

Xiangyun (Sean) Zhou

Research School of Engineering
The Australian National University (ANU)
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Qualifications

- 2010 **Doctor of Philosophy in Engineering**, ANU
Thesis focused on wireless transmission resource allocation with channel uncertainty.
- 2007 **Bachelor of Engineering with 1st Class Honours and University Medal**, ANU
Major studies in Electronics and Telecommunications

Work Experience

- 01/2015 - present **Senior Lecturer (Fellow)**, ANU
- 06/2011 – 12/2014 **Lecturer (Research Fellow)**, ANU
- 06/2010 – 06/2011 **Postdoctoral Fellow**, University of Oslo, Norway

Highlights of Academic Career

- **Research Publication (as of Dec 2017): over 120 journal and conference papers**
- **Chief Investigator of 5 ARC Discovery Project grants (\$1.7m in total)**
- **Editor of IEEE Transactions on Wireless Communications, IEEE Wireless Communications Letters and IEEE Communications Letters**
- **Guest Editor of IEEE Communications Magazine and EURASIP Journal on Wireless Communications and Networking**
- **Co-Chair of 2014, 2015 and 2016 IEEE ICC Workshop on Wireless Physical Layer Security**
- **Co-Chair of 2016 and 2017 IEEE Globecom Workshop on Wireless Energy Harvesting Communication Networks**
- **Symposium/Track Chair of IEEE ICC'16 and VTC-Spring'17**
- **IEEE ComSoc Asia-Pacific Best Young Researcher Award in 2017**
- **IEEE ComSoc Asia-Pacific Outstanding Paper Award in 2016**
- **Best Paper Award at IEEE ICC'11**
- **Finalist of Heinrich Hertz Award for Best Communications Letters in 2013**
- **Finalist of Best Paper Award at IEEE Globecom'14**
- **Finalist of Student Best Paper Award at IEEE ICASSP'14**

Research Interests

A broad interest in Communication Theory and Wireless Networks, focusing on the wireless technologies underpinning future cellular networks and the Internet of Things. Specific topics include: *physical layer security, wireless network security, ultra-reliable and low latency communications, millimeter wave communications, machine-to-machine communications, wireless powered communications, backscatter communications.*

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Research Grants

- 2018 – 2020 N. Yang and **X. Zhou**, “Ultra-Reliable and Low-Latency Mission Critical Communications”, **ARC Discovery Project**, DP180104062, \$453,270
- 2017 – 2019 S. Durrani, **X. Zhou**, D. Ngo, and H. Yanikomeroglu, “Enabling Ultra-Reliable and Sustainable Machine-to-Machine Communications”, **ARC Discovery Project**, DP170100939, \$352,000
- 2015 – 2017 **X. Zhou**, T. Abhayapala, N. Yang, and A. L. Swindlehurst, “Safeguarding Future Wireless Communications with Physical Layer Security”, **ARC Discovery Project**, DP150103905, \$340,300
- 2014 – 2016 S. Durrani, **X. Zhou**, H. Mehrpouyan, and S. D. Blostein, “Realizable Synchronization Techniques: Unlocking the Potential of Future Wireless Networks”, **ARC Discovery Project**, DP140101133, \$365,000
- 2013 C. Yu, **X. Zhou**, and A. N. Bishop, “UWB-Based Wireless Sensor Networks for Localisation”, ANU Major Equipment Grant, 13MEC05, \$40,000
- 2011 – 2013 R. A. Kennedy, T. Lamahewa, **X. Zhou**, and G. Giannakis, “Optimum Cross-Layer Design in Wireless Communication Systems with Channel Uncertainty”, **ARC Discovery Project**, DP110102548, \$255,000

Teaching

- 2016 - present Digital Communications, ANU (ENGN3226, ENGN6626)
- 2012 - 2016 Wireless Communications, ANU (ENGN4536, ENGN6536)

Research Supervision

Received Nominations for the Dean’s Award for Excellence in Supervision in 2014, 2015 and 2017

