**Expert/Consultant Curriculum Vitae**

# Professor Zhi Ding

Ph.D. and Fellow of IEEE

## Expertise

- Wireless Communication Systems
- Cellular Wireless (2G, 3G, 4G, 5G)
- Communication Network Protocols
- Multi-Antenna Technologies
- WLAN (WiFi, Bluetooth)
- xDSL Internet Services
- DOCSIS Modems
- Optical Networks

### Professional Summary

- Professor of major US universities for over 30 years.
- *Consulted for multiple major technology companies*
- Worked as expert on multiple patent
- infringement cases.
- Conducted research works on Communications and Signal Processing for over 30 years.
- Supervised over 30 PhD students.
- Author of more than 200 journal papers and 2 books on communication technologies.

Dr. Zhi Ding has been a professor of electrical engineering at major US universities for 30 years. Since 1995, he has consulted for both engineering companies such as Nortel, Analog Devices, Intel, and worked as expert for major law firms from US, UK, China, and Canada including Kirkland & Ellis, WilmerHale, Quinn Emanuel, Fish & Richardson, Sheppard Mullin, Sidley Austin, Mayer Brown, Venable, and Finnegan, on multiple technical and patent infringement cases. He has been conducting research works on wireless communications and signal processing since 1984. He has supervised over 30 PhD students. He is an author of 200 journal papers and 2 technical books on communication technologies. He has taught classes that cover the fundamentals of signal detection, communications, and systems.

Dr. Ding currently holds the position of Distinguished Professor at the University of California, where he was appointed as the Child Family Professor of Engineering and Entrepreneurship in 2009-2014. He served as the steering committee chair of the IEEE Transactions on Wireless Communications. He was elevated to Fellow of IEEE in 2002 by the IEEE Signal Processing Society. He also served as the Technical Program Chair of the IEEE Globecom 2006 (the flagship conference of the IEEE Communications Society), Dr. Ding is an eminent scholar and expert of wireless technologies AND signal processing.

## Intellectual Property Dispute Consulting:

| Past Client | Past Engagement |
|---|---|
| Kirkland & Ellis LLP | 2007-2015 (more than 10 engagements) |
| Wilmer Cutler Pickering Hale, and Dorr, LLP | 2009-2020 (multiple engagements) |
| Fish and Richardson, LLP | 2014-15, 2019-21 (multiple engagements including Samsung, Dish, Huawei, Quectel, LG, etc.) |
| Kaye Scholer LLP | 2008-2009 |
| Bridges and Mavrakakis, LLP | 2011-2014 (multiple engagements including Apple) |
| Sterne, Kessler, Goldstein & Fox, LLC | 2013-19 (multiple engagtements including Volkswagen) |
| Bramson, Plutzik, Mahler & Birkhaeuser | 2013 |
| Gibson, Dunn & Crutcher, LLP | 2014 |
| Quinn Emanuel | 2014 |
| Norton Rose Fulbright US LLP | *2014* |
| Sheppard, Mullin, Richter, and Hampton, LLP | *2015-2021 (multiple engagements including Toyota, HTC, TCL, Continental)* |
| Rothwell, Figg, Ernest, and Manbeck, P.C. | *2016* |
| Mayer Brown LLP | *2015-17* |
| Sidley Austin, LLP | *2015-19* |
| Irell & Manella, LLP | *2016* |
| Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P | *2017* |
| Venable, LLP | *2017-18* |
| Pillsbury LLP | *2017-19* |
| Alston, Bird, LLP | 2018 |

| | |
|---|---|
| Gibson, Dunn & Crutcher, LLP | *2018-19* |
| Jincheng Tongda & Neal (China) | *2019-21* |
| Desmaris, LLP | *2019* |
| Allen & Overy, LLP, UK | *2019-20* |
| Gowling WLG, Canada | 2019 |
| Erise IP | 2019-20 |
| Questel (China) | 2020 |
| Munger Tolles & Olson, LLP (Tesla) | 2021 |
| | |
| Saikrishna & Associates (India) | 2021 |

