invention of the Year Award* - for the invention, "Coding Techniques for Maximum Achievable Diversity in Space, Time and Frequency for Broadband Wireless Communications", Office of Technology Commercialization, University of Maryland, 2004.
- *EURASIP 2004 Best Paper Award* - "for the best paper published in EURASIP Journal on Applied Signal Processing", 2004, for the paper: "Group-Oriented Fingerprinting for Multimedia Forensics".
- *Best Paper Award* - 50th IEEE International Vehicular Technology Conference (VTC), Amsterdam, 1999 (selected from among 700 papers), for the paper: "Downlink Beamforming for DS-CDMA Mobile Radio with Multimedia Services".
- *IEEE Signal Processing Society's 1993 Senior Award (Best Paper Award)* for the paper: "Systolic Block Householder Transformation for RLS Algorithm with Two-Level Pipelined Implementation", *IEEE Trans. on Signal Processing*, 1992.

Honorary Professorship and Honor Society

- *Advisory Professor*, Northwestern Polytechnical University, Xi'an, 2011.
- *Chair Professor*, National Chiao Tung University, Hsinchu, 2012.
- *Distinguished Chair Professor*, National Taiwan University, Taipei, 2015.
- *Sigma Xi, The Scientific Research Honor Society*, 2020.

Keynotes and Plenary Talks

- "My Ventures and Lessons Learned", Keynote, IEEE Signal Processing Society Entrepreneurship Forum at ICASSP, Singapore, May 22, 2022.
- "Wireless AI: " A New Sixth Sense to Deciphering our World", Keynote, Symposium on Innovation and Technology, Hong Kong Electronic Technologies Association, Hong Kong, Nov 16, 2020.
- "Wireless AI: " A New Sixth Sense to Deciphering our World", Keynote, IEEE International Conference on Signal Processing, Communications and Computing (ICSPCC 2020), Macau, Aug 22, 2020.
- "How Is Wireless AI Changing Our World?", Keynote, IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT), Bangalore, July 3, 2020.

- "Wireless AI: Smart Radios for Smart Life", Keynote, IEEE 43rd Annual Computer Software and Applications Conference (COMPSAC), Milwaukee, July 16, 2019.
- "Smart Radios for Smart Life", Keynote, APSIPA Annual Summit and Conference (ASC), Kuala Lumpur, Dec 15, 2017.
- "Smart Radios for Smart Life", Keynote, Smart Healthcare Forum, National Chiao Tung University, July 14, 2017.
- "Smart Radios for Smart Life", Plenary Keynote, IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), New Orleans, March 7, 2017.
- "Smart Radios for Smart Life", Keynote, International Forum on Innovation and Emerging Industries Development, Shanghai Government and Chinese Academy of Engineering, Nov 2, 2016.
- "Why time-Reversal for Future 5G Wireless?", Keynote, Next Generation 5G/IoT Wireless Communications Workshop, Hsinchu, Jan 21, 2016.
- "Time-Reversal Signal Processing", Keynote, IEEE China Summit and International Conference on Signal and Information Processing (ChinaSIP), Chengdu, July 13, 2015.
- "Learning with Strategic Decision Making in Social Media", Keynote, the 27th Chinese Control and Decision Conference (CCDC), Qingdao, May 23, 2015.
- "Data-Driven Route Selection in Cognitive Vehicular Networks", Keynote, IEEE GlobalSIP, Symposium on Signal Processing for Cognitive Radios and Networks, Atlanta, Dec 4, 2014.
- "Decision Learning in Data Science: Where John Nash Meets Social Media", Keynote, Interspeech, Singapore, Sep 16, 2014.
- "A Time-Reversal Paradigm for Green Internet of Things", Keynote, 2013 IEEE Workshop on Signal Processing Systems, Taipei, Oct 16, 2013.
- "Information Anti-Forensics", Keynote, APSIPA Annual Summit and Conference (ASC), Xi'an, Oct 20, 2011.
- "Information Anti-Forensics", Keynote, 7th International Symposium on Image and Signal Processing and Analysis (ISPA), Dubrovnik, Sep 5, 2011.
- "Cognitive Radio Games", Keynote, 2011 Workshop on Advances in Wireless Communications, Nanjing/Chengdu, July 4/July 7, 2011.
- "Cognitive Radio Games", Keynote, 2011 Virginia Tech Symposium on Wireless Communications, Blacksburg, June 2, 2011.
- "Reverse Engineering of Multimedia Devices: An Information Forensic Paradigm", Keynote, International Symposium on Speech and Multimedia Processing, in honoring Prof. Sadaoki Furui's retirement, Tokyo, March 8, 2011.
- "Multimedia Social Networking: A New Paradigm for Signal and Image Processing", Plenary, IEEE International Conference on Image Processing (ICIP), Hong Kong, Sep 29, 2010.

- "Reverse Engineering of Electronic Devices: An Information Forensic Paradigm", Keynote, IEEE International Conference on Industrial Electronics and Applications, Xi'an, May 26, 2009
- "Genomic/Proteomic Signal Processing for Cancer Classification and Prediction", Keynote, IEEE 125th Anniversary Media Event, New York City, March 10, 2009.
- "Genomic/Proteomic Signal Processing for Cancer Classification and Prediction", Keynote, International Symposium on Intelligent Signal Processing and Communication Systems (IS-PACS), Bangkok, Feb 9, 2009.
- "Towards New Communication Paradigm via Cooperation", Keynote, IEEE International Conference on Communications (ICC) Workshop on Cooperative Communications and Networking: Theory, Practice & Applications, Beijing, May 23, 2008.
- "Multimedia Forensics: Where Sherlock Holmes Meets Signal Processing", Plenary, IEEE International Conference on Multimedia (ICME), Toronto, July 9, 2006.
- "Multimedia Forensics for Traitors Tracing", Keynote, IEEE Multimedia Signal Processing (MMSP) Workshop, Shanghai, Nov 2, 2005.

Distinguished/Invited Lectures

- "Wireless AI: " A New Sixth Sense to Deciphering our World", IEEE Hong Kong Sections, Sep 4, 2020.
- "Wireless AI: " A New Sixth Sense to Deciphering our World", IEEE Iran, Oman, UAE Sections, Sep 3, 2020.
- "Wireless AI: " A New Sixth Sense to Deciphering our World", Distinguished Lecture (virtual), The National Academy of Sciences India (NASI)-Delhi Chapter and University of Delhi, Aug 30, 2020.
- "Wireless AI: " A New Sixth Sense to Deciphering our World", Distinguished Lecture (virtual), IEEE ComSoc Madras chapter and IEEE Product Safety Engineering Society, India, July 27, 2020.
- "Wireless AI: " A New Sixth Sense to Deciphering our World", Distinguished Lecture (virtual), Tsinghua University, June 19, 2020.
- "Wireless AI: Smart Radios for Smart Healthcare", US Food and Drug Administration, Nov 1, 2018.
- "Wireless AI: Smart Radios for Smart Healthcare", National Institute of Health, Sep 27, 2018.
- "Wireless AI: Deciphering our World with a New Sixth Sense", Hughes Network Systems, July 20, 2018.
- "Wireless AI: Deciphering our World with a New Sixth Sense", Faculty of Engineering Distinguished Lecture, Hong Kong Polytechnic University, May 24, 2018.

