

# Liang Dong

## Curriculum Vitae

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### Professional Preparation

2002	Ph.D.	Electrical and Computer Engineering	The University of Texas at Austin
1998	M.S.	Electrical and Computer Engineering	The University of Texas at Austin
1996	B.S.	Applied Physics (minor Computer Engineering)	Shanghai Jiao Tong University

### Appointments

2011–Present	<b>Associate Professor</b>	Electrical & Computer Engr.	Baylor University
May–Aug 2015	<b>Visiting Researcher</b>	Electrical Engineering	Stanford University
2004–2011	<b>Assi./Asso. Professor</b>	Electrical & Computer Engr.	Western Michigan University
Sum 2007,08,09	<b>Visiting Professor</b>	School of Microelectronics	Shanghai Jiao Tong University
2002–2004	<b>Research Associate</b>	Electrical Engineering	University of Notre Dame

### Research Interests

Digital Communications and Signal Processing  
Energy-Efficient Wireless Communications and Networking  
Cyber-Physical System and Security  
Sustainable Internet of Things  
Deep Learning for E-Health Applications

### Honors and Awards

2015	KEEN Innovators Program Award	Kern Entrepreneurial Education Network
2013	ECS Research Initiation Award	Baylor University
2011	Faculty Scholars Award	Western Michigan University
2008	Research Development Award	Western Michigan University
2008	Faculty Research and Creative Activities Award	Western Michigan University
1999	Graduate Fellowship	The University of Texas at Austin
1994	Hua-Xin Scholarship	Shanghai Jiao Tong University

### Membership of Associations

Senior Member	Institute of Electrical and Electronics Engineers (IEEE)
Member	American Physical Society (APS)
Member	American Society for Engineering Education (ASEE)
Member	Sigma Xi, The Scientific Research Society

### Funded Research

1. L3 Technologies, formerly L-3 Communications, “In-flight wireless multimedia delivery system,” P.I., Performing organization: Baylor University, January 1, 2015–December 31, 2017, \$340,000
2. Baylor University Research Committee Award, “Data collection and analysis for connected health,” P.I., Performing organization: Baylor University, December 15, 2015–May 31, 2016, \$7,500

3. L3 Technologies, formerly L-3 Communications, “Onboard wireless high-definition content delivery system,” P.I., Performing organization: Baylor University, October 21, 2012–December 31, 2014, \$300,000
4. Baylor Faculty Research Grant, “Noninvasive brain-computer interface based on electroencephalography,” P.I., Performing organization: Baylor University, June 1, 2013–May 31, 2014, \$25,000
5. U.S. Army Tank-Automotive Research, Development and Engineering Center (TARDEC), “Development of an intelligent vehicle health management system for light tactical vehicles,” Co-P.I., Performing organization: Western Michigan University, May 2008–December 2010, \$348,683 (my share \$58,000)
6. DENSO North America Foundation, “Development of smart vehicles laboratory for future engineering workforce,” P.I., Performing organization: Western Michigan University, July 2009–June 2010, \$20,000
7. Michigan Space Grant Consortium – NASA, “Cooperative localization and communication,” P.I., Performing organization: Western Michigan University, June 2008–May 2009, \$5,000 (plus \$5,000 matching)
8. Michigan Department of Transportation, “Application of unmanned aerial vehicles (UAVs) to traffic and emergency surveillance: demonstration and system design,” Co-P.I., Performing organization: Western Michigan University, September 2005–August 2006, \$110,663 (my share \$37,000)

### Professional Activities

- Technical Program Committee Member
  - IEEE Global Conference on Signal & Information Processing (GlobalSIP) (2015–2017)
  - IEEE Int. Conference on E-health Networking, Application and Services (HealthCom) (2015)
- Organizing Committee Member
  - Texas Symposium on Wireless & Microwave Circuits & Systems (2012–2017)
- Session Chair
  - IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS) (2017)
  - IEEE Global Conference on Signal & Information Processing (GlobalSIP) (2016)
  - IEEE Wireless Communications and Networking Conference (WCNC) (2013)
- Award Committee Member
  - Baylor Centennial Professor Awards Committee (2016–2019)
- Executive Board Member
  - IEEE West Michigan Section (2006–2011)
  - ASEE North Central Section (2007–2008)
- Reviewer
  - National Science Foundation (NSF) Panel (2016)

- IEEE Transactions on Signal Processing, IEEE Transactions on Smart Grid, IEEE Journal of Selected Areas in Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Transactions on Vehicular Technology, IEEE Transactions on Green Communications and Networking, IEEE Communications Letters, IET Communications, Wiley Wireless Communications and Mobile Computing.