**Expert Testifying and Depositions (7 Trials and 10 Depositions)**

| **Clients** | **Deposition/Testifying Experience** |
|---|---|
| Bramson, Plutzik, Mahler & Birkhaeuser LLP | 2013: ***Deposition*** on Case No. CV 12-05240 PJH<br>Nad Karim v. Hewlett Packard, Co.<br>UNITED STATES NORTHERN DISTRICT COURT OF CALIFORNIA. Settlement ordered Jan. 18, 2017. |
| Fish and Richardson (Representing Marvell) | 2015 (Feb. & August): ***2 Depositions*** for Marvell.<br>US PTAB *Inter Partes* Review IPR2014-00548<br>Marvell Semiconductor, Inc. v. Intellectual Ventures I LLC |
| Norton, Rose, Fulbright, US, LLP | 2016 (April): ***Deposition*** for<br>US PTAB *Inter Partes* Review *IPR2015-10577, IPR2015-10580, IPR2015-10581, IPR2015-10581.*<br>*Qualcomm Inc. v Bandspeed Inc.* |
| Sheppard, Mullin, Richter, and Hampton, LLP | *2016 (May):* ***Deposition*** *for TCL in*<br>*TCL Communication Technology Holdings, LTD., et al. v. Ericsson, et al., Case No. 8:14-cv-341 (C. D. CA).*<br>*2017 (Feb):* ***Testified at C.D. California*** *bench trial.* |
| Sidley Austin, LLP | *2016 (December):* ***Testified at*** *trial involving*<br>*Huawei Technologies, Co. Ltd v. Samsung* |

| | |
|---|---|
| | *Regarding FRAND licensing disputes in Shenzhen Court, P.R. China.*<br><br>*2018 (June):* ***Deposition*** *for N.D. CA on Huawei Technologies, Co. Ltd v. Samsung.*<br><br>*2018 (December):* ***Testified at*** *trial involving Huawei Technologies, Co. Ltd v. Samsung Regarding FRAND licensing disputes in Beijing Court of Intellectual Properties, P.R. China.* |
| Mayer Brown LLP | *2017 (January):* ***Testified during tribunal proceeding*** *for LG Electronics, Inc. in standard essential patent (SEP) licensing dispute* of<br>Nokia Technologies, Ltd. *v.* LG Electronics, Inc.<br>During arbitration hearing in Paris, France. |
| Venable LLP | 2017 (October): ***Deposition*** as expert witness for Verizon Services Corp. in Case No. 2:16-CV-588-WCB (E. D. TX) on US Patent disputes. |
| Pillsbury LLP | 2018 (Feb): ***Deposition*** (Case No. 5:16-cv-00179-RWS)<br>2018 (June): **Testified at E. D. Texas** (Texarkana) jury trial (Case No. 5:16-cv-00179-RWS). |
| Allen & Overy LLP UK | 2019 (Jan): Huawei v. Conversant<br>2019 (April): ***Testified at*** *Nanjing Intermediate Court Trial* |
| Sidley Austin LLP, US | 2019 (Jan): Huawei v. PanOptis<br>2019 (Sept.): ***Testified at*** *Shenzhen Intermediate Court Trial* |
| Sheppard, Mullin, Richter, and Hampton, LLP | *2019 (Dec. 3rd):* ***Deposition*** *for HTC and Apple in HTC Corporation, HTC America, Inc., and Apple Inc. v. INVT SPE LLC, Case Nos. IPR2018-01555 and IPR2018-01581.* |
| Sterne, Kessler, Goldstein & Fox, LLC | *2020 (Feb.):* ***Deposition*** *for Volkswagen Group of America, In. v. Carucel Investments, L.P. Case Nos. IPR2019-01573 and IPR2019-01101.* |

**Recent IPR Declarations**

**or Outcomes**

IPR2014-00548 Expert Declaration to the Patent Trial and Appeal Board, with link to Final PTAB Decision.

IPR2015-00314 Expert Declaration to the Patent Trial and Appeal Board with link to Final PTAB Decision

IPR2015-00315 Expert Declaration and Supplemental Expert Declaration to the Patent Trial and Appeal Board with link to PTAB Trial Decision.