- "Radio Analytics: The Future Platform for Wireless Positioning, Tracking and Sensing", Distinguished Lecture, Instituto Superior Tcnico (IST), Lisbon, May 10, 2018.
- "Smart Radios for Smart Life", Distinguished Lecture, Academia Sinica, July 12, 2017.
- "Smart Radios for Smart Life", National Taiwan University, July 11, 2017.
- "Pursuing Academic Career and Becoming an Academic Entrepreneur", Ming Hsieh Institute Distinguished Visitor Lecture, University of Southern California, March 4, 2016
- "Learning with Strategic Decision Making in Social Media", Ming Hsieh Institute Distinguished Visitor Lecture, University of Southern California, March 3, 2016
- "Why Time-Reversal for Future 5G Wireless?", Ming Hsieh Institute Distinguished Visitor Lecture, University of Southern California, March 2, 2016
- "Why Time-Reversal for Future 5G Wireless?", Distinguished Lecture, Telecom Technology Center, Taipei, Jan 20, 2016.
- "Why Time-Reversal for Future 5G Wireless?", Distinguished Chair Lecture, National Taiwan University, Taipei, Jan 18, 2016.
- "A Time-Reversal Paradigm for Green Internet of Things", Distinguished Lecture, IEEE Abu Dhabi Chapter, June 1, 2014.
- "Decision Learning: Where John Nash Meets Social Media", Institute for Infocomm Research, A*Star, Singapore, Jan 20, 2014.
- "A Time-Reversal Paradigm for Green Internet of Things", Distinguished Lecture IEEE SPS Singapore Chapter and Nanyang Technological University, 1/17/2014.
- "A Time-Reversal Paradigm for Green Internet of Things", Rutgers University, Nov 20, 2013.
- "Decision Learning: Learning with Strategic Decision Making", Microsoft Research, Nov 14, 2013.
- "A Time-Reversal Paradigm for Green Internet of Things", National Sun Yat San University, Oct 28, 2013.
- "Evolutionary Information Diffusion over Social Networks", Distinguished Lecture, National Chiao Tung University/IEEE SPS Taipei Chapter, Oct 24, 2013.
- "Global Leadership", Tokyo Institute of Technology, Oct 22, 2013.
- "Green Wireless Communications: A Time-Reversal Paradigm", Distinguished Lecture Series, University of Toronto, Oct 10, 2013.
- "Green Wireless Communications: A Time-Reversal Paradigm", Distinguished Lecture Series, North Carolina State University, March 15, 2013.
- "Cognitive Radio Games", National Chiao Tung University, Aug 15, 2012.

- "Green Wireless Communications: A Time-Reversal Paradigm", Academic Sinica, Aug 10, 2012.
- "Green Wireless Communications: A Time-Reversal Paradigm", Chung Yuan Christian University, Aug 9, 2012.
- "Green Wireless Communications: A Time-Reversal Paradigm", Institute for Information Industry, Aug 6, 2012.
- "Global Leadership", Tokyo Institute of Technology, March 23, 2012.
- "Green Wireless Communications: A Time-Reversal Paradigm", Advisory Professorship Honor Lecture, Northwestern Polytechnical University, Oct 19, 2011.
- "Green Wireless Communications: A Time-Reversal Paradigm", Tsinghua University, Oct 17, 2011.
- "Green Wireless Communications: A Time-Reversal Paradigm", Distinguished Lecture, National Chiao Tung University/IEEE SPS Taipei Chapter, Oct 14, 2011.
- "Cognitive Radio Games", K.U. Leuven, Sep 12, 2011
- "Cognitive Radio Games", Distinguished Lecture, IEEE Zagreb Chapter, Sep 9, 2011.
- "Reverse Engineering of Electronic Devices: An Information Forensic Paradigm", Shun Hing Distinguished Lecture Series, Chinese University of Hong Kong, Sep 22, 2010.
- "Multimedia Social Networking: A New Paradigm for Signal and Image Processing", National Cheng Kung University, July 26, 2010.
- "Reverse Engineering of Electronic Devices: An Information Forensic Paradigm", Mediatek, July 23, 2010.
- "Study Abroad: A Conversation with Undergraduate Students", National Taiwan University, July 20, 2010.
- "Reverse Engineering of Electronic Devices: An Information Forensic Paradigm", National Taiwan University, July 20, 2010.
- "A Vision for Future Research Frontiers", National Taiwan University, July 19, 2010.
- "Multimedia Social Networking: A New Paradigm for Signal and Image Processing", Academia Sinica, July 16, 2010.
- "Cognitive Radio Networks: A Tutorial", National Communication Commissions, Taiwan, July 15, 2010.
- "A Journey to Lead", National Tsing Hua University, July 13, 2010.
- "Reverse Engineering of Electronic Devices: An Information Forensic Paradigm", National Tsing Hua University, July 13, 2010.
- "Multimedia Social Networking: A New Paradigm for Signal and Image Processing", National Taiwan University, July 7, 2010.

