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温州大学计算机与人工智能学院，中国通信学会高级会员，硕士生导师
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个人简历 / **Biography**

- 2001 年 9 月，于浙江大学信电系获得电子工程专业学士学位；
- 2004 年 3 月，于浙江大学信电系获得通信与信息系统专业工学硕士学位；
- 2015 年 4 月，于大连理工大学信息与通信工程学院获得通信与信息系统专业博士学位；
- 2004 年 4 月至今，就职于温州大学数理与电子信息工程学院，目前为副教授，硕士生导师；
- 2015 年 2 月 - 2015 年 8 月，由国家留学基金委公派，在美国伍斯特理工学院（Worcester Polytechnic Institute）做访问学者；
- 2015 年 11 月 - 2018 年 10 月，浙江大学信息与通信工程博士后流动站，博士后；
- 2018 年 9 月至今，韩国全南大学合作博士生导师。

Zhenzhou Tang received his B.S. degree in Electronic Engineering and M.S. degree in Communications and Information System from Zhejiang University in 2001 and 2004 respectively. And he received his Ph.D. degree in Communications and Information System from Dalian University of Technology in 2015. In Mar. 2004, he joined Wenzhou University, and he is currently a professor of the College of Computer Science & Artificial Intelligence, Wenzhou University. From Feb. 2015 to Aug. 2015, he was a visiting scholar in the Department of Electrical and Computer Engineering, Worcester Polytechnic Institute, Worcester, MA, USA. From Nov. 2015 to Jun. 2018, he was a Postdoctoral Research Fellow in Zhejiang University. From Sep. 2018, he has been a joint Ph.D. Supervisor of Chonnam National University, Korea. His current research interest includes: Heterogeneous networks, artificial intelligence, cooperative communications, network coding and wireless sensor networks.

研究方向

1. 研究方向包括：无线异构网络，人工智能，网络编码，协作通信，无线传感器网络。

主要获奖情况

1. "产学深度联动的网络工程应用型人才培养的探索与实践"，浙江省第七届高等教育教学成果奖，一等奖，排名第四；

   Zhenzhou Tang received the First Prize of the 7th Higher Education Teaching Achievement Award of Zhejiang Province.
2. 温州市"551 人才工程"第二层次培养人选。

   Zhenzhou Tang is the Second-Level Talent of "551 Talents Project" of Wenzhou City.
3. 2017 年度温州大学优秀教师

   Zhenzhou Tang received the Outstanding Teacher Award of Wenzhou University in 2017.

主持或主要参与的主要科研项目

1. 无线多跳网络中基于网络编码的新型汇播机制研究(61303210)，国家自然科学基金青年科学基金项目，项目负责人；

   PI. Grant from the ***National Natural Science Foundation of China***, Grant NO. 61303210, 2014.1~2016.12.
2. 基于机器学习和软件定义网络的后 5G 异构网络资源优化分配的研究(LZ20F010008)，浙江省自然科学基金重点项目，项目负责人；

   PI. Grant from the ***Zhejiang Provincial Natural Science Foundation of China***, Grant NO. LZ20F010008, 2020.1~2023.12.
3. 多汇聚大规模无线传感器网络子域管理关键技术的研究(2011C31029)，浙江省公益性技术应用研究计划项目，项目负责人；

   PI. Grant from the ***Nonprofit Technology Application Research Projects of Zhejiang Province***, Grant No. 2011C310290029, 2011.1 ~ 2012.12.
4. 基于机器学习的 5G 异构网络资源优化分配关键技术研究(G20180008)，温州市基础性科研项目，项目负责人；

   PI. Grant from the ***Fundamental Scientific Research Project of Wenzhou City***, Grant No. G20180008, 2019.1~2020.12
5. 免授权频段 LTE 与 Wi-Fi 公平共存的研究，浙江省信息处理与通信网络重点实验室开放课题，项目负责人；

   PI. Grant from the ***open project of Zhejiang Provincial Key Laboratory of Information Processing, Communication and Networking***, 2018.7-2019.6