IPR2015-00531 Expert Declaration to the Patent Trial and Appeal Board with link to PTAB Trial Decision.

IPR2015-01580 Expert Declaration to the Patent Trial and Appeal Board with link to PTAB Trial Decision.

IPR2015-01582 Expert Declaration to the Patent Trial and Appeal Board and link to PTAB Decision on Institution of IPR and Grant of Motion for Joinder with ITR2015-00531.

IPR2016-00620 Expert Declaration to the Patent Trial and Appeal Board with link to PTAB decision to institute and link to Final PTAB decision finding all but 2 dependent claims invalid .

IPR2016-00623 Expert Declaration to the Patent Trial and Appeal Board with link to PTAB decision.

IPR2018-01555 Expert Declaration to the Patent Trial and Appeal Board. Instituted.

IPR2018-01581 Expert Declaration to the Patent Trial and Appeal Board.

IPR2019-01573 Expert Declaration to the Patent Trial and Appeal Board.

IPR2019-01101 Expert Declaration to the Patent Trial and Appeal Board.

## Employment History

| | | |
|---|---|---|
| From: | 2000 | **University of California at Davis** |
| To: | Present | Davis, CA |

Position: *Professor* (2000-2020) and *Distinguished Professor* (2020-)*, Department of Electrical and Computer Engineering*

From: 01/1999 **University of Iowa**
To: 09/2000 Iowa City, IA
Position: *Assoc. Professor, Department of Electrical and Computer Engineering*

From: 01/1997 **Hong Kong University of Science and Technology**
To: 12/1997 Hong Kong
Position: *Visiting Associate Professor, Department of Electrical and Electronic Engineering*

From: 09/1995 **Auburn University**
To: 12/1998 Auburn, AL
Position: *09/1995-12/1998: Associate Professor, Department of Electrical and Computer Engineering*
*09/1990-08/1995: Assistant Professor, Department of Electrical and Computer Engineering*

From: 08/1993 **Australian National University**
To: 09/1993 Canberra, Australia
Position: *Visiting Research Fellow, Faculty of Information Technology and Engineering*

From: 06/1993 **US Air Force Wright Laboratory**
To: 08/1993 Eglin AFB, Florida
Position: *Faculty Research Associate, Armament Directorate*

From: 06/1992 **NASA Lewis Research Center**
To: 08/1992 Cleveland, OH
Position: *Visiting Faculty Research Fellow*

From: 08/1987 **Cornell University**
To: 08/1990 Ithaca, NY
Position: *Research Assistant*

From: 09/1984 **University of Toroto**
To: 08/1987 Toronto, Ontario, Canada
Position: *Research Assistant*

## Technical Consulting

Consulted for multiple major technology companies: Analog Devices, Nortel, Intel, Futurewei, NEC.

## Patents (Granted and/or Licensed)

| Patent Number | Date Issued | Title |
|---|---|---|
| US 6,396,885 | Mar.28, 2002 | Co-channel interference reduction in wireless communications systems (Nortel) |
| US 6,463,099 | Oct.8, 2002 | Blind channel equalizers and methods of blind channel equalization (Licensed) |
| US 7,379,513 | Mar. 20, 2008 | Channel estimation in CDMA communications systems using both lower power pilot channel and higher power date channel |
| US 10,623,230 | Apr. 14, 2020 | Trans-layer robust header-compression technique |

## Education

| | | |
|---|---|---|
| 1990 | Cornell University, Ithaca, NY | Ph.D., Electrical Engineering |
| 1987 | University of Toronto, Toronto, Canada | MS, Electrical Engineering |
| 1982 | Nanjing Institute of Technology, Nanjing, China | BS, Wireless Engineering |

## Publications

### Books & Book Chapters


[1] B. P. Lathi and Z. Ding, *Modern Digital and Analog Communication Systems,* 5th edition, Oxford University Press, 2018.

[2] Zhi Ding and Ye Li, *Blind Equalization and Identification*, Marcel Dekker, New York, 2001.