Current Students

- Ph.D. **Xiaolun Jia**, ANU, 01/2018 – present, Topic: TBD
- Sheeraz Alvi**, ANU, 07/2016 – present, Topic: Machine-to-machine communications
- Khurram Shahzad**, ANU, 05/2016 – present, Topic: Wireless communication security
- Ph. D. (visiting)
- B.Eng. **Ahmad Raed Alamyar**, ANU, 2018, Topic: Wireless cellular networks
- Yun Jiang**, ANU, 2018, Topic: Wireless cellular networks
- Kun (Shasha) Ma**, ANU, 2018, Topic: National broadband networks
- Ian Rankine**, ANU, 2017 - 2018, Topic: Wireless cellular networks

Former Postdoc

- Dr. Shihao Yan**, ANU, 08/2015 – 01/2018, under ARC Discovery Project Grant - DP150103905

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Dr. Ali Nasir, ANU, 09/2012 – 08/2015, under ARC Discovery Project Grants - DP110102548 and DP140101133

Former Students

Ph.D.

Wanchun Liu, ANU, 07/2014 – 07/2017, Topic: Energy harvesting wireless communications, Now work at University of Sydney as a postdoctoral researcher.

Yirui Cong, ANU, 12/2013 – 10/2017, Topic: Communication and control in wireless mobile networks, Now work at National University of Defense Technology in China.

Biao He, ANU, 08/2012 – 02/2016, Topic: Physical layer security in wireless communications, Previously worked at Hong Kong University of Science and Technology as a postdoctoral researcher, Now work at University of California, Irvine as a postdoctoral researcher.

Zohair Abu Shaban, ANU, 06/2014 – 11/2017, Topic: Localization in cellular networks (principal supervisor: Prof. Thushara Abhayapala), Now work at University of New South Wales as a research associate.

Yifei Huang, ANU, 03/2014 – present, Topic: Heterogeneous cellular networks (principal supervisor: Dr. Salman Durrani), Now work at Venture Consulting.

Jing Guo, ANU, 09/2012 – 04/2016, Topic: Stochastic geometry for wireless networks (principal supervisor: Dr. Salman Durrani), Now work at ANU as a postdoctoral researcher.

He Wang, ANU, 11/2009 – 07/2013, Topic: Heterogeneous cellular networks. (principal supervisor: Dr. Mark Reed), Now work at Samsung Research Centre in Beijing, China.

Ph.D. (visiting)

Xian Li, from Southeast University China, 11/2016 – 11/2017, Topic: Wireless powered communications

Jianping Yao, from South China University of Technology, 09/2015 – 09/2016, Topic: Physical layer security. Now work at Guangdong University of Technology in China.

Xi Zhang, from HKUST, 07/2013 – 10/2013, Topic: Physical layer security, Now work at Huawei in Chengdu, China.

M.Eng.

Xiangjie Meng, ANU, 2015, Topic: Physical layer security.

Marwan Farhat, ANU, 2011, Topic: Cooperative communication with untrustworthy relays.

Chao-Wei Huang, NTHU, 2011, Topic: Two-way training design for discriminatory channel estimation in wireless MIMO systems. (principal supervisor: Prof. Peter Hong)

B.Eng.

Tianyu Cao, ANU, 2017, Topic: Wireless communication security

Ruihua Jing, ANU, 2017, Topic: Wireless cellular networks

Tonghui Liu, ANU, 2017, Topic: Wireless cellular networks

Ben Schultz, ANU, 2016, Topic: wireless cellular networks

Emily Khor, ANU, 2016, Topic: wireless cellular networks

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Mengjie Zhao, ANU, 2015, Topic: Spatial modelling of cellular networks.

Si Bao, ANU, 2015, Topic: heterogeneous cellular networks

Ahnaf Ahmed, ANU, 2015, Topic: Wireless information and power transfer

Xuran Li, ANU, 2015. Topic: Physical layer security

Yang Liu, ANU, 2014, Topic: Heterogeneous cellular networks

Tiange Shi, ANU, 2014, Topic: Physical layer security

Bin Zhu, ANU, 2014, Topic: Wireless information and power transfer

Tian Liang, ANU, 2014, Topic: Physical layer security

Congchi Zhang, ANU, 2013, Topic: Heterogeneous cellular networks.

Mengqi Xu, ANU, 2013, Topic: Physical layer security.

Min Qiu, ANU, 2012, Topic: Game theory in wireless communications.