## Courses Taught

- At Baylor University:
- EGR 1302: Introduction to Engineering Analysis
  - ELC 2330: Electronic Circuit Theory
  - ELC 4350: Principles of Communication
  - ELC 4351: Digital Signal Processing
  - ELC 4438: Embedded Systems Design
  - EGR 4390: Engineering Design II
  - ELC 5356: Statistical and Adaptive Signal Processing
  - ELC 5396: Digital Communications
  - ELC 5396: Wireless Communication and Networking
- At Western Michigan University:
- ECE 1000: Fundamentals of Circuits and Electronics
  - ECE 2210: Electronics I
  - ECE 3200: Electronics II
  - ECE 3510: Engineering for Real-Time Systems
  - ECE 3570: Computer Architecture
  - ECE 4550: Digital Signal Processing
  - ECE 5150: Real-Time Computing
  - ECE 5510: Application-Specific Integrated Circuits Design
  - ECE 5550: Advanced Digital Signal Processing
  - ECE 7250: Doctoral Research Seminar
- At Shanghai Jiao Tong University: Summer Course: Digital Integrated Circuits With FPGA

## Publications

### Journal Articles

1. M. Saleh and L. Dong, "Secure location-aided routing protocols with Wi-Fi direct for vehicular ad hoc networks", *IEEE Transactions on Vehicular Technologies*, submitted Jun. 2017.
2. L. Dong, "Transmission game in MIMO interference channels with radio-frequency energy harvesting," *IEEE Transactions on Wireless Communications*, submitted Mar. 2017.
3. L. Dong, "Spectral and energy efficiency of parallel Gaussian broadcast channels," *IEEE Transactions on Green Communications and Networking*, submitted Jan. 2017.
4. Z. Lin and L. Dong, "Clarifying trust in social Internet of Things," *IEEE Transactions on Knowledge and Data Engineering*, vol. 30, no. 2, pp. 234–248, Feb. 2018.
5. Y. Liu and L. Dong, "Distributed QoS based robust transmission design for MISO wiretap channel with cooperative jamming," *Wireless Personal Communications*, vol. 95, no. 4, pp. 3671–3686, Aug. 2017.
6. Y. Liu and L. Dong, "Iterative reduction of out-of-band power and peak-to-average power ratio for non-contiguous OFDM systems based on POCS," *IEICE Transactions on Communications*, vol. E100.B, no. 8, pp. 1489–1497, Aug. 2017.

7. R. Li, Y. Liu, Y. Shi, L. Dong, and W. Cui, "ILMSAF based speech enhancement with DNN and noise classification," *Speech Communication*, vol. 85, pp. 53–70, Dec. 2016.
8. A. I. N. Alshbatat, L. Dong, and P. J. Vial, "Controlling an unmanned quad-rotor aerial vehicle with model parameter uncertainty and actuator failure," *International Journal of Intelligent Systems Technologies and Applications*, vol. 15, no. 4, pp. 295–322, 2016.
9. L. Dong and Y. Liu, "Parallel sub-channel transmission for cognitive radios with multiple antennas," *Wireless Personal Communications*, vol. 79, no. 3, pp. 2069–2087, Dec. 2014.
10. Y. Liu and L. Dong, "Spectrum sharing in MIMO cognitive radio networks based on cooperative game theory," *IEEE Transactions on Wireless Communications*, vol. 13, no. 9, pp. 4807–4820, Sept. 2014.
11. L. Dong, "Receiver design for single-carrier block transmission over doubly selective channels," *Wireless Personal Communications*, vol. 77, no. 3, pp. 1833–1845, Aug. 2014.
12. M. Saleh and L. Dong, "Real-time scheduling with security enhancement for packet switched networks," *IEEE Transactions on Network and Service Management*, vol. 10, no. 3, pp. 271–285, Sept. 2013.
13. L. Dong, "Opportunistic media access control and routing for delay-tolerant mobile ad hoc networks," *Wireless Networks*, vol. 18, no. 8, pp. 946–965, Nov. 2012.
14. L. Dong, "Cooperative localization and tracking of mobile ad hoc networks," *IEEE Transactions on Signal Processing*, vol. 60, no. 7, pp. 3907–3913, July 2012.
15. J. Wang, L. Dong, and Y. Fu, "Modeling of UHF voltage multiplier for radio-triggered wake-up circuits," *International Journal of Circuit Theory and Applications*, vol. 39, no. 11, pp. 1189–1197, Nov. 2011.
16. L. Dong, "Turbo equalization with prediction and iterative estimation of time-varying frequency-selective channels," *Wireless Personal Communications*, vol. 55, no. 4, pp. 631–644, Dec. 2010.
17. A. Alshbatat and L. Dong, "Performance analysis of mobile ad-hoc unmanned aerial vehicle communication networks with directional antennas," *International Journal of Aerospace Engineering*, vol. 2010, Dec. 2010.
18. L. Dong, "Open-loop beamforming for frequency-division duplex mobile wireless access," *IEEE Transactions on Vehicular Technology*, vol. 56, no. 4, pp. 1845–1849, July 2007.
19. L. Dong, H. Choo, R. W. Heath, and H. Ling, "Simulation of MIMO channel capacity with antenna polarization diversity," *IEEE Transactions on Wireless Communications*, vol. 4, no. 4, pp. 1869–1873, July 2005.
20. L. Dong, G. Xu, and H. Ling, "Predictive downlink beamforming for wideband CDMA over Rayleigh fading channels," *IEEE Transactions on Wireless Communications*, vol. 4, no. 2, pp. 410–421, Mar. 2005.