[3] Z. Ding, "Chapter 7: Linear Predictive Algorithms for Blind Multichannel Identification," in *Signal Processing Advances in Wireless and Mobile Communications*, Vol. I: Trends in Channel Estimation and Equalization, G. B. Giannakis, Y. Hua, P. Stoica, and L. Tong (Editors), Prentice Hall, 2000.

[4] Z. Ding, "Blind Channel Identification and Equalization using Spectral Correlation Measurements: Frequency Domain Analysis," in *Cyclostationarity in Communications and Signal Processing*, William A. Gardner, Ed., pp.417-436, IEEE Press, 1993.

[5] Z. Ding, C. R. Johnson, Jr., and R. A. Kennedy, "Chapter 3: Global Convergence Issues with Linear Blind Adaptive Equalizers," in *Blind Deconvolution*, Simon Haykin, Ed., pp.60-120, Prentice-Hall, 1994.

[6] Z. Ding, "Adaptive Filters for Blind Equalization," in *IEEE DSP Handbook*, Douglas B. Williams, Ed., pp.24.1-24.17, IEEE Press, 1998.

## Journal Papers


[1] A. Jalali and Z. Ding, ``Joint Detection and Decoding of Polar Coded 5G Control Channels", *IEEE Transactions on Wireless Communications,* 19(3), pp. 2066-2078, Mar. 2020.

[2] Yang, Kai, Yuanming Shi, Wei Yu, and Zhi Ding, ``Energy-efficient processing and robust wireless cooperative transmission for edge inference," *IEEE Internet of Things Journal*, accepted, 2020. DOI: 10.1109/JIOT.2020.2979523

[3] J. Dong, Y. Shi, and Z. Ding, ``Blind Over-the-Air Computation and Data Fusion via Provable Wirtinger Flow", *IEEE Transactions on Signal Processing* vol. 68, pp. 1136-1151, 2020. DOI: 10.1109/TSP.2020.2970338.

[4] Y. Ma, Z. Quan, D. Li, S. Zhang, X. Li, Z. Feng, and Z. Ding, Optimal Linear Cooperation for Signal Classification via M-ary Hypothesis Testing in Cognitive Communication Networks, *IEEE Transactions on Wireless Communications,* 19(5), pp. 3144-3155, May 2020.

[5] S. Zhang, Z. Ding and S. Cui, ``Introducing Hypergraph Signal Processing: Theoretical Foundation and Practical Applications," *IEEE Internet of Things Journal,* , vol.7, no.1, pp. 639-660, Jan. 2020. doi: 10.1109/JIOT.2019.2950213

[6] Z. Jiang, X. Shen, H. Wang and Z. Ding, ``Joint PSK Data Detection and Channel Estimation under Frequency Selective Sparse Multipath Channels," in *IEEE Transactions on Communications*, doi: 10.1109/TCOMM.2020.2975172.

[7] R. Liu, Q. Chen, G. Yu, G. Y. Li and Z. Ding, ``Resource Management in LTE-U Systems: Past, Present, and Future," *IEEE Open Journal of Vehicular Technology,* vol. 1, pp. 1-17, 2020 DOI: 10.1109/OJVT.2019.2949020

[8] Li, Pei-Rong, Zhi Ding, and Kai-Ten Feng, ``Enhanced Receiver Based on FEC Code Constraints for Uplink NOMA With Imperfect CSI." *IEEE Transactions on Wireless Communications* vol. 18, no. 10, pp. 4790-4802, 2019.

[9] Z. Liu, L. Zhang, and Z. Ding, ``Exploiting Bi-Directional Channel Reciprocity in Deep Learning for Low Rate Massive MIMO CSI Feedback", *IEEE Wireless Communications Letters*, Feb. 2019. doi:10.1109/LWC.2019.2898662

[10] K. Yang, Y. Shi and Z. Ding, ``Generalized Low-Rank Optimization for Topological Cooperation in Ultra-Dense Networks," *IEEE Transactions on Wireless Communications,* vol. 18, no. 5, pp. 2539-2552, May 2019. doi: 10.1109/TWC.2019.2904570