- "Multimedia Social Networking: A New Paradigm for Signal and Image Processing", National Tsing Hua University, July 6, 2010.
- "A Journey to Lead", Infuse Center, A*Star, Singapore, June 28, 2010.
- "Multimedia Social Networking: A New Paradigm for Signal and Image Processing", Institute for Infocomm Research, A*Star, Singapore, June 24, 2010.
- "Dynamic Spectrum Allocation over Cognitive Radio Networks", National Communication Commissions, Taiwan, April 22, 2009.
- "Towards New Communication Paradigm via Cooperation", Distinguished Lecture, Department of Electrical Engineering, National Taiwan University, April 20, 2009.
- "Towards New Communication Paradigm via Cooperation", Drexel University, April 3, 2009.
- "Towards New Communication Paradigm via Cooperation", Global Center of Excellence, Hokkaido University, December 5, 2008.
- "Towards New Communication Paradigm via Cooperation", Tsinghua University, May 25, 2008.
- "Dynamic Spectrum Sharing over Cognitive Radio", Kyoto University, Dec 10, 2007.
- "Information Forensics: What Sherlock Holmes would do", Distinguished Scholar-Teacher Award Lecture Presentation, University of Maryland, College Park, Nov 16, 2007.
- "Multimedia Forensics: Where Sherlock Holmes Meets Signal Processing", IEEE Washington DC Signal Processing Chapter, Feb 27, 2007.
- "Recent Advances in Multimedia Forensics", University of British Columbia, Vancouver, Feb 16, 2007.
- "Trust Modeling and Evaluation in Distributed Networks", National Taiwan University, Jan 15, 2007.
- "Cooperative Communications and Networking", Distinguished Lectures Series in Telecommunications, National Chiao Tung University, Taiwan, Jan 13-14, 2007.
- "Multimedia Forensics: Where Sherlock Holmes Meets Signal Processing", Institute for Infocomm Research, Singapore, Sep 27, 2006.
- "Can Signal Processing Predict Cancer at the Genomic/Proteomic Levels?", Distinguished Lecture Series, Electrical and Computer Engineering Department, Rutgers University, Oct 7, 2005.
- "Multimedia Forensics for Traitors Tracing", Invited Talk, Multimedia and Mathematics Workshop, Banff International Research Station, Canada, July 24, 2005.
- "Towards Full Diversity in Space, Time, and Frequency for Wireless Communications", Distinguished Lecture, Department of System Science, Kyoto University, Kyoto, June 23, 2005.

- "Tracing Traitors: Collusion Resistant Fingerprinting for Multimedia Forensics", F. Wendell Miller and Information Infrastructure Institute Distinguished Lecture Series, Electrical and Computer Engineering Department, Iowa State University, Apr 22, 2005.
- "Ensemble Dependence Model for Classification of Cancer and Normal Patterns using Gene Expression Data", Bioinformatics and Biostatistics Seminar Series, Lombardi Comprehensive Cancer Center, Georgetown University Medical Center, March 18, 2005.
- "Tracing Traitors: Collusion Resistant Fingerprinting for Multimedia Forensics", Distinguished Lecture, IEEE Minneapolis Chapter and University of Minnesota, Apr 21, 2005.
- "Multimedia Forensics for Traitors Tracing", Distinguished Lecture, IEEE Japan Chapter, Tokyo Institute of Technology, Tokyo, June 20, 2005.
- "Can Signal Processing Predict Cancer?", Distinguished Lecture, IEEE Japan Chapter, Kyoto University, Kyoto, June 22, 2005.
- "Can Signal Processing Predict Cancer?", Distinguished Lecture, IEEE Taipei Chapter, National Taiwan University, June 27, 2005.
- "Can Signal Processing Predict Cancer?", Distinguished Lecture, IEEE Taipei Chapter, National Tsing Hua University, June 28, 2005.
- "Can Signal Processing Predict Cancer?", Distinguished Lecture, IEEE Taipei Chapter, Academia Sinica, June 29, 2005.
- "Multimedia Forensics for Traitors Tracing", Distinguished Lecture, IEEE Baltimore Chapter, Sep 28, 2005.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture Series, The Edward S. Rogers Sr. Department of Electrical & Computer Engineering, University of Toronto, Oct 7, 2004.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture, IT University of Copenhagen, and IEEE Denmark Chapter, Aug 31, 2004.
- "Innovating IT - from Research to High-Tech Start-Up", Distinguished Lecture, IT University of Copenhagen, and IEEE Denmark Chapter, Sep 1, 2004.
- "Toward Full Diversity in Space, Time, and Frequency", invited speaker, US-Egypt Workshop on Wireless and Telecommunication Technologies, Cairo, Jan 14, 2004.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", IEEE Distinguished Lecture, Georgia Institute of Technology, March 24, 2004.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture, IEEE Dallas Chapter, March 26, 2004.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture, IEEE Rochester Chapter, July 28, 2004.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture, IEEE Syracuse Chapter, July 29, 2004.

- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", IEEE Distinguished Lecture, UCLA, Aug 12, 2004.
- "Broadband Multimedia Communications and Signal Processing", Distinguished Lecture, IEEE Montreal Chapter, Canada, Sep 22, 2004.
- "Toward Full Diversity in Space, Time, and Frequency", Distinguished Lecture, IEEE Toronto Section, Oct 8, 2004.
- "Tracing Traitors: Collusion Resistant Fingerprinting for Multimedia Forensics", Distinguished Lecture, IEEE Pittsburgh Chapter, Nov 3, 2004.
- "Tracing Traitors: Collusion Resistant Fingerprinting for Multimedia Forensics", Distinguished Lecture, IEEE Chicago Chapter, Dec 2, 2004.
- "Toward Full Diversity in Space, Time, and Frequency", Distinguished Lecture, University of Duisburg-Essen, Germany, Sep 22, 2003.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture Series, Ryerson University, Canada, Oct 10, 2003.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture, National Taiwan University, Taiwan, Oct 21, 2003.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture, National Chao Tung University, Taiwan, Oct 22, 2003.
- "Tracing Traitors: Collusion Resistant Multimedia Fingerprinting", Distinguished Lecture, Academia Sinica, Taiwan, Oct 29, 2003.

Professional Services

- IEEE journal developments: wrote the proposal of IEEE Trans. on Multimedia in 1997, proposed Trans. on Info. Forensics and Security in 2004, developed Journal of Selected Topics in Signal Processing in 2005, and initiated the creations of Trans. on Computational Imaging and Trans. on Signal and Information Processing over Networks in 2013.
- Advisor of Institute of Information Science, Academia Sinica, Taiwan, 2018 - present.
- Advisor of 5G Technology Program Office, Ministry of Economics, Taiwan, 2016 - present.
- Overseas Academic Advisor, Hong Kong Polytechnical University, 2015 - 18.
- Chair, IEEE TAB ad hoc committee on Business Models and Services, 2016.
- Member, IEEE TAB Financial Committee, 2014-15.
- Member, IEEE Fellow Committee, 2015 - 16.
- Panelist, CMU-Portugal National Science foundation Joint Research Program, Lisbon, 2015.
- Associate Editor, IEEE Trans. on Signal and Information Processing over Networks, 2014 - present.