6. 水声传感器网络技术研究以及在水污染监控中的示范应用(G20080096)，温州市科技计划项目，项目负责人；

   PI. Grant from the ***Science and Technology Planning Project of Wenzhou City***, Grant No. G20080096, 2008.1~2009.12

7. 基于跨层设计的 Ad hoc 网络路由协议的研究，浙江省综合信息网技术重点实验室开放课题（200804），项目负责人；

   PI. Grant from the ***Open Project of Zhejiang Provincial Key Laboratory of Information Network Technology***, Grant No. 200804, 2008.1~2009.6

8. 基于延迟预测的结合 Ad-hoc 多跳转发的蜂窝网链路层协议的研究与仿真（2005L020），温州大学校级科研项目，项目负责人；

9. 商品流通领域电子监管系统（一期），横向课题，项目负责人；

10. 面向高速光通信系统的电域色散直接动态综合补偿方法研究(61671329)，国家自然科学基金面上项目，排名第 3；

    Co-PI. Grant from the ***National Natural Science Foundation of China***, Grant NO. 61671329, 2017.1~2020.12.

11. 基于迭代测距整合的无线网络可定位性与定位算法研究(60970118)，国家自然科学基金面上项目，4/6；

    Co-PI. Grant from the ***National Natural Science Foundation of China***, Grant NO. 60970118, 2009.1~2012.12.

12. 突发短帧信号直接盲检测的储备池计算方法(61201426)，国家自然科学基金青年科学基金项目，5/7；

    Co-PI. Grant from the ***National Natural Science Foundation of China***, Grant NO. 61201426, 2013.1~2015.12.

13. 宽带中继辅助协作通信中的盲检测方法研究(LY16F010016)，浙江省自然科学基金一般项目，2/6；

    Co-PI. Grant from the ***Zhejiang Provincial Natural Science Foundation of China***, Grant No. LY16F010016, 2016.1 ~ 2018.12.

14. 基于多采样率的多智能体系统协同控制一致性研究(LY15F030010)，浙江省自然科学基金一般项目，3/5；

    Co-PI. Grant from the ***Zhejiang Provincial Natural Science Foundation of China***, Grant No. LY15F030010, 2015.1 ~ 2017.12.

15. 低占空比的无线传感器网络中网络编码策略的研究(LQ12F02009)，浙江省自然科学基金青年基金项目，2/6；

    Co-PI. Grant from the ***Zhejiang Provincial Natural Science Foundation of China***, Grant No. LY14F030017, 2014.1 ~ 2016.12.

16. 通信受限下基于不完全测距序列的 AUV 协同导航研究(LY14F030017)，浙江省自然科学基金面上项目，3/7；

    Co-PI. Grant from the ***Zhejiang Provincial Natural Science Foundation of China***, Grant No. LQ12F02009, 2012.1 ~ 2013.12.

17. 具备高效突发传输能力的自适应占空比无线传感器网络 MAC 技术研究(Y201121034)，浙江省教育厅科技项目，2/4

    Co-PI. Grant from the ***Scientific Research Fund of Zhejiang Provincial Education Department***, Grant No. Y201121034, 2011.1 ~ 2012.12.

主持或主要参与的主要教研教改项目

1. "无线与移动网技术(第二版)"，浙江省新形态教材建设项目，项目负责人；

2. "无线与移动网技术"教学内容和课程体系改革, 教育部 2016 年产学合作协同育人项目(201602030011), 项目负责人；

   University-industry collaboration project of Ministry of Education: Wireless and Mobile Network Technologies.

3. "无线与移动网技术"，温州大学精品在线开放课程，课程负责人；

   Excellent Resource Sharing Courses of Wenzhou Univeristy: Wireless and Mobile Network Technologies.

4. "无线与移动网技术"，温州大学精品资源共享课，课程负责人；

   Excellent Resource Sharing Courses of Wenzhou Univeristy: Wireless and Mobile Network Technologies.