[11] K. Yang, Y. Shi and Z. Ding, ``Data Shuffling in Wireless Distributed Computing via Low-Rank Optimization," *IEEE Transactions on Signal Processing,* vol. 67, no. 12, pp. 3087-3099, 15 June, 2019. doi: 10.1109/TSP.2019.2912139

[12] S. Bi, J. Lyu, Z. Ding, and R. Zhang, R., ``Engineering Radio Maps for Wireless Resource Management," *IEEE Wireless Communications,* 26(2), pp.133-141, Feb. 2019. doi:10.1109/MWC.2019.1800146

[13] Z. Zhang, Z. Zhu, B. Bazor, S. Lee, Z. Ding and T. Pan, ``FeetBeat: A Flexible Iontronic Sensing Wearable Detects Pedal Pulses and Muscular Activities," *IEEE Transactions on Biomedical Engineering,* 2019. doi: 10.1109/TBME.2019.2900224

[14] L. Jing, H. Wang, C. He and Z. Ding, ``A Novel Spatial CCK Modulation Design for Underwater Acoustic Communications," *IEEE Transactions on Vehicular Technology,* vol. 68, no. 6, pp. 6192-6196, June 2019. doi: 10.1109/TVT.2019.2912583

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[16] W. Wu and Z. Ding, ``A Markovian Design of Bi-Directional Robust Header Compression for Efficient Packet Delivery in Wireless Networks" *IEEE Transactions on Wireless Communications*, vol.18, no.1, pp. 20-33, Jan. 2019. doi:10.1109/TWC.2018.2875448

[17] X. Ling, J. Wang. T. Bouchoucha, B. C. Levy, and Z. Ding, ``Blockchain Radio Access Network (B-RAN): Towards Decentralized Secure Radio Access Paradigm," IEEE Access, vol. 7, pp. 9714-9723, Jan. 2019. doi: 10.1109/ACCESS.2018.2890557

[18] H. Wang, L. Jing, C. He, and Z. Ding, `` High Rate CCK Modulation Design for Bandwidth Efficient Link Adaptation," IEEE Wireless Communications Letters, , pp. 4960499, 8(2), April 2019.

[19] Q. Chen, G. Yu, and Z. Ding, ``Enhanced LAA for Unlicensed LTE Deployment Based on TXOP Contention," IEEE Transactions on Communications, vol. 67, no. 1, pp. 417-429, Jan. 2019. doi: 10.1109/TCOMM.2018.2868694

[20] Hema K. Achanta, Soura Dasgupta, Raghuraman Mudumbai, Weiyu Xu, and Zhi Ding, ``Optimum sensor placement for localization of a hazardous source under log normal shadowing," Numerical Algebra, Control & Optimization, no. 3, pp. 361-382, 2019. doi: 10.3934/naco.2019024

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[22] P. Ge, X. Liang, J. Wang, C. Zhao, X. Gao and Z. Ding, "Optical Filter Designs for Multi-Color Visible Light Communication", IEEE Transactions on Communications, vol. 67, no. 3, pp. 2173-2187, March 2019. doi: 10.1109/TCOMM.2018.2883422

[23] Y. Wu, C. Xiao, Z. Ding, X. Gao, and S. Jin A Survey on MIMO Transmission With Finite Input Signals: Technical Challenges, Advances, and Future Trends," Proceedings of the IEEE, vol. 106, No. 10, 1779-1833, October, 2018.

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[25] L. Liang, S. Xie, G. Y. Li, Z. Ding and X. Yu, ``Graph-Based Resource Sharing in Vehicular Communication," IEEE Transactions on Wireless Communications, vol. 17, no. 7, pp. 4579-4592, July 2018. doi: 10.1109/TWC.2018.2827958

[26] Q. Ji, Z. Ding, N. Wang, M. Pan and G. Song, ``A Novel Waveform Optimization Scheme for Piezoelectric Sensors Wire-Free Charging in the Tightly Insulated Environment,"> IEEE Internet of Things Journal, vol. 5, no. 3, pp. 1936-1946, June 2018. doi: 10.1109/JIOT.2018.2817601