- Reviewer, National Center for the Assessment of Higher Education, Saudi Arabia, 2014.
- Reviewer, National Center of Excellence, National Commission for Scientific and Technological Research, Chile, 2012, 2014.
- Reviewer, National Networked Communication Program, Ministry of Science and Technology, Taiwan 2014.
- Reviewer, National Chair Professorship, Education Ministry, Taiwan, 2012.
- European Research Council Advanced Grant Panel, European Commission, Brussels, 2011.
- Co-General Chair, First APSIPA Annual Summit and Conference, Sapporo, 2009.
- International Review Panel Member for National Research Network in Science and Engineering, Austrian National Science Foundation, 2008.
- General Chair, IEEE International Conference on Acoustic, Speech, and Signal Processing (ICASSP), Hawaii, 2007.
- *Board of Governor*, IEEE Signal Processing Society, 2004 - 06.
- International Review Panel Member, National Center of Excellence in Science and Engineering Technology, National Academy of Finland, 2005.
- IEEE Technical Activities Board (TAB) Finance Committee, 2014-15.
- Guest Editor, special issue on social learning and networking, IEEE Signal Processing Magazine, 2012.
- Guest Editor, special issue on signal and information processing for social networks, IEEE Journal of Selected Topics on Signal Processing, 2010.
- IEEE Technical Activities Board (TAB) Periodical Committee, 2009.
- IEEE Trans. on Mobile Computing Steering Committee, 2007-08.
- IEEE Trans. on Multimedia Steering Committee, 2007-08.
- Guest Editor, special issue on cooperative communications and networking, IEEE Journal of Selected Areas in Communications, Feb 2007.
- Advisor: University Area of Strategic Development Advisory Committee, The Hong Kong Polytechnic University, 2001- 2004; Electrical and Computer Engineering Department, Catholic University of America, 2005.
- General Chair, IEEE International workshop on Genomic Signal Processing and Statistics, Newport, May 2005.
- Series Editor, EURASIP Book Series on Signal Processing and Communications, Hindawi, 2003 - 2005.
- Senior Advisory Editor, EURASIP Journal on Applied Signal Processing, Hindawi, 2002 - 2005.

- Technical Program Chair, IEEE International Conference on Multimedia and Expo, Baltimore, Aug. 2003.
- Guest Editor, Special Issue on Multimedia over IP, IEEE Trans. on Multimedia, March 2001.
- Chair, Multimedia Signal Processing Technical Committee, IEEE Signal Processing Society, March, 1999 - Dec. 2001.
- Guest Editor, Special Issue on Multimedia Communications Over Networks, IEEE Signal Processing Magazine, July 2000.
- Guest Editor, Special Issue on Signal Processing for Wireless Communications, IEEE Journal of Selected Areas in Communications, Oct. 1998 and Dec. 1998.
- Guest Editor, Special Issue on Multimedia Signal Processing and Technology, Proceedings of The IEEE, May and June, 1998.
- Editor, Journal of VLSI Signal Processing Systems, 1996 - present.
- Associate Editor, IEEE Journal of Selected Topics on Signal Processing, 2010-2012.
- Associate Editor, IEEE Signal Processing Magazine, 2011-2013.
- Associate Editor, IEEE Transactions on Signal Processing, May 1994 - April, 1997.
- Series Editor, The Marcel Dekker Book Series on Signal Processing and Communications, Marcel Dekker Publisher, New York City, 1997 - 2002.
- Publication Board, IEEE Signal Processing Society, 2003 - present.
- Conference Board, IEEE Signal Processing Society, 2003 - present.
- General Co-Chair, First IEEE Asia-Pacific Conference on Multimedia and Exposition, Sydney, Dec. 2000.
- Technical Co-Chair, IEEE International Workshop on Multimedia Signal Processing, Copenhagen, Denmark, Sep. 1999.
- Panelist, DARPA Low-Power Computing Program, 1998.
- Panelist on "Multimedia - Current Status and Future Directions", IEEE Int'l Conference on Multimedia and Expo, Aug. 2000, New York City.
- Invited Guest, Microsoft Research Faculty Summit, Redmond, July 2003; Aug 2004.

Doctoral and Postdoctoral Students Advising

(Ten are IEEE Fellows, three are listed as Web of Science Highly Cited Researchers, and thirty are faculty of major universities worldwide)

1. Ching-Te Grace Chiu, "VLSI Algorithms and Architectures for Transform Codings with Applications to Real-Time Video Communications", University of Maryland, 1992. (*National Tsing Hua University, Taiwan*)

2. Manolis Frantzeskakis, "An Architectural Framework for VLSI Time-Recursive Computation with Applications", (co-supervised) University of Maryland, 1993. (*Broadcom/Founder&CEO, Hermes Technology*)
3. An-Yeu Andy Wu, "Algorithm-Based Low-Power Digital Signal Processing System Designs", University of Maryland, 1995. (*National Taiwan University, Taiwan*) (IEEE Fellow)
4. Hongyi Wang, "Signal Processing Techniques for Increasing Channel Capacity in Wireless Communications", University of Maryland, 1996. (*Bell Labs, Lucent Technologies, Whippany*)
5. Ye Geoffrey Li, Postdoctoral research, 1994 - 1996. (*Imperial College*) (IEEE Fellow, Web of Science Highly Cited Researcher)
6. Ut-Va Koc, "Low Complexity and High Throughput Fully DCT-Based Motion Compensated Video Coders", University of Maryland, 1996. (*Bell Labs, Lucent Technologies, Murray Hill*)
7. Ying-Chang Liang, postdoctoral research, 1996. (*University of Sydney*) (IEEE Fellow, Web of Science Highly Cited Researcher)
8. Huai Li, "Model-Based Image Processing Techniques for Breast Cancer Detection in Digital Mammography", University of Maryland, 1997. (*National Cancer Institute*)
9. Balaji Sampath, "Subspace Approaches for Blind Equalization and Identification", University of Maryland, 1997. (*A founder of Association for India's Development, he devotes his life for unfortunate people in poor villages of India and was a winner of MIT's Global Indus Technovator Award in 2006.*)
10. Farrokh Rashid-Farrokhi, "Combined Power Control and Space-Time Diversity in Cellular Communications", University of Maryland, 1997. (*Co-founder of Quantenna/Bell Labs, Murray Hill*)
11. Jie Chen, "Low Power Architecture and VLSI Design of Video Coding Systems", University of Maryland, 1998. (*University of Alberta, Canada*) (IEEE Fellow)
12. Arun Raghupathy, "Low Power and High Speed Algorithms and VLSI Architectures for Error Control Coding and Adaptive Video Scaling", University of Maryland, 1998. (*Co-Founder, NextNav/Qualcomm*)
13. Javad Razavilar, "Signal Processing and Performance Analysis for Optimal Resource Allocation in Wireless Networks", University of Maryland, 1998. (*Founder and CEO, TeleOp-Com/Qualcomm*)
14. Haitao Zheng, "Robust Communication Framework for Multimedia Data by Exploring Unequal Error Protection", University of Maryland, 1999. (*University of Chicago*) (IEEE Fellow)
15. P. John Hsu, "Algorithms for Low Bit Rate Visual Communication Systems", University of Maryland, 1999. (*Microsoft*)
16. Jie Song, "Optimal Rate Allocation and Security Schemes for Image and Video Transmission over Wireless Channels", University of Maryland, 2000. (*Agere Systems, Holmdel*)
17. Xiaowen Wang, "Robust Channel Estimation for Multicarrier Modulation Systems", University of Maryland, 2000. (*Apple*)