5. "基于 TT 模式的网络工程应用型人才培养创新实验区"， 温州大学人才培养模式创新实验区项目，项目负责人；

6. "现代通信技术"课程改革与研究，温州大学 2009 年校级教改项目，项目负责人,

7. "计算机网络基础"国家精品资源共享课，主讲教师，3/8;

8. "三位一体"课堂教学模式改革－以网络工程典型课程为例，浙江省高等教育课堂教学改革项目，3/4;

9. 基于企业生态系统的分布式工程实践教育中心建设模式探索与实践，浙江省高等教育教学改革项目，3/5;

部分学术论文、专利、著作或教材

期刊论文 / Journal papers

1. J. Fan, Q. Hu, Y. Xu and Z. Tang, Predicting the Vacant Parking Space Availability: an LSTM Approach, submitted to *IEEE Intelligent Transportation System Magazine*, under the 2nd round review.

2. **Z. Tang**, X. Zhou, Q. Chen, G. Yu, X. Shi and Q. Hu*, Adaptive p-Persistent LBT for Unlicensed LTE: Performance Analysis and Optimization, *IEEE Transactions on Vehicular Technology,* 68(9): 8744-8758. (SCI)

3. **Z. Tang**, W. Ji and Q. Hu*, Optimal Power Allocation for Multi-user Linear Network Coded Cooperation System, *IEEE Access,* 2019.1.23, vol.7: 7093-7103. (SCI)

4. J. Fan, Q. Hu and **Z. Tang***, Predicting vacant parking space availability: an SVR method with fruit fly optimisation, *IET Intelligent Transport Systems,* 2018.12, 12(10): 1414-1420 (SCI, CCF-C)

5. G. Yu, R. Liu, Q. Chen and **Z. Tang***, A Hierarchical SDN Architecture for Ultra-Dense mmWave Cellular Networks, *IEEE Communications Magazine*, 2018.6, 56(6): 79-85. (SCI, Top)

6. **Z. Tang**, X. Zhou, Q. Hu and G. Yu, Throughput Analysis of LAA and Wi-Fi Coexistence Network with Asynchronous Channel Access, *IEEE Access*, 2018.3.13, vol.6: 9218-9226. (SCI)

7. M. Jiang, **Z. Tang***, L. Chen. Tracking multiple targets based on min-cost network flows with detection in RGB-D data, *International Journal of Computational Science and Engineering*, 15(3): 330-339 (EI: JA)

8. M. Jiang, Z. Pan and **Z. Tang***. Visual object tracking based on cross-modality Gaussian-Bernoulli deep Boltzmann machines with RGB-D sensors, *Sensors*, 2017.1, 17(1): 121. (SCI)

9. 唐震洲，李昌，阮秀凯，胡倩*. 双时隙多用户线性网络编码协作的中断概率分析. *电子学报*, 2016, 44(2): 289-294 (一级学报，EI: JA)

   Z. Tang, C. Li, X. Ruan and Q. Hu. Exact outage probability of two-slots multiuser linear network coded cooperation. *Acta Electronica Sinica*, 2016.2, 44(2): 289-294.

10. F. Niu, C. Lei, D. Wang and **Z. Tang**. Improved shifted robust soliton distribution. *IET Communications*, 2016, 10(2):180-188. (SCI)

11. 阮秀凯，**唐震洲**，张耀举, et al. 反馈电压偏置型 Hopfield 网络电域盲检测相干光通信信号. *红外与激光工程*, 2015, 44(2): 715-720. (一级学报，EI: JA)

    X. Ruan, **Z. Tang**, Y. Zhang, et al. Electrical blind detection of coherent optical communication signals using feedback-voltage-bias-type Hopfield neural network. *Infrared and Laser Engineering*, 2015, 44(2): 715-720.