[27] X. Ling, J. Wang, Z. Ding, C. Zhao and X. Gao, ``Efficient OFDMA for LiFi Downlink," *Journal of Lightwave Technology,* vol. 36, no. 10, pp. 1928-1943, 15 May 2018. doi: 10.1109/JLT.2018.2796120

[28] C. Jiang, W. Wu, and Z. Ding, ``LTE Multimedia Broadcast Multicast Service Provisioning Based on Robust Header Compression," *IEEE Transactions on Wireless Communications,* vol. 17, no. 2, pp. 1161-1172, Feb. 2018. doi: 10.1109/TWC.2017.2776906

[29] X. Ling, J. Wang, X. Liang, Z. Ding, C. Zhao, and X. Gao ``Biased Multi-LED Beamforming for Multicarrier Visible Light Communications," IEEE Journal on Selected Areas in Communications, vol. 36, no. 1, pp.106-120, Jan. 2018. doi: 10.1109/JSAC.2017.2774539

[30] X. Liang, Z. Ding and C. Xiao, ``On Linear Precoding of Non-Regenerative MIMO Relay Networks For Finite-Alphabet Source," *IEEE Transactions on Vehicular Technology,* vol. 66, no. 11, pp. 9761-9775, Nov. 2017. doi: 10.1109/TVT.2017.2717925

[31] X. Liang; M. Yuan; J. Wang; Z. Ding; M. Jiang; C. Zhao, ``Constellation Design Enhancement for Color-Shift Keying Modulation of Quadrichromatic LEDs in Visible Light Communications," *Journal of Lightwave Technology,* vol.15, no.17, pp.3650-3663, September 2017. doi: 10.1109/JLT.2017.2720579

[32] L. Jing, C. He, J. Huang and Z. Ding, ``Energy Management and Power Allocation for Underwater Acoustic Sensor Network,"*IEEE Sensors Journal,* vol. 11, no. 11, pp. 1789-1796, August 2017. doi: 10.1109/JSEN.2017.2737229

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[35] Lianyou Jing, C. He, Jian-guo Huang, and Z. Ding, ``Joint Channel Estimation and Detection Using MCMC Method over Sparse Underwater Acoustic Channels". *IET Communications,* May 2017. doi: 10.1049/iet-com.2016.1339

[36] L. Jing, H. Wang, C. He and Z. Ding, ``Spatial CCK Modulation and Iterative Detection over Frequency-Selective Fading Channels," *IEEE Wireless Communications Letters,* vol.6, no.4, pp.506-509, June 2017. doi: 10.1109/LWC.2017.2709315

[37] Hesham Elmaghraby and Zhi Ding, ``Scheduling and Power Allocation for Hybrid Access Cognitive Femtocells," *IEEE Transactions on Wireless Communications* vol.16, No.4, pp. 2520-2533, April 2017.

[38] Chen Sun, Xiqi Gao, and Zhi Ding. ``BDMA in Multi-Cell Massive MIMO Communications: Power Allocation Algorithms", *IEEE Transactions on Signal Processing,* vol. 65, No. 11, pp. 2962-74, June 2017.

[39] Dongrun Qin and Zhi Ding, ``Transport capacity analysis of wireless in-band full duplex ad hoc networks." *IEEE Transactions on Communications,* vol. 65, no. 3, pp.1303-18, March 2017. doi: 10.1109/TCOMM.2016.2640278

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[41] K. Wang; Z. Ding, ``FEC Code Anchored Robust Design of Massive MIMO Receivers," in *IEEE Transactions on Wireless Communications,* vol.15, no.12, pp.8223-8235, 2016, doi: 10.1109/TWC.2016.2613516

[42] Q. Chen, G. Yu and Z. Ding, ``Optimizing Unlicensed Spectrum Sharing for LTE-U and WiFi Network Coexistence," in *IEEE Journal on Selected Areas in Communications,* vol. 34, no. 10, pp. 2562-2574, Oct. 2016. doi: 10.1109/JSAC.2016.2604998

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[45] Han, Huy-Dung, Zhi Ding, and Muhammad Zia. ``A Convex Relaxation Approach to Higher-Order Statistical Approaches to Signal Recovery." *IEEE Transactions on Vehicular Technology*, vol.PP, no.99, pp.1-1 doi: 10.1109/TVT.2016.2542108