18. Alejandra Mercado, "Adaptive Quality of Service for Integrated Multimedia over Wireless Networks", University of Maryland, 2001. (*University of Maryland*)
19. Wade Trappe, "Multi-User Security: A Signal Processing and Networking Perspective", University of Maryland, 2002. (*Rutgers University*) (IEEE Fellow)
20. Nitin Chandrachoodan, "Performance Analysis and Hierarchical Timing for DSP System Synthesis", (co-advisor) University of Maryland, 2002. (*Indian Institute of Technology, Madras*)
21. Zoltan Safar, "Efficient Coding and Decoding Methods for Multi-Antenna Wireless Communication Systems", University of Maryland, 2003. (*University of Maryland*)
22. Charles Barnett, "Efficient, Reliable, and Secure Source Authentication Schemes for Realtime Multicast", University of Maryland, 2003. (*Hughes Networks Systems*)
23. Masoud Olfat, "Spatial Processing, Power Control, and Channel Allocation for OFDM over Wireless Communications", University of Maryland, 2003. (*Federated Wireless*)
24. Zhu Han, "An Optimization Theoretical Framework for Resource Allocation over Wireless Communications", University of Maryland, 2003. (*University of Houston*) (IEEE Fellow, Web of Science Highly Cited Researcher)
25. Yan Lindsay Sun, "Multiuser Security for Multicast Communications", University of Maryland, 2004. (*University of Rhode Island*) (IEEE Fellow)
26. Z. Jane Wang, Postdoctoral research, 2002 - 2004. (*University of British Columbia, Canada*) (IEEE Fellow)
27. Larry Younkins, "On the Performance of Multi-Antenna Techniques for Spatially and Temporally Correlated Wireless Channels", University of Maryland, 2004. (*Applied Physics Laboratory, Johns Hopkins University*)
28. Hong Vicky Zhao, "Multimedia Fingerprinting for Multiuser Forensics and Security", University of Maryland, 2004. (*Tsinghua University*)
29. Weifeng Su, Postdoctoral research, 2002 - 2005. (*State University of New York, Buffalo*) (IEEE Fellow)
30. Wipawee Pam Siritongpairat, "Cross-Layer Design for Multi-Antenna Ultra-Wideband Systems", University of Maryland, 2005. (*Meteor Communications*)
31. Charles Pandana, "Resource and Environment Aware Sensor Communications and Networking: Framework, Optimization, and Applications", University of Maryland, 2005. (*Samsung*)
32. Chaiyod Pirak, "Spatial Interference Cancellation and Channel Estimation for MIMO Wireless Communication Systems", Chulalongkorn University, (Co-Adviser), Bangkok, 2005. (*King Mongkut Institute of Technology, Thailand*)
33. Thanongsak Kee Himsoon, "Differential Modulation for Broadband Space-Time/Cooperative Wireless Communications", University of Maryland, 2006. (*Meteor Communications*)
34. Wei Yu, "Securing Wireless Ad Hoc Networks under Noise and Imperfect Monitoring", University of Maryland, 2006. (*Microsoft*)

35. Andres Kwasinski, Postdoctoral research, 2004 - 2006. (*Rochester Institute of Technology*)
36. Zhu Ji, "Game Theoretical Framework for Cooperation in Autonomous Wireless Networks", University of Maryland, 2007. (*Apple*)
37. Ahmed Sadek, "Cross-Layer Design for Cooperative Communications and Networking", University of Maryland, 2007. (*Qualcomm*)
38. Peng Qiu, "Model-Based Genomic/Proteomic Signal Processing in Cancer Diagnosis and Prediction", University of Maryland, 2007. (*Georgia Institute of Technology*)
39. Karim Seddik, "Diversity in Cooperative Networks: How to Achieve and Where to Exploit?", University of Maryland, 2008. (*American University in Egypt*)
40. Ahmed Ibrahim, "Relay Deployment and Selection in Cooperation Wireless Networks", University of Maryland, 2009. (*Florida International University*)
41. Beibei Wang, "Dynamic Spectrum Allocation and Sharing in Cognitive Cooperative Networks", University of Maryland, 2009. (*Origin Wireless*)
42. Wan-Yi Sabrina Lin, "Behavior Modeling and Forensics for Multimedia Social Networks", University of Maryland, 2009. (*IBM Research - T. J. Watson*)
43. Amr El-Sherif, "Cognitive Multiple Access for Cooperative Communications and Networking", University of Maryland, 2009. (*Alexandria University, Egypt*)
44. Yongle Wu, "Game-Theoretic Strategies for Dynamic Behavior in Cognitive Radio Networks", University of Maryland, 2010. (*Qualcomm*)
45. Nathan Goergen, "Extrinsic Channel-Like Fingerprinting for Transmitter Authentication in Wireless Systems", University of Maryland, 2011. (*National Security Agency*)
46. Hung-Quoc Lai, "Wireless Network COCAST: Cooperative Communications with Space-Time Network Coding", University of Maryland, 2011. (*Origin Wireless*)
47. Yan Chen, "Multimedia Social Networks: Game Theoretic Modeling and Equilibrium Analysis", University of Maryland, 2011. (*University of Science and Technology of China*)
48. Steve Tjoa, "Sparse and Nonnegative Factorizations for Music Understanding", University of Maryland, 2011. (*Google*)
49. Zhenzhen Gao, "Differential and Secure Transmission Techniques in Cooperative Communication Systems", Xi'an Jiao Tung University, (Co-Advisor), 2011. (*Xi'an Jiao Tung University*)
50. Matthew Stamm, "Digital Multimedia Forensics and Anti-Forensics", University of Maryland, 2012. (*Drexel University*)
51. Chunxiao Jiang, "Game theoretic Methods for Spectrum Resource Allocations in Cognitive Radio Networks", Tsinghua University, (Co-Advisor), 2012. (*Tsinghua University*)
52. Wei Guan, "Cooperative Communications with Wireless Network Coding", University of Maryland, 2013. (*Google*).

