

# ZHENZHE ZHENG

+86-131-6635-8184 ◇ zhengzhenzhe@sjtu.edu ◇ Homepage

Department of Computer Science and Engineering, Shanghai Jiao Tong University  
3-501 SEIEE Building, 800 Dongchuan Road, Shanghai 200240, P.R. China

## WORKING EXPERIENCES

---

<b>Shanghai Jiao Tong University</b>	Dec. 2019 - Now
Assistant Professor in Department of Computer Science and Engineering	
<b>University of Illinois at Urbana-Champaign</b>	Mar. 2018 - Oct. 2019
Post Doctoral in Coordinated Science Laboratory (CSL)	
Advisor: Prof. R. Srikant	
Research Topic: Game Theory and Optimization for Online Platform Markets	

## EDUCATION

---

<b>Shanghai Jiao Tong University</b>	Mar. 2015 - Mar. 2018
Ph.D. in Computer Science	
Co-Advisors: Prof. Guihai Chen and Prof. Fan Wu	
Thesis: Game Models and Mechanism Design for Mobile Internet	
<b>University of Illinois at Urbana-Champaign</b>	Sep. 2016 - Mar. 2018
Visiting Scholar in Electrical and Computer Engineering	
Advisor: Prof. R. Srikant	
Research Topic: Dynamic Pricing for Cloud Bandwidth Markets	
<b>Shanghai Jiao Tong University</b>	Sep. 2012 - Mar. 2015
M.S. in Computer Science	
Advisor: Prof. Fan Wu	
Thesis: Game Theory based Resource Management in Non-Cooperative Wireless Networks	
<b>Xidian University</b>	Sep. 2008 - June 2012
B.E. in Software Engineering	

## RESEARCH INTERESTS

---

**Algorithmic Network Economics**, e.g., Game Theory and Mechanism Design.  
**Networking and Mobile Computing**, e.g., Resource Management and Mobile Crowdsourcing.  
**Online Marketplaces**, e.g., Online Platforms, Data Markets and Ad Systems.  
**Machine Learning**, e.g., Reinforcement Learning.

## PUBLICATIONS

---

\* indicates the student mentored by me.

### Journal Papers

- J1. Zhenzhe Zheng**, Yanqing Peng\*, Fan Wu, Shaojie Tang, and Guihai Chen, “ARETE: On Designing Joint Online Pricing and Reward Sharing Mechanisms for Mobile Data Markets”, to appear in *IEEE Transactions on Mobile Computing (TMC)*, 2019, DOI: 10.1109/TMC.2019.2900243.
- J2. Zhenzhe Zheng**, Yanqing Peng\*, Fan Wu, Shaojie Tang, and Guihai Chen, “Trading Data in the Crowd: Profit-Driven Data Acquisition for Mobile Crowdsensing”, *IEEE Journal on Selected Areas in Communications (JSAC)*. Volume 35, Issue 2, Pages 486 - 501, Feb. 2017.
- J3. Zhenzhe Zheng**, Fan Wu, Xiaofeng Gao, Hongzi Zhu, Shaojie Tang, and Guihai Chen, “A Budget Feasible Incentive Mechanism for Weighted Coverage Maximization in Mobile Crowdsensing”, *IEEE Transactions on Mobile Computing (TMC)*. Volume 16, Issue 9, Pages 2392 - 2407, Sep. 2017.

- J4. Zhenzhe Zheng**, Fan Wu, Shaojie Tang, and Guihai Chen, “AEGIS: An Unknown Combinatorial Auction Mechanism Framework for Heterogeneous Spectrum Redistribution in Non-Cooperative Wireless Networks”, *IEEE/ACM Transactions on Networking (TON)*, Volume 24, Number 3, Pages 1919-1932, June 2016.
- J5. Zhenzhe Zheng**, Fan Wu, and Guihai Chen, “A Strategy-Proof Combinatorial Heterogeneous Channel Auction Framework in Noncooperative Wireless Networks”, *IEEE Transactions on Mobile Computing (TMC)*, Volume 14, Number 6, Pages 1123-1137, June 2015.
- J6. Zhenzhe Zheng**, Yang Gui, Fan Wu, and Guihai Chen, “STAR: Strategy-Proof Double Auctions for Multi-Cloud, Multi-Tenant Bandwidth Reservation”, *IEEE Transactions on Computers (TC)*, Volume 64, Number 7, Pages 2071 - 2083, July 2015.
- J7. Chaoyue Niu, Zhenzhe Zheng**, Fan Wu, Xiaofeng Gao and Guihai Chen, “Achieving Data Truthfulness and Privacy Preservation in Data Markets”, *Transactions on Knowledge and Data Engineering (TKDE)*, Volume 31, Number 1, Pages 105 - 119, Jan. 2019.
- J8. Chaoyue Niu, Zhenzhe Zheng**, Fan Wu, Shaojie Tang, Xiaofeng Gao, and Guihai Chen, “ERATO: Trading Noisy Aggregate Statistics over Private Correlated Data”, to appear in *Transactions on Knowledge and Data Engineering (TKDE)*, 2019, DOI: 10.1109/TKDE.2019.2934100.
- J9. Chaoyue Niu\***, Minping Zhou\*, **Zhenzhe