Chen Ye, ANU, 2012, Topic: Game theory in wireless communications.

University Visits

- South China University of Technology, China, Host: Prof. Yuan Liu, Apr. 2017 (1 week)
- Southwest Jiaotong University, China, Host: Prof. Xianfu Lei, Sep. 2016 (1 week)
- University of California, Irvine, USA, Host: Prof. A. Lee Swindlehurst, Dec. 2015 (1 week)
- Aalborg University, Denmark, Host: Prof. Petar Popovski, May – Jun. 2013 (2 weeks)
- University of California, Irvine, USA, Host: Prof. A. Lee Swindlehurst, Jun. 2012 (1 week)
- University of South Australia, Australia, Host: Dr. Ingmar Land, May 2012 (1 week)
- Southwest Jiaotong University, China, Host: Profs. Pingzhi Fan & Li Hao, Apr. 2011 (2 weeks)
- National Tsing Hua University, Taiwan, Host: Prof. Peter Hong, Jan. 2011 (1 month)
- Hong Kong University of Science and Technology, Host: Prof. Matt McKay, Nov. - Dec. 2010 (1 month)
- Shanghai Jiaotong University, China, Host: Prof. Meixia Tao, Dec. 2009 (1 week)
- University of Texas at Austin, Host: Profs. Jeff Andrews & Robert Heath Jr., Oct. - Nov. 2009 (2 months)
- Hong Kong University of Science and Technology, Host: Prof. Matt McKay, Nov. 2008 (1 week)

Professional Activities

Journal Editor

- Editor (2014 -): IEEE Transactions on Wireless Communications
- Editor (2018 -): IEEE Wireless Communications Letters
- Editor (2013 -): IEEE Communications Letters
- Associate Editor (2012 - 2015): Security and Communication Networks Journal (Wiley)
- Editor (2012 – 2014): Ad Hoc & Sensor Wireless Networks Journal
- Guest Editor: 2015 Special Issue on Wireless Physical Layer Security, IEEE Communications Magazine
- Guest Editor: 2014 Special Issue on Energy Harvesting Wireless Communications, EURASIP Journal on Wireless Communications and Networking

Conference & Workshop Organization

- Track Co-Chair: IEEE VTC 2017-Spring Track on Wireless Access Technology and Heterogeneous

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Networks

- Symposium Co-Chair: IEEE ICC 2016 Symposium on Privacy and Security in Communications
- Workshop Co-Organizer: IEEE Globecom 2017 Workshop on Wireless Energy Harvesting Communication Networks
- Workshop Co-Organizer: IEEE Globecom 2016 Workshop on Wireless Energy Harvesting Communication Networks
- Workshop Co-Organizer: IEEE Globecom 2016 Workshop on Trusted Communication with Physical Layer Security
- Workshop Co-Organizer: IEEE ICC 2016 Workshop on Wireless Physical Layer Security
- Workshop Co-Organizer: IEEE Globecom 2015 Workshop on Trusted Communication with Physical Layer Security
- Workshop Co-Organizer: IEEE ICC 2015 Workshop on Wireless Physical Layer Security
- Workshop Co-Organizer: IEEE ICC 2014 Workshop on Wireless Physical Layer Security
- Session Co-Organizer: Special Session on “5G Technologies for D2D, M2M and V2V communications”, 2016 IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)
- Session Co-Organizer: Special Session on “Physical Layer Security”, 2015 International Conference on Wireless Communications and Signal Processing (WCSP)
- Session Organizer: Special Session on “Stochastic Geometry and Random Networks”, 2013 Asilomar Conference on Signals, Systems, and Computers