53. Biling Zhang, "Spectrum Sharing Strategies for Cognitive Radio Networks", Beijing University of Post and Telecommunications, (Co-Advisor), 2013. (Beijing University of Post and Telecommunications)
54. Chih-Yu Tomky Wang, "Game-Theoretic Resource Management in Wireless Networks", National Taiwan University, (Co-Advisor), 2013. (Academia Sinica, Taiwan)
55. Feng Han, "Energy Efficiency Optimization in Green Wireless Communications", University of Maryland, 2013. (Qualcomm)
56. Yu-Han Yang, "Waveform Design and Network Selection in Wideband Small Cell Network", University of Maryland, 2013. (Google)
57. Yang Gao, "On the Design and Analysis of Incentive Mechanisms in Network Science", University of Maryland, 2014. (Facebook)
58. Tong Zhou, "Cooperative Precoding and Interference Coordination in Cellular Systems", Beijing University of Post and Telecommunications, (Co-Advisor), 2014. (Samsung)
59. Xiaoyu Chu, "Fundamental Limits in Multimedia Forensics and Anti-Forensics", University of Maryland, 2015. (Google)
60. Hang Ma, "Compressive Quantization for Scalable Cloud Radio Access Networks", University of Maryland, 2016. (Google)
61. Yi Han, "Time-Reversal Massive Multipath Effect and Bandwidth Heterogeneity", University of Maryland, 2016. (Origin Wireless)
62. Wei Li, "Research on Multi-User Communication Schemes and Stochastic Energy Harvesting Communication Technologies in Two-Way Relay Networks", Xi'an Jiao Tung University, (Co-Advisor), 2016. (Chang'an University)
63. Zhong-Han Wu, "Time-Reversal Indoor Positioning System and Medium Access Control", University of Maryland, 2016. (Bloomberg)
64. Xuanyu Cao, "User Behavior Analysis and Data Trading in Multi-Agent Systems", University of Maryland, 2017. (Hong Kong University of Science and Technology)
65. Chen Chen, "Radio Analytics for Indoor Localization and Vital Sign Monitoring", University of Maryland, 2017. (Facebook)
66. Qinyi Xu, "Radio Analytics for Indoor Monitoring and Human Recognition", University of Maryland, 2018. (Facebook)
67. Feng Zhang, "Radio Analytics for Human Activity Monitoring and Indoor Tracking", University of Maryland, 2018. (Amazon)
68. Chenshu Wu, Postdoctoral research, 2017 - 2020. (University of Hong Kong)
69. Xiaolu Zeng, "Target localization based on time reversal signal processing", Xidian University, (Co-Advisor), 2020. (Beijing Institute of Technology)
70. Sai Deepika Regani, "Radio Analytics for Human-Computer Interaction", University of Maryland, 2021. (Origin Wireless)

71. Fengyu Wang, "Wireless Sensing for Vital Signs Monitoring", University of Maryland, 2021. (Beijing University of Post and Telecommunications)
72. Yuqian Hu, "Wireless Sensing for Activity Monitoring and Detection", University of Maryland, 2021. (Origin Wireless)
73. Muhammed Zahid Ozturk, "Sound Sensing, Enhancement, and Separation with Millimeter Wave Radio", University of Maryland, 2022. (Origin Wireless)

Course and Curriculum Development

- ENEE 728C Adaptive Signal Processing (special topics)
- ENEE 728O Signal Processing Algorithms and Architectures (special topics)
- ENEE 630 Advanced Digital Signal Processing (regular course; also a Ph.D. core course for Communications and Signal Processing)
- ENEE 634 Space-Time Signal Processing (regular course, being renamed to Learning and Statistical Signal Processing)
- ENEE 408G Capstone Design Course on Multimedia Signal Processing (regular course)

Courses Taught

- ENEE 728C, *Adaptive Signal Processing*
- ENEE 728O, *Signal Processing Algorithms and Architectures*
- ENEE 724, *Statistical and Adaptive Signal Processing*
- ENEE 723: Wireless Communication Networks
- ENEE 634, *Space-Time Signal Processing/Learning and Statistical Signal Processing*
- ENEE 631, *Digital Image Processing*
- ENEE 630, *Advanced Digital Signal Processing*
- ENEE 620, *Random Processes*
- ENEE 608, *Communications Seminar*
- ENEE 425, *Digital Signal Processing*
- ENEE 420, *Communication Systems*
- ENEE 408G, *Capstone Design Course on Multimedia Signal Processing*
- ENEE 322, *Signals and Systems*

University and Departmental Services

- Chair, Executive Committee, Institute for Systems Research, 2000-2001.
- Chair, Promotion and Tenure Committee, Electrical and Computer Engineering, 2000-2001.

- Lead, Communications and Signal Processing Graduate Curriculum Reform and Modernization, ECE, 2000 - 2002.
- Chair, Plan of Organization Revision Committee, College of Engineering, 2002-2003.
- Chair, Education Program Committee, Institute for Systems Research, 1994-95; 1996.
- Chair, Assistant Professor Renewal Committee, ECE, 2000.
- Chair, Search Committee for the ISR Assistant Director for Finance, 2002.
- College of Engineering Council, 2002-2004; 2005, 2007-09.
- Dean's Faculty Advisory Committee, College of Engineering, 2002 - .
- Department Council, Electrical Engineering, 1993-95, 1995-96, 1999-2001.
- Executive Committee, Institute for Systems Research, 1996; 2000; 2000-2002; 2004-2006.
- Search Committee for Chairman of Electrical and Computer Engineering Department, College of Engineering, 1994-95, 2000-01.
- Faculty recruitment committee, Electrical and Computer Engineering, 1995-96, 1997-98, 2002-03.
- Promotion and Tenure Committee, Electrical Engineering, 1998-2000; 2000-2002; 2006-2008.
- Promotion and Tenure Committee, College of Engineering, 1998-2000.
- Post Tenure Review Committee, ECE, 2000-2002, 2002-04, 2005-07.
- Search Committee for Graduate Director, Electrical and Computer Engineering, 2004.
- Undergraduate Curriculum Reform Committee, Electrical and Computer Engineering, 2004.
- Graduate Studies and Research Committee, Electrical Engineering, 1993-95; 1995-96.
- Ad hoc Merit Pay Plan Committee, Electrical Engineering, 1993.
- Education Program Committee, Institute for Systems Research, 1993-95; 1995-96.
- General Academic Affairs Committee, Electrical Engineering, 1997-1/99.
- Salary Committee, Electrical Engineering, 1997-99, 1999-2001.
- Salary Committee, Institute for Systems Research, 1995-96, 1998-99, 2001-02.
- Ad Hoc Committee on Graduate Student Recruitment, Electrical Engineering, 1995-96.
- Major Direction workgroup Lead, Institute for Systems Research, 1999.
- Department Bylaws and Plan of Organization Revision Committee, ECE, 2000.
- ISR Structure and Bylaws Committee, 1999-2001.
- Bio-engineering planning committee, College of Engineering, 1999.
- Human Relations and Welfare Committee, Electrical Engineering, 1994-95.
- Chairman of Faculty Assembly, Institute for Systems Research, 1995-96.
- Elections Board, Institute for Systems Research, 1994, 1995.
- Faculty Coordinator for Seminar and Student-Faculty Colloquia Series, Institute for Systems Research, 1994-95, 1995-96.
- Secretary of Faculty Assembly, Systems Research Center, 1990-92.
- Facilities and Services Committee, Systems Research Center, 1991-93
- Chairman, Facilities and Services Committee, Institute for Systems Research, 1992-93.
- Ph.D. Qualifying Examination Panel, Electrical Engineering, 1991-93.
- Computer Committee, Electrical Engineering, 1992-94.
- Facilities and Services Committee, Electrical Engineering, 1992-94.