12. **Z. Tang**, H. Wang, Q. Hu, et al. Performance Analysis of Multi-user Multi-round Linear Network Coded Cooperation, *IEEE Communications Letters*, 2014, 18(10): 1767-1770. (SCI) PDF

13. **Z. Tang**, H. Wang, Q. Hu, et al. Linear network coding in convergecast of wireless sensor networks: friend or foe? *KSII Transactions on Internet and Information Systems*, 2014, 8(9): 3034 - 3055. (SCI) PDF

14. L. Hai, H. Wang, J. Wang and **Z. Tang**. HCOR: a high-throughput coding-aware opportunistic routing for inter-flow network coding in wireless mesh networks. *EURASIP Journal of Wireless Communications and Networking*, 2014, 2014(1):148. (SCI) PDF

15. L. Hai, H. Wang, Y. Liu, J. Wang and **Z. Tang**. R2NC: Robust Inter-session Network Coding in Lossy Wireless Networks, *IET Communications*, 2015, 9(2): 184-195. (SCI)

16. 孙文珠，王洪玉，祝开艳，王洁，**唐震洲***. 一种则变量节点度 LT Codes 编码方案. *电子学报*，2014, 42(10): 1918-1924。(一级学报，EI: JA) PDF

    W. Sun, H. Wang, K. Zhu, J. Wang and **Z. Tang***, A Novel Encoding Scheme for Regular Variable-Node Degree LT Codes. *Acta Electronica Sinica*, 2014, 42(10): 1918-1924.

17. **Z. Tang**, H. Wang and Q. Hu. An energy-efficient relay selection strategy based on optimal relay location for AF cooperative transmission. *International Journal of Wireless Information Networks*, 2013, 20(4): 355-364. (EI: JA). PDF

18. 孙文珠，王洪玉，王洁，**唐震洲**. 宽带无线网络中考虑信源编码特性的分层视频多播传输方法. *电子与信息学报*, 2013, 35(11): 2547-2553. (一级学报，EI: JA)
    PDF

    W. Sun, H. Wang, J. Wang and **Z. Tang**. Layered Video Multicast Considering Source-coding Characteristic in Broadband Wireless Networks, *Journal of Electronics and Information Technology*, 2013, 35(11): 2547-2553.

19. **Z. Tang**, H. Wang, Q. Hu, et al. How network coding benefits converge-cast in wireless sensor networks. *KSII Transactions on Internet and Information Systems*, 2013, 7(5): 1180-1197. (SCI) PDF

20. Q. Hu, Q. Tian and **Z. Tang***. RP-MAC: A Passive MAC Protocol with Frame Reordering for Wireless Sensor Networks. *International Journal of Wireless Information Networks*, 2013, 20(1): 74-80. (EI: JA) PDF

21. 李昌，阮秀凯，胡倩，**唐震洲**. 一种适用于 WMSNs 传输机制的信道盲估计方法. *传感技术学报*, 2012, 25(5): 659-664. (一级学报) PDF

    C. Li, X. Ruan, Q. Hu and **Z. Tang**. A Blind Channel Estimation Method of WMSNs Transmission Scheme, *Chinese Journal of Sensors and Actuators*, 2012, 25(5): 659-664.

22. Q. Hu and **Z. Tang**. ATPM: An energy efficient MAC protocol with adaptive transmit power scheme for wireless sensor networks. *Journal of Multimedia*, 2011, 6(2): 122-128. (EI: JA)

23. **唐震洲**，施晓秋，金可仲. PA-MAC:一种被动的异步低占空比无线传感器网络 MAC 协议. *传感技术学报*, 2011, 24(3): 423-428. (一级学报)

    Z. Tang, X. Shi and K. Jin. PA-MAC: A passive asynchronous MAC protocol for low duty-cycled wireless sensor networks, *Chinese Journal of Sensors and Actuators*, 2011, 24(3): 423-428.

24. **唐震洲**，胡倩. 基于数据重排序的无线传感器网络低延时节能 MAC 协议. *传感技术学报*, 2010, 23(07): 1037-1043. (一级学报)

    Z. Tang and Q. Hu. A low latency and energy efficient MAC protocol based on packet reordering for wireless sensor networks. *Chinese Journal of Sensors and Actuators*, 2010, 23(07): 1037-1043.