TPC Services

- TPC Member: IEEE Global Communications Conference (Globecom), 2017
- TPC Member: IEEE Global Communications Conference (Globecom), 2016
- TPC member: Green Networks Workshop 2016
- TPC Member: IEEE International Conference on Communications (ICC), 2016
- TPC Member: IEEE Vehicular Technology Conference (VTC-Spring), 2016
- TPC Member: IEEE International Conference on Ubiquitous Wireless Broadband: Workshop on Energy-Harvesting Wirelessly-Powered Communications and Wireless Power Transfer, 2015
- TPC Member: IEEE Conference on Communications and Network Security: Workshop on Physical-Layer Methods for Wireless Security, 2015
- TPC Member: IEEE International Conference on Communications in China (ICCC), 2015
- TPC Member: IEEE ICC Workshop on Green Communications and Networks with Energy Harvesting, Smart Grids, and Renewable Energies, 2015
- TPC Member: IEEE International Conference on Communications (ICC), 2015
- TPC Member: IEEE Wireless Communications and Networking Conference (WCNC), 2015
- TPC Member: International Conference on Telecommunications (ICT), 2015
- TPC Member: European Conference on Networks and Communications, 2015
- TPC Member: IEEE Globecom Workshop on Trusted Commun. with Physical Layer Security, 2014
- TPC Member: IEEE International Conference on Communications in China (ICCC), 2014
- TPC Member: International Conference on Commun. and Networking in China (Chinacom), 2014
- TPC Member: IEEE Vehicular Technology Conference (VTC-Fall), 2014

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- TPC Member: IEEE International Conference on Communications (ICC), 2014
- TPC Member: IEEE SECON Workshop on Energy Harvesting Communications, 2014
- TPC Member: Australian Communication Theory Workshop (AusCTW), 2014
- TPC Member: IEEE International Conference on Communications (ICC), 2013
- TPC Member: IEEE Vehicular Technology Conference (VTC-Spring), 2013
- TPC Member: IEEE International Conference on Communications (ICC), 2012
- TPC Member: IEEE Wireless Communications and Networking Conference (WCNC), 2012
- TPC Member: IEEE Vehicular Technology Conference (VTC-Fall), 2012
- TPC Member: IEEE International Conference on Communications in China (ICCC), 2012
- TPC Member: International Conference on Communications, Mobility, and Computing (CMC), 2012
- TPC Member: IEEE Vehicular Technology Conference (VTC-Fall), 2011
- TPC Member: IEEE Int. Conf. on Computer Communications and Networks (ICCCN), 2011

Other Services

- Chair (2015 – 2017): IEEE Technical Committee on Green Communications & Computing, Special Interest Group on Energy Harvesting Communication Networks
- Local Chapter Chair (2013 - 2014): IEEE Communications Society & Signal Processing Society, ACT Section
- Reviewer, IEEE JSAC, TCOM, TWireless, TSP, TIFS, TVT, CL, WCL, etc. (Exemplary Reviewer for IEEE Communications Letters 2012 and 2013, Exemplary Reviewer for IEEE Wireless Communications Letters 2015 and 2017)
- Reviewer, major IEEE conferences, e.g., ICC, Globecom, ISIT, WCNC, ICASSP, VTC, etc.

Publications

Books:

1. T. Q. Duong, **X. Zhou**, and H. V. Poor (Eds.), “Trusted Communications with Physical Layer Security for 5G and Beyond”, IET, 2017
2. **X. Zhou**, L. Song, and Y. Zhang (Eds.), “Physical Layer Security in Wireless Communications”, CRC Press, 2013

Book Chapters:

1. W. Liu, S. Durrani, and **X. Zhou**, “Wireless Powered Sensor Networks”, In: D. Jayakody, J. Thompson, S. Chatzinotas, S. Durrani (Eds.) Wireless Information and Power Transfer: A New Paradigm for Green Communications, Springer International Publishing AG, 2017.
2. M. Maso, C. Zhong, **X. Zhou** and H. A. Suraweera, “Wireless-Powered Cooperative Relay Networks”, In: Wiley Encyclopedia of Electrical and Electronics Engineering, Wiley, 2017.

Journal Papers:

1. J. Yao, **X. Zhou**, Y. Liu, and S. Feng, “Secure Transmission in Linear Multihop Relaying Networks”, IEEE Trans. Wireless Commun., vol. 17, no. 2, pp. 822-834, Feb. 2018.
2. J. Guo, S. Durrani, **X. Zhou**, and H. Yanikomeroglu, “Massive Machine Type Communication with Data Aggregation and Resource Scheduling”, IEEE Trans. Commun., vol. 65, no. 9, pp. 4012-4026, Sep. 2017.
3. W. Liu, **X. Zhou**, S. Durrani, and P. Popovski, “A Novel Receiver Design with Joint Coherent and Non-Coherent Processing”, IEEE Trans. Commun., vol. 65, no. 8, pp. 3479-3493, Aug. 2017.
4. W. Liu, K. Huang, **X. Zhou**, and S. Durrani, “Full-Duplex Backscatter Interference Networks Based on