Books

1. K.J.R. Liu and K. Yao, Eds., *High Performance VLSI Signal Processing: Volume I: System Design and Methodology; Vol II: Algorithms, Architectures, and Applications*, IEEE Press, 1998.
2. J. Chen, U.V. Koc, and K.J.R. Liu, *Design of Digital Video Coding Systems: A Complete Compressed Domain Approach*, (475 pages), Marcel Dekker, 2001.

3. K.J.R. Liu, W. Trappe, Z.J. Wang, M. Wu, and H. Zhao, *Digital Fingerprinting for Multimedia Forensics*, (254 pages), EURASIP Series on Signal Processing and Communications, Hindawi, 2005.
4. Y. Sun, W. Trappe, and K.J.R. Liu, *Network-Aware Security for Group Communications*, (304 pages), Springer, 2007.
5. W.P. Siriwongpairat and K.J.R. Liu, *Ultra-Wideband Communication Systems: The Multi-band OFDM Approach*, (230 pages), IEEE-Wiley, 2007.
6. Z. Han and K.J.R. Liu, *Resource Allocation for Wireless Networks: Basics, Techniques, and Applications*, (545 pages), Cambridge University Press, 2008.
7. K.J.R. Liu, A.K. Sadek, W. Su, A. Kwasinski, *Cooperative Communications and Networking*, (630 pages), Cambridge University Press, 2008. (translated into Chinese, 2010)
8. S. Haykin and K.J.R. Liu, Eds., *Handbook on Array Processing and Sensor Networks*, (904 pages), IEEE-Wiley, 2010.
9. K.J.R. Liu and B. Wang, *Cognitive Radio Networking and Security: A Game Theoretical View*, (618 page), Cambridge University Press, 2010.
10. H. V. Zhao, W.S. Lin, and K.J.R. Liu, "Behavior Dynamics in Media-Sharing Social Networks", (337 pages), Cambridge University Press, 2011.
11. K.J.R. Liu and Beibei Wang, *Wireless AI: Wireless Sensing, Positioning, and Communications*, (600 pages), Cambridge University Press, 2019.
12. Y. Chen, C.Y. Wang, C.X. Jiang, and K.J.R. Liu, *Reciprocity, Evolution, and Decision Games in Network and Data Science*, (460 pages), Cambridge University Press, 2021.

Chapters in Books

1. K.J.R. Liu and K. Yao, "Gracefully Degradable Real-Time Algorithm-Based Fault-Tolerant Method for QR Recursive Least-Squares Systolic Array", in *Systolic Array Processors*, McCanny, McWhirter, and Swartzlander, ed., pp.401-410, Prentice Hall, 1989.
2. K.J.R. Liu, S.F. Hsieh, and K. Yao, "Two-Level Pipelined Implementation of Systolic Block Householder Transformations with Application to RLS Algorithm" in *Application-Specific Array Processors*, S.Y. Kung, E. Swartzlander, J. Fortes, and K.W. Przytula, ed., pp.758-769, IEEE Computer Society Press, 1990.
3. S.F. Hsieh, K.J.R. Liu, and K. Yao, "Comparisons of Truncated QR and SVD Methods for AR Spectral Estimations", in *SVD and Signal Processing: Algorithms, Applications and Architectures*, pp.403-418, R.J. Vaccaro, ed., Elsevier Science Publishers, 1991.
4. K.J.R. Liu and S.F. Hsieh, "Fault-Tolerance for Parallel Adaptive Beamforming", in *Parallel Algorithms and Architectures for DSP Applications*, pp.77-112, M. Bayoumi, ed., Kluwer Academic Publishers, 1991.
5. C.T. Chiu and K.J.R. Liu, "High-Speed Transform Coding Architectures for Video Communications", in *VLSI Signal Processing Technology*, E. Swartzlander and M. Bayoumi, ed., pp.135-164, Kluwer Academic Publishers, 1994.

6. K.J.R. Liu and A.Y. Wu, "Systolic RLS Adaptive Filtering", in *Digital Signal Processing for Multimedia Systems*, K. Parhi and T. Nishitani, ed., pp.487-518, Marcel Dekker Inc., 1999.
7. K.J.R. Liu and Y.C. Liang, "Spectral Analysis", in *Encyclopedia of Electrical and Electronics Engineering*, vol 20, pp.71-88, J.G. Webster, ed., Wiley & Sons, 1999.
8. U.V. Koc and K.J.R. Liu, "Combined Motion Estimation and Transform Coding in Compressed Domain", in *Multimedia Image and Video Coding*, pp.243-288, J. Larsen, L. Guan and S.Y. Kung, ed., CRC Press, 2000.
9. H. Li and K.J.R. Liu, "Multi-Modular Neural Network for Breast Cancer Detection" in *Advanced Signal Processing Technology by Softcomputing*, pp.140-158, C.C. Hsu, ed., World Scientific Publishing, 2001.
10. F. Rashid-Farrokhi and K.J.R. Liu, "Wavelet-Based Multiresolution Local Tomography", in *Advanced Signal Processing for Medical Magnetic Resonance Imaging and Spectroscopy*, pp.25-58, H. Yan, ed., Marcel Dekker, 2002.
11. H. Zheng and K.J.R. Liu, "Multimedia Services over Digital Subscriber Lines", in *Encyclopedia of Telecommunications*, Vol 3, pp. 1570-1579, J. Proakis, ed., John Wiley & Sons, Inc., 2002.
12. X.S. Fu, C.A. Hu, J. Chen, Z.J. Wang, and K.J.R. Liu, "Cancer Genomics, Proteomics, and Clinic Applications", in *Genomics Signal Processing and Statistics*, pp.367-408, J. Chen, et. al, Ed., EURASIP Series on Signal Processing and Communications, Hindawi, 2005.
13. W. Siriwongpairat, M. Olfat, and K.J.R. Liu, "Performance Analysis of Multiantenna UWB Wireless Communications", in *UWB Communication Systems - A Comprehensive Overview*, pp.353-376, T. Kaiser, Ed., EURASIP Series on Signal Processing and Communications, Hindawi, 2006.
14. W. Su, Z. Safar, and K.J.R. Liu, "Exploiting Diversity in MIMO-OFDM Systems for Broadband Wireless Communications", in *WiMAX: Technologies, Performance Analysis, and QoS*, pp.69-96, S. Ahson and M. Ilyas, Ed., CRC Press, 2007.
15. A.K. Sadek, W. Su, and K.J.R. Liu, "Transmit-Diversity Techniques for MIMO-OFDM Mesh Networks", in *Handbook of Wireless Mesh and Sensor Networking*, G. Aggelou, Ed., McGraw-Hill, 2007.
16. C. Pandana and K.J.R. Liu, "Robust Connectivity Energy-Aware Routing for Wireless Sensor Networks", in *Handbook of Wireless Mesh and Sensor Networking*, G. Aggelou, Ed., McGraw-Hill, 2007.
17. W.S. Lin and K.J.R. Liu, "Modulation Forensics for Wireless Digital Communications in Frequency-Selective Fading Channels", in *Securing Wireless Communications at the Physical Layer*, pp.379-396, R. Liu and W. Trappe, Ed., Springer, 2010.
18. A.K. Sadek, W. Su, and K.J.R. Liu, "Cooperative Sensor Communications", in *Handbook on Array Processing and Sensor Networks*, pp.559-608, S. Haykin and K.J.R. Liu, Ed., IEEE-Wiley, 2010.