25. Q. Hu and **Z. Tang**. Study on power and rate control algorithm for cognitive wireless networks. *WSEAS Transactions on Communications*, 2010, 9(4): 281-289. (EI: JA)

26. **Z. Tang**, Q. Hu and G. Yu, Power Control Strategies for Multichannel Cognttive Wireless Networks with Opportunistic Interference Cancellation. *Journal of Electronics (China)*, 2008, 25(2): 268-273. (一级学报)

会议论文 / Conference papers

1. Z. Zhi, J. Wu, X. Meng, M. Yao, Q. Hu and **Z. Tang***. AP deployment optimization in non-uniform service area: a genetic algorithm approach, ***90th IEEE VTC***, 22–25 September 2019, Honolulu, Hawaii, USA.

2. J. Zhang, S. Liu, Y. Rui, **Z. Tang**, G. Yu, Novel Channel Access Mechanism for LTE and WiFi Coexistence, ***90th IEEE VTC***, 22–25 September 2019, Honolulu, Hawaii, USA.

3. P. Liu, X. Meng, J. Wu, M. Yao and **Z. Tang***. AP Deployment Optimization for WLAN: a Fruit Fly Optimization Approach, ***2019 IEEE/CIC International Conference on Communications in China***, Changchun, China, 11-13 August, 2019.

4. Y. Feng, X. Zhou, G. T. Kweyamba and **Z. Tang***. Throughput Analysis for Heterogeneous Networks with Multiple LAAs and Wi-Fi, ***7th International Conference on Communications, Signal Processing, and Systems (CSPS)***, Dalian, China, 14-16 July, 2018.

5. W. Ji, Q. Hu and **Z. Tang***. Outage Performance Analysis on Multiuser Linear Network Coded Cooperation System Considering Path Loss, ***IEEE 86th VTC***, Toronto, Canada, Sept. 24-27, 2017.

6. P. Chen, H. Chen, C. Zhang and **Z. Tang***. Real-time bus passenger flow statistics scheme based on light-sensitive wireless sensor network, ***35th Chinese Control Conference***, Chengdu, China, July 27-29, 2016.

7. **Z. Tang**, Q. Hu and G. Yu. Energy-Efficient Multi-Objective Power Allocation for Multi-User AF Cooperative Networks. ***IEEE WCNC 2016***, Doha, Qatar, Apr. 3-6, 2016.

8. **Z. Tang**, H. Wang, Q. Hu, et al. The Exact Outage Probability of Multiuser Linear Network Coded Cooperation System. ***IEEE GLOBECOM 2014***, Austin, TX, USA, Dec.8-12, 2014.

9. C. Ku, H. Zhang, X. Shi, K. Jin and **Z. Tang**. Performance evaluation of Network Coding-based convergecast in realistic wireless sensor networks. ***2014 International Conference on Cloud Computing and Internet of Things (CCIOT),*** 2014: 208-212.

10. **Z. Tang**, H. Wang and Q. Hu. Network coding in convergecast of wireless sensor networks: friend or foe? ***24th IEEE PIMRC***, London, UK, Sept. 8-11, 2013

11. **Z. Tang**, H. Wang, Q. Hu, et al. How Network Coding Benefits Converge-Cast in Wireless Sensor Networks. ***76th IEEE VTC Fall***, Quebec City, Quebec, Canada, Sept. 3-6, 2012.

12. **Z. Tang**, H. Wang and Q. Hu. An energy-efficient relay selection strategy based on optimal relay location for AF cooperative transmission. ***13th IEEE WoWMoM***, San Francisco, California, USA, Jun. 25-28, 2012.

13. J. Xia, **Z. Tang**, X. Shi, et al. An Environment Monitoring System for Precise Agriculture Based on Wireless Sensor Networks. ***7th MSN***, Beijing, China, Dec. 16-18, 2011.

14. **Z. Tang**, C. Li, C. Zhang, et al. The Practice Teaching Reform of Modern Communication Technologies Course for Non-communication Majors, ***4th International Workshop on Computer System Education and Innovation***, 2011.11: 1303-1307

15. Q. Hu and **Z. Tang**. An Improved Power Control Strategy for Cognitive Radio Networks with Imperfect Channel Estimation. *6th WiCOM*, Chengdu, China, Sept. 23-25, 2010.