### Book Chapters

1. Brown, L. J., L. Dong, and A. G. Cerullo (2011). *Technology engineering and management in aviation: Advancements and discoveries*. IGI Global. Chap. The evaluation of wireless communication devices: To improve in-flight security on-board commercial aircraft, pp. 190–202.

### Conference Papers

1. Z. Lin and L. Dong, "Clarifying trust in social Internet of Things," In *Proc. IEEE International Conference on Data Engineering (ICDE)*, Paris, France, 16-20 April 2018.

2. Y. Qian, Y. Xing and L. Dong, "Wireless transmission design with neural network for radio-frequency energy harvesting," In *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Barcelona, Spain, 15-18 April 2018.
3. Y. Xing and L. Dong, "Passive radio-frequency energy harvesting through wireless information transmission," In *Proc. International Conference on Distributed Computing in Sensor Systems (DCOSS)*, Ottawa, Canada, June 2017.
4. L. Dong, "Spectral- and energy-efficient transmission with joint bandwidth assignment and transmit power allocation," In *Proc. IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Washington D.C., Dec. 2016.
5. L. Dong, "Spectral- and energy-efficient transmission over frequency-orthogonal channels," In *Proc. IEEE Online Conference on Green Communications (OnlineGreenComm)*, Nov. 2016.
6. B. Xu, F. Zhang, L. Dong, and Y. Li, "Wideband propagation channel measurement in an indoor environment," in *Proc. IEEE 2014 Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, Apr. 2014.
7. Y. Liu, L. Dong, and R. J. Marks II, "Joint reduction of out-of-band power and peak-to-average power ratio for non-contiguous OFDM systems," in *Proc. IEEE Global Communications Conference (GLOBECOM)*, Dec. 2013.
8. L. Dong, Y. Liu and R. J. Marks II, "Reduction of out-of-band power and peak-to-average power ratio in OFDM-based cognitive radio using alternating projections," in *Proc. IEEE 2013 Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, Apr. 2013.
9. L. Dong, "Single carrier block transmission with cyclic prefix over doubly selective channels," in *Proc. IEEE 2013 Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, Apr. 2013.
10. J. Grantner, B. Bazuin, C. Fajardo, R. Hathaway, J. Al-shawawreh, L. Dong, M. Castanier and S. Hussain, "Linguistic model for engine power loss," in *Proc. IEEE Symposium Series on Computational Intelligence (SSCI)*, Apr. 2013.
11. Y. Liu and L. Dong, "Network utility maximization of MIMO cognitive radio network with total interference-power constraints," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Apr. 2013.
12. Y. Liu, L. Dong, and R. J. Marks II, "Common control channel assignment in cognitive radio networks using potential game theory," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Apr. 2013.
13. L. Dong, "MIMO cognitive radio with channel covariance feedback," in *Proc. IEEE International Conference on Communications (ICC)*, June 2012.
14. M. Salen and L. Dong, "Adaptive security-aware scheduling using multi-agent system," in *Proc. IEEE International Conference on Communications (ICC)*, June 2012.
15. J. Grantner, B. Bazuin, L. Dong, J. Al-shawawreh, R. Hathaway, C. Fajardo, M. Castanier, and S. Hussain, "Linguistic model for axle fatigue," in *Proc. IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*, June 2012.
16. M. Saleh and L. Dong, "Real-time scheduling with security awareness for packet switched networks," in *Proc. IEEE Radio and Wireless Week (RWW)*, Jan. 2012.
17. S. Xi, M. D. Zoltowski, Y. Zhao, and L. Dong, "Single-node MMSE for MMSE cooperative positioning," in *Proc. SPIE - The International Society for Optical Engineering*, vol. 8061, Apr. 2011.