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- Time-Hopping Spread Spectrum”, *IEEE Trans. Wireless Commun.*, vol. 16, no. 7, pp. 4361-4377, Jul. 2017.
5. L. Mucchi, L. Ronga, **X. Zhou**, K. Huang, Y. Cheng, and R. Wang, “A New Metric for Measuring the Security of an Environment: The Secrecy Pressure”, *IEEE Trans. Wireless Commun.*, vol. 16, no. 5, pp. 3416-3430, May 2017.
 6. B. He, S. Yan, **X. Zhou**, and V. K. N. Lau, “On Covert Communication with Noise Uncertainty”, *IEEE Commun. Lett.*, vol. 21, no. 4, pp. 941-944, Apr. 2017.
 7. Y. Cong and **X. Zhou**, “Event-Trigger Based Robust-Optimal Control for Energy Harvesting Transmitter”, *IEEE Trans. Wireless Commun.*, vol. 16, no. 2, pp. 744-756, Feb. 2017.
 8. Y. Huang, S. Durrani, P. Dmochowski, and **X. Zhou**, “A Proposed Network Balance Index for Heterogeneous Networks”, *IEEE Wireless Commun. Lett.*, vol. 6, no. 1, pp. 98-101, Feb. 2017.
 9. Y. Cong, **X. Zhou**, and R. A. Kennedy, “Finite-Horizon Throughput Region for Wireless Multi-User Interference Channels”, *IEEE Trans. Wireless Commun.*, vol. 16, no. 1, pp. 634-646, Jan. 2017.
 10. J. Guo, S. Durrani, **X. Zhou**, and H. Yanikomeroglu, “Device-to-Device Communication Underlying a Finite Cellular Network Region”, *IEEE Trans. Wireless Commun.*, vol. 16, No. 1, pp. 332-347, Jan. 2017.
 11. J. Hu, Y. Cai, N. Yang, **X. Zhou**, and W. Yang, “Artificial-Noise-Aided Secure Transmission Scheme with Limited Training and Feedback Overhead”, *IEEE Trans. Wireless Commun.*, vol. 16, No. 1, pp. 193-205, Jan. 2017.
 12. S. Yan, **X. Zhou**, N. Yang, B. He, and T. D. Abhayapala, “Artificial-Noise-Aided Secure Transmission in Wiretap Channels with Transmitter-Side Correlation”, *IEEE Trans. Wireless Commun.*, vol. 15, no. 12, pp. 8286-8297, Dec. 2016.
 13. J. Hu, N. Yang, **X. Zhou**, W. Yang, and Y. Cai, “A Versatile Secure Transmission Strategy in the Presence of Outdated CSI”, *IEEE Trans. Veh. Tech.*, vol. 65, no. 12, pp. 10084-10090, Dec. 2016.
 14. B. He, N. Yang, S. Yan, and **X. Zhou**, “Regularized Channel Inversion for Simultaneous Confidential Broadcasting and Power Transfer: A Large System Analysis”, *IEEE J. Sel. Topics Signal Process.*, vol. 10, no. 8, pp. 1404-1416, Dec. 2016.
 15. Z. Abu-Shaban, **X. Zhou**, and T. D. Abhayapala, “A Novel TOA-based Mobile Localization Technique under Mixed LOS/NLOS Conditions for Cellular Networks”, *IEEE Trans. Veh. Tech.*, vol. 65, no. 11, pp. 8841-8853, Nov. 2016.
 16. B. He, **X. Zhou**, and A. L. Swindlehurst, “On Secrecy Metrics for Physical Layer Security over Quasi-Static Fading Channels”, *IEEE Trans. Wireless Commun.*, vol. 15, no. 10, pp. 6913-6924, Oct. 2016.
 17. Y. Huang, A. A. Nasir, S. Durrani, and **X. Zhou**, “Mode Selection, Resource Allocation and Power Control for D2D-Enabled Two-Tier Cellular Network”, *IEEE Trans. Commun.*, vol. 64, no. 8, pp. 3534-3547, Aug. 2016.
 18. A. A. Nasir, D. T. Ngo, **X. Zhou**, R. A. Kennedy, and S. Durrani, “Joint Resource Optimization for Multicell Networks with Wireless Energy Harvesting Relays”, *IEEE Trans. Veh. Tech.*, vol. 64, no. 8, pp. 6168-6183, Aug. 2016.
 19. J. Hu, W. Yang, N. Yang, **X. Zhou**, and Y. Cai, “On-Off-Based Secure Transmission Design with Outdated Channel State Information”, *IEEE Trans. Veh. Tech.*, vol. 65, no. 8, pp. 6075-6088, Aug. 2016.
 20. W. Liu, **X. Zhou**, S. Durrani, H. Mehrpouyan, and S. D. Blostein, “Energy Harvesting Wireless Sensor Networks: Delay Analysis Considering Energy Costs of Sensing and Transmission”, *IEEE Trans. Wireless Commun.*, vol. 15, no. 7, pp. 4635-4650, Jul. 2016.

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21. J. Yao, S. Feng, **X. Zhou**, and Y. Liu, "Secure Routing in Multihop Wireless Ad-Hoc Networks with Decoding-and-Forward Relaying, *IEEE Trans. Commun.*, vol. 64, no. 2, pp. 753-764, Feb. 2016.
22. X. Xu, B. He, W. Yang, **X. Zhou**, and Y. Cai, "Secure Transmission Design for Cognitive Radio Networks with Poisson Distributed Eavesdroppers," *IEEE Trans. Info. Foren. Sec.*, vol. 11, no. 2, pp. 373-387, Feb. 2016.
23. W. Liu, **X. Zhou**, S. Durrani, and P. Popovski, "Secure Communication with a Wireless-Powered Friendly Jammer", *IEEE Trans. Wireless Commun.*, vol. 15, no. 1, pp. 401-415, Jan. 2016.
24. B. He, **X. Zhou**, and T. D. Abhayapala, "Achieving Secrecy without Knowing the Number of Eavesdropper Antennas", *IEEE Trans. Wireless Commun.*, vol. 14, no. 12, pp. 7030-7043, Dec. 2015.
25. B. He, N. Yang, **X. Zhou**, and J. Yuan, "Base Station Cooperation for Confidential Broadcasting in Multi-Cell Networks", *IEEE Trans. Wireless Commun.*, vol. 14, no. 10, pp. 5287-5299, Oct. 2015.
26. **X. Zhou**, "Training-Based SWIPT: Optimal Power Splitting at the Receiver", *IEEE Trans. Veh. Tech.*, vol. 64, no. 9, pp. 4377-4382, Sep. 2015.
27. Y. Cong, **X. Zhou**, and R. A. Kennedy, "Interference Prediction in Mobile Ad Hoc Networks with a General Mobility Model", *IEEE Trans. Wireless Commun.*, vol. 14, no. 8, pp. 4277-4290, Aug. 2015.
28. J. Guo, S. Durrani, **X. Zhou**, and H. Yanikomeroglu, "Outage Probability of Ad Hoc Networks with Wireless Information and Power Transfer", *IEEE Wireless Commun. Lett.*, vol. 4, no. 4, pp. 409-412, Aug. 2015.
29. K. Huang and **X. Zhou**, "Cutting Last Wires for Mobile Communication by Microwave Power Transfer", *IEEE Commun. Mag.*, vol. 53, no. 6, pp. 86 – 93, Jun. 2015.
30. Y. Huang, S. Durrani, and **X. Zhou**, "Interference Suppression using Generalized Inverse Precoder for Downlink Heterogeneous Networks", *IEEE Wireless Commun. Lett.*, vol. 4, no. 3, pp. 325-328, Jun. 2015.
31. A. A. Nasir, **X. Zhou**, S. Durrani, and R. A. Kennedy, "Wireless-Powered Relays in Cooperative Communications: Time-Switching Relaying Protocols and Throughput Analysis", *IEEE Trans. Commun.*, vol. 63, no. 5, pp. 1607-1622, May 2015.
32. X. Zhang, M. R. McKay, **X. Zhou**, and R. W. Heath Jr., "Artificial-Noise-Aided Secure Multi-Antenna Transmission with Limited Feedback", *IEEE Trans. Wireless Commun.*, vol. 14, no. 5, pp. 2742-2754, May 2015.
33. J. Guo, S. Durrani, and **X. Zhou**, "Performance Analysis of Arbitrarily-Shaped Underlay Cognitive Networks: Effect of Secondary User Activity Protocols", *IEEE Trans. Commun.*, vol. 63, no. 2, pp. 376-389, Feb. 2015.
34. J. Yang, S. Xie, **X. Zhou**, R. Yu, and Y. Zhang, "A Semiblind Two-Way Training Method for Discriminatory Channel Estimation in MIMO Systems", *IEEE Trans. Commun.*, vol. 62, no. 7, pp. 2400-2410, Jul. 2014.
35. W. Saad, **X. Zhou**, Z. Han, and H. V. Poor, "On the Physical Layer Security of Backscatter Wireless Systems", *IEEE Trans. Wireless Commun.*, vol. 13, no. 6, pp. 3442-3451, Jun. 2014.
36. H. Wang, **X. Zhou**, and M. C. Reed, "Coverage and Throughput Analysis with a Non-Uniform Small Cell Deployment", *IEEE Trans. Wireless Commun.*, vol. 13, no. 4, pp. 2047-2059, Apr. 2014.
37. C. Cai, Y. Cai, **X. Zhou**, W. Yang, and W. Yang, "When Does Relay Transmission Give a More Secure Connection in Wireless Ad Hoc Networks?", *IEEE Trans. Inf. Foren. Sec.*, vol. 9, no. 4, pp. 624-632, Apr. 2014.
38. J. Guo, S. Durrani, and **X. Zhou**, "Outage Probability in Arbitrarily-Shaped Finite Wireless Networks",

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IEEE Trans. Commun., vol. 62, no. 2, pp. 699-712, Feb. 2014.

39. B. He and **X. Zhou**, "Secure On-Off Transmission Design with Channel Estimation Errors", *IEEE Trans. Inf. Foren. Sec.*, vol. 8, no. 12, pp. 1923-1936, Dec. 2013.
40. X. Zhang, **X. Zhou**, and M. R. McKay, "Enhancing Secrecy with Multi-Antenna Transmission in Wireless Ad Hoc Networks", *IEEE Trans. Inf. Foren. Sec.*, vol. 8, no. 11, pp. 1802-1814, Nov. 2013.
41. B. He, **X. Zhou**, and T. D. Abhayapala "Wireless Physical Layer Security with Imperfect Channel State Information: A Survey", *ZTE Commun.*, vol. 11, no. 3, pp. 11-19, Sept. 2013. (invited paper)
42. M.-H. Chen, S.-C. Lin, Y.-W. P. Hong, and **X. Zhou**, "On Cooperative and Malicious Behaviors in Multi-Relay Fading Channels", *IEEE Trans. Inf. Foren. Sec.*, vol. 8, no. 7, pp. 1126-1139, Jul. 2013.
43. A. A. Nasir, **X. Zhou**, S. Durrani, R. A. Kennedy, "Relaying Protocols for Wireless Energy Harvesting and Information Processing", *IEEE Trans. Wireless Commun.*, vol. 12, no. 7, pp. 3622-3636, Jul. 2013. (**2016 IEEE ComSoc Asia-Pacific outstanding paper award**)
44. H. Pezeshki, **X. Zhou**, B. Maham, "Jamming Energy Allocation in Training-Based Multiple Access Systems", *IEEE Commun. Lett.*, vol. 17, no. 6, pp. 1140-1143, Jun. 2013.
45. H. Wang, **X. Zhou**, and M. C. Reed, "Physical Layer Security in Cellular Networks: A Stochastic Geometry Approach", *IEEE Trans. Wireless Commun.*, vol. 12, no. 6, pp. 2776-2787, Jun. 2013.
46. X. Zhang, **X. Zhou**, and M. R. McKay, "On the Design of Artificial-Noise-Aided Secure Multi-Antenna Transmission in Slow Fading Channels", *IEEE Trans. Veh. Tech.*, vol. 62, no. 5, pp. 2170-2181, Jun. 2013.
47. C.-W. Huang, T.-H. Chang, **X. Zhou**, and Y.-W. P. Hong, "Two-Way Training for Discriminatory Channel Estimation in Wireless MIMO Systems", *IEEE Trans. Signal Processing*, vol. 61, no. 10, pp. 2724-2738, May 2013.
48. W. Saad, **X. Zhou**, B. Maham, T. Başar, and H. V. Poor, "Tree Formation with Physical Layer Security Considerations in Wireless Multi-Hop Networks", *IEEE Trans. Wireless Commun.*, vol. 11, no. 11, pp. 3980-3991, Nov. 2012.
49. **X. Zhou**, B. Maham, and A. Hjørungnes, "Pilot Contamination for Active Eavesdropping", *IEEE Trans. Wireless Commun.*, vol. 11, no. 3, pp. 903-907, Mar. 2012.