16. **Z. Tang** and Q. Hu. A cross-layer flooding strategy for wireless sensor networks. *2nd IIS*, Dalian, China, Jul. 2010: 377-380.

17. Q. Hu and **Z. Tang**. An adaptive transmit power scheme for wireless sensor networks. *3rd IEEE U-media*, Jinhua, Zhejiang, China, 2010: 12-16.

18. **Z. Tang** and Q. Hu. ALLEE-MAC: An Adaptive Low Latency and Energy Efficient MAC Protocol for Wireless Sensor Networks. *6th AICT*, Barcelona, Spain, May 9-15, 2010: 269-274.

19. **Z. Tang** and Q. Hu. An Adaptive Low Latency Cross-Layer MAC Protocol for Wireless Sensor Networks. *IEEE 8th DASC*, Chengdu, China, Dec 12-14, 2009: 389-393.

20. Q. Hu and **Z. Tang**. An improved adaptive MAC protocol for wireless sensor networks based on cross-layer architecture. *WCSP 2009*, Nanjing, China, Nov. 13-15, 2009.

21. **Z. Tang** and Q. Hu. An improved channel order estimation method for OFDM systems based on MDL criterion. *11th IEEE ICCT*, Hangzhou, China, Nov. 10-12, 2008: 155-158.

专利 / Patent

1. **唐震洲**, 吉文标, 胡倩, 陈新. 一种多用户线性网络编码协作系统的最佳功率分配方法, 授权发明专利（ZL 2017 1 0806758.8）.

2. **唐震洲**, 陈培基, 陈豪杰, 林斌斌, 余建迪, 徐赢颖, 张纯容. 基于光敏无线传感网的公交车载客量统计系统与统计方法, 授权发明专利（ZL 201610091561.6）.

3. **唐震洲**, 樊俊凯. 一种停车场空余停车泊位数的预测方法, 发明专利, 实质审查阶段.

4. **唐震洲**, 陈培基, 陈豪杰. 一种用于检测公交车载客量的装置、方法及公交车, 发明专利, 实质审查阶段.

5. **唐震洲**，周学胜，胡倩，施晓秋. 基于 p-LAA 与 WIFI 共存网络性能优化的方法, 发明专利, 实质审查阶段.

6. **唐震洲，**刘鹏, 孟欣, 支子聪, 胡倩. 基于果蝇优化的非均匀环境的无线 AP 部署优化方法, 发明专利, 申请受理阶段.

7. **唐震洲，**支子聪, 孟欣, 刘鹏, 胡倩. 一种基于遗传算法实现无线 AP 部署优化方法, 发明专利, 申请受理阶段.

8. 排队时间预测应用 APP 系统[简称：PreTime] V1.0，软件著作权

9. 智能公交移动应用平台[简称 iBus] V1.0，软件著作权.

10. 基于精简星座索套回归的车载协作通信系统盲均衡方法, 发明专利.

11. 一种偏振复用相干光通信系统的双判决盲均衡方法, 发明专利.

12. 升余弦发送成型及多径环境下的正交相移键控信号自动识别方法, 发明专利

13. 基于回声状态网络的信号快速检测方法，发明专利
14. 铁皮石斛生长环境信息检测系统，软件著作权.

<u>教材</u> / Teaching Materials

1. 无线与移动网技术，高等教育出版社, 2013, 主编，浙江省重点教材。

   Z. Tang et al. Wireless and Mobile Network Technologies, Higher Education Press, 2013.

学科竞赛 / Subject competition

1. 中国高校计算机大赛——2019 网络技术挑战赛，全国总决赛一等奖，指导师。
2. 中国高校计算机大赛——2018 网络技术挑战赛，华东赛区三等奖，指导师。
3. 2016 全国大学生物联网设计竞赛，华东分赛区决赛一等奖，指导师。