[46] H. Wang; C. Zhu; Z. Ding, ``Femtocell Power Control for Interference Management Based on Macro-Layer Feedback," IEEE Transactions on Vehicular Technology, vol.64, no.6, pp.5222-5236 July 2016. doi: 10.1109/TVT.2015.2463718

[47] W. Wu, H. Mittelmann, and Z. Ding, ``Modulation Design for Two-Way Amplify-and-Forward Relay HARQ," IEEE Wireless Communications Letters, vol.5, no.3, pp.244-247, June 2016. doi: 10.1109/LWC.2016.2530659

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[49] Xintong Ling, J. Wang, X. Liang, Z. Ding, C. Zhao, Offset and power optimization for DCO-OFDM in visible light communication systems," *IEEE Transactions on Signal Processing,* 64(2), 349-363, 2016.

[50] H. Tang and Z. Ding, ``Mixed Mode Transmission and Resource Allocation for D2D Communication," IEEE Transactions on Wireless Communications, vol. 15, no. 1, pp. 162-175, Jan. 2016. doi: 10.1109/TWC.2015.2468725

[51] X. Ling, J. Wang, X. Liang, Z. Ding and C. Zhao, ``Offset and Power Optimization for DCO-OFDM in Visible Light Communication Systems," IEEE Transactions on Signal Processing, vol. 64, no. 2, pp. 349-363, Jan.15, 2016. doi: 10.1109/TSP.2015.2477799

[52] H. Wang, J. Wang and Z. Ding, ``Distributed Power Control in a Two-Tier Heterogeneous Network," IEEE Transactions on Wireless Communications, vol. 14, no. 12, pp. 6509-6523, Dec. 2015. doi: 10.1109/TWC.2015.2456055

[53] Bi, Suzhi, Rui Zhang, Zhi Ding, and Shuguang Cui. ``Wireless communications in the era of big data." IEEE Communications Magazine, vol. 53, no. 10, pp. 190-199, October 2015. doi: 10.1109/MCOM.2015.7295483

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[56] Kun Wang, Hong Shen, Wenhao Wu, and Zhi Ding, Joint Detection and Decoding in LDPC-Based Space-Time Coded MIMO-OFDM Systems via Linear Programming" IEEE Transactions on Signal Processing, 63. 3411-3424. 2015. doi: 10.1109/TSP.2015.2422681

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## Professional Services and Achievements

- Steering Committee Chairman, *IEEE Transactions on Wireless Communications,* 1.2008-1-2010
- Canadian National Science and Engineering Research Council Panelist, 2009-2012
- Fellow of IEEE
- Steering Committee Member, *IEEE Transactions on Wireless Communications,* 1.2006-1-2008
- General Chair, IEEE 2016 International Conference on Acoustics, Speech, and Signal Processing, Shanghai, China.
- Technical Program Chair, *IEEE 2006 Globecom*, San Francisco, CA.
- Editorial Board Member, *IEEE Signal Processing Magazine*, 1/2003-1/2007.
- Associate Editor, *IEEE Signal Processing Letters*, 1.2002-1.2005.
- Associate Editor, IEEE Transactions on Signal Processing, 1.2001-1.2004.
- Editor, Special Issue on Multiuser Detection and Blind Estimation, *EURASIP Journal on Applied Signal Processing*, Dec. 2002.
- Member, IEEE Statistical Signal and Array Processing Technical Committee, 1993-1998.
- Member, IEEE Signal Processing for Communications Technical Committee, 1998-2004.
- Associate Editor, IEEE Transactions on Signal Processing, 1994-1997.
- Technical Program Committee Member, 3rd IEEE Workshop on Signal Processing Advances in Wireless Communications, Taiwan, March 2001.
- Organization Committee Member, 1st IEEE Workshop on Signal Processing Advances in Wireless Communications, Paris, France, April 1997.
- Review Panelist, National Science Foundation, 1997, 2003, 2004, 2005, 2007, 2008, 2010, 2014, 2015, 2016.