18. J. Grantner, B. Bazuin, L. Dong, J. Al-shawawreh, R. Hathaway, C. Fajardo, M. P. Castanier, and S. Hussain, "Condition based maintenance for light trucks," in *Proc. IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, Oct. 2010.
19. A. Alja'afreh and L. Dong, "Ground vehicle classification based on hierarchical hidden Markov model and Gaussian mixture model using wireless sensor networks," in *Proc. IEEE International Conference on Electro/Information Technology (EIT)*, May 2010.
20. S. Xi, M. D. Zoltowski, and L. Dong, "Iterative MMSE cooperative localization with incomplete pair-wise range measurements," in *Proc. SPIE - The International Society for Optical Engineering*, vol. 7706, Apr. 2010.
21. A. Alshbatat and L. Dong, "Cross layer design for mobile ad-hoc unmanned aerial vehicle communication networks," in *Proc. IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Apr. 2010.
22. A. Alshbatat and L. Dong, "Adaptive MAC protocol for UAV communication networks using directional antennas," in *Proc. IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Apr. 2010.
23. A. Alja'afreh and L. Dong, "Hidden Markov model based classification approach for multiple dynamic vehicles in wireless sensor networks," in *Proc. IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Apr. 2010.
24. A. Alja'afreh and L. Dong, "Cooperative detection of moving targets in wireless sensor network based on fuzzy dynamic weighted majority voting decision fusion," in *Proc. IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Apr. 2010.
25. A. Alja'afreh and L. Dong, "An evaluation of feature extraction methods for vehicle classification based on acoustic signals," in *Proc. IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Apr. 2010.
26. M. S. Saleh and L. Dong, "Comparing FCFS & EDF scheduling algorithms for real-time packet switching networks," in *Proc. IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Apr. 2010.
27. L. Wu, Y. Fu, and L. Dong, "End-to-end throughput optimization in multi-hop wireless ad hoc networks," in *Proc. The 15th Asia-Pacific Conference on Communications*, Oct. 2009.
28. L. Dong, "Turbo equalization with channel prediction and iterative channel estimation," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Apr. 2009.
29. L. Dong, "Cooperative network localization via node velocity estimation," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Apr. 2009.
30. Y. Zhao, L. Dong, J. Wang, B. Hu, and Y. Fu, "Implementing indoor positioning system via ZigBee devices," in *Proc. 42nd Asilomar Conference on Signals, Systems, and Computers*, Oct. 2008.
31. L. Dong, "Doppler measurements rendering random routing," in *Proc. 42nd Asilomar Conference on Signals, Systems, and Computers*, Oct. 2008.
32. S. H. Mousavinezhad and L. Dong, "Digital signal processing: theory and practical considerations," in *Proc. ASEE Annual Conference & Exposition*, June 2007.
33. N. V. Khambekar, L. Dong, and V. Chaudhary, "Utilizing OFDM guard interval for spectrum sensing," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Mar. 2007.
34. L. Dong and F. L. Severance, "Position estimation with moving beacons in wireless sensor networks," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Mar. 2007.

35. Y. M. Chen, L. Dong, and J.-S. Oh, "Real-time video relay for UAV traffic surveillance systems through available communication networks," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Mar. 2007.
36. K. Ro, J.-S. Oh, and L. Dong, "Lessons learned: application of small UAV for urban highway traffic monitoring," in *Proc. 45th AIAA Aerospace Sciences Meeting and Exhibit*, Jan. 2007.
37. L. Dong and Y. Zhao, "Frequency-domain Turbo equalization for single carrier mobile broadband systems," in *Proc. IEEE Military Communications Conference (MILCOM)*, Oct. 2006.
38. L. Dong, "Robust beamforming for FDD mobile systems over Rayleigh fading channels," in *Proc. IEEE International Conference on Electro Information Technology (EIT)*, May 2005.
39. L. Dong and M. Atashbar, "An FPGA experience in ASIC design," in *Proc. ASEE North Central Section Spring Conference*, Apr. 2005.
40. L. Dong, T. Li, and Y.-F. Huang, "Opportunistic transmission scheduling for multiuser MIMO systems," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Apr. 2003, vol. 5, pp. 65-68.
41. L. Dong, H. Ling, and R. W. Heath, "Multiple-input multiple-output wireless communication systems using antenna pattern diversity," in *Proc. IEEE Global Communications Conference (GLOBECOM)*, Nov. 2002, pp. 997-1001.
42. L. Dong, G. Xu, and H. Ling, "Prediction of fast fading mobile radio channels in wideband communication systems," in *Proc. IEEE Global Communications Conference (GLOBECOM)*, Nov. 2001, pp. 3287-3291.
43. L. Dong, G. Xu, and H. Ling, "Subspace-based channel estimation for wideband CDMA communication systems," in *Proc. IEEE Military Communications Conference (MILCOM)*, Oct. 2001, pp. 1205-1209.
44. L. Dong and G. Xu, "Dynamic uplink power control for cellular radio systems over fast fading channel," in *Proc. IEEE Vehicular Technology Conference (VTC)*, May 2001, pp. 2849-2853.

#### Ph.D. Dissertation

1. Dong, L. (2002). Adaptive antenna systems for mobile broadband communications. *Ph.D. Dissertation, The University of Texas at Austin.*