50. B. Maham, P. Popovski, **X. Zhou**, and A. Hjørungnes, "Cognitive Multiple Access Network with Outage Margin in the Primary System", *IEEE Trans. Wireless Commun.*, vol. 10, no. 10, pp. 3343-3353, Oct. 2011.
51. **X. Zhou**, R. K. Ganti, J. G. Andrews, and A. Hjørungnes, "On the Throughput Cost of Physical Layer Security in Decentralized Wireless Networks", *IEEE Trans. Wireless Commun.*, vol. 10, no. 8, pp. 2764-2775, Aug. 2011.
52. **X. Zhou**, D. Niyato, and A. Hjørungnes, "Optimizing Training-Based Transmission Against Smart Jamming", *IEEE Trans. Veh. Technol.*, vol. 60, no. 6, pp. 2644-2655, Jul. 2011.
53. T. A. Lamaweha, P. Sadeghi, and **X. Zhou**, "On Lower Bounding the Information Capacity of Amplify and Forward Wireless Relay Channels with Channel Estimation Errors", *IEEE Trans. Wireless Commun.*, vol. 10, no. 7, pp. 2075-2079, Jul. 2011.
54. **X. Zhou**, M. R. McKay, B. Maham, and A. Hjørungnes, "Rethinking the Secrecy Outage Formulation: A Secure Transmission Design Perspective", *IEEE Commun. Lett.*, vol. 15, no. 3, pp. 302-304, Mar. 2011. (**Finalist of 2013 IEEE ComSoc Heinrich Hertz Award for Best Communications Letter**)
55. **X. Zhou**, R. K. Ganti, and J. G. Andrews, "Secure Wireless Network Connectivity with Multi-Antenna Transmission", *IEEE Trans. Wireless Commun.*, vol. 10, no. 2, pp. 425-430, Feb. 2011. (**Top Accessed**)

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Articles in Feb. & Mar. 2011)

56. **X. Zhou** and M. R. McKay, "Secure Transmission with Artificial Noise over Fading Channels: Achievable Rate and Optimal Power Allocation", *IEEE Trans. Veh. Technol.*, vol. 59, no. 8, pp. 3831-3842, Oct. 2010.
57. **X. Zhou**, T. Lamahewa, P. Sadeghi, and S. Durrani, "Two-way Training: Optimal Power Allocation for Pilot and Data Transmission", *IEEE Trans. Wireless Commun.*, vol. 9, no. 2, pp. 564-569, Feb. 2010.
58. **X. Zhou**, S. Durrani, and H. Jones, "Connectivity Analysis of Wireless Ad Hoc Networks with Beamforming", *IEEE Trans. Veh. Technol.*, vol. 58, no. 9, pp. 5247-5257, Nov. 2009.
59. **X. Zhou**, P. Sadeghi, T. Lamahewa, and S. Durrani, "Design Guidelines for Training-based MIMO Systems with Feedback", *IEEE Trans. Signal Processing*, vol. 57, no. 10, pp. 4014-4026, Oct. 2009.
60. **X. Zhou**, P. Sadeghi, T. Lamahewa, and S. Durrani, "Optimizing Antenna Configuration for MIMO Systems with Imperfect Channel Estimation", *IEEE Trans. Wireless. Commun.*, vol. 8, no. 3, pp. 1177-1181, Mar. 2009.

Conference Papers:

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