Edited Special Issues in Journals

1. Special Issue on Multimedia Signal Processing, Part I, *Proceedings of the IEEE*, vol 86, no 5, (247 pages), May, 1998.
2. Special Issue on Multimedia Signal Processing, Part II, *Proceedings of the IEEE*, vol 86, no 6, (246 pages), June, 1998.
3. Special Issue on Signal Processing for Wireless Communications I, *IEEE Journal of Selected Areas in Communications*, Oct, 1998.
4. Special Issue on Signal Processing for Wireless Communications II, *IEEE Journal of Selected Areas in Communications*, vol 16, no 9, (239 pages), Dec, 1998.
5. Special Issue on Multimedia Communications Over Networks, *IEEE Signal Processing Magazine*, vol 17, no 4, (74 pages), July, 2000.
6. Special Issue on Multimedia Over IP, *IEEE Trans. on Multimedia*, vol 3, no 1, (173 pages), March, 2001.
7. Special Issue on Cooperative Communications and Networking, *IEEE Journal of Selected Areas in Communications*, (267 pages), Feb 2007.

Editorials and Columns

1. K.J.R. Liu, "A Millennium Start", *EURASIP Journal on Applied Signal Processing*, Vol 2001, no 1, March 2001.
2. K.J.R. Liu, "The Spirit Will Continue", *EURASIP Journal on Applied Signal Processing*, Vol 2002, no 12, Dec 2002.
3. K.J.R. Liu, "A New Journey Begins", *IEEE Signal Processing Magazine*, Jan 2003.
4. K.J.R. Liu, "Building a Stronger Sense of Community", *IEEE Signal Processing Magazine*, May 2003.
5. K.J.R. Liu, "Beyond Signal Processing Education", *IEEE Signal Processing Magazine*, Sep 2003.
6. K.J.R. Liu, "Capture the Evolution", *IEEE Signal Processing Magazine*, Jan 2004.
7. K.J.R. Liu, "Why Not? The Magazine Way", *IEEE Signal Processing Magazine*, May 2004.
8. K.J.R. Liu, "Signal Processing Inside?", *IEEE Signal Processing Magazine*, Sep 2004.
9. K.J.R. Liu, "Ranked First in Citation Impact", *IEEE Signal Processing Magazine*, Jan 2005.
10. K.J.R. Liu, "Volunteers", *IEEE Signal Processing Magazine*, May 2005.
11. K.J.R. Liu, "A Time to Reflect", *IEEE Signal Processing Magazine*, Nov 2005.
12. M. Wu and K.J.R. Liu, "An Interactive and Team Approach to Multimedia Design Curriculum", *IEEE Signal Processing Magazine*, vol 22, no 6, pp.14-19, Nov 2005.
13. K.J.R. Liu, "Cognitive Radio Games", *IEEE Spectrum*, vol 48, no 4, pp.40-56, April 2011.

14. K.J.R. Liu, "Raison d'etre", *IEEE Signal Processing Magazine*, Jan 2012.
15. K.J.R. Liu, "Value and Benefit", *IEEE Signal Processing Magazine*, March 2012.
16. K.J.R. Liu, "A Melting Pot", *IEEE Signal Processing Magazine*, May 2012.
17. K.J.R. Liu, "Citation Impact", *IEEE Signal Processing Magazine*, July 2012.
18. K.J.R. Liu, "Peer Review", *IEEE Signal Processing Magazine*, Sep 2012.
19. K.J.R. Liu, "Open Access: Opportunity or Hype?", *IEEE Signal Processing Magazine*, Nov 2012.
20. K.J.R. Liu, "Outreach via Community Building", *IEEE Signal Processing Magazine*, Jan 2013.
21. K.J.R. Liu, "Awards and Recognition", *IEEE Signal Processing Magazine*, March 2013.
22. K.J.R. Liu, "Membership", *IEEE Signal Processing Magazine*, May 2013.
23. K.J. R. Liu, "Sign onto Technical Committees", *IEEE Signal Processing Magazine*, July 2013.
24. K.J.R. Liu, "GlobalSIP: A New Flagship", *IEEE Signal Processing Magazine*, Sep 2013.
25. K.J.R. Liu, "Sustainable Finance", *IEEE Signal Processing Magazine*, Nov 2013.
26. K.J.R. Liu, "A Lasting Journey", *IEEE Signal Processing Magazine*, Jan 2014.

Publications in Refereed Journals

1. K.J.R. Liu, "VLSI Computing Architectures for Haar Transform", *Electronics Letters*, Vol 26, No. 23, pp.1962-1963, 8th Nov. 1990.
2. K.J.R. Liu, S.F. Hsieh, K. Yao, and C.T. Chiu, "Dynamic Range, Stability, and Fault-Tolerant Capability of Finite-Precision RLS Systolic Array Based on Givens Rotation", *IEEE Trans. on Circuits and Systems*, Vol 38, No. 6, pp.625-636, June 1991.
3. S.F. Hsieh, K.J.R. Liu, and K. Yao, "Systolic Implementations of Up/Down-Dating Cholesky Factorization Using Vectorized Gram-Schmidt Pseudo Orthogonalization", (Invited) *Journal of VLSI Signal Processing*, 3:3, special issue on Algorithms and Parallel VLSI Architectures, pp.151-161, 1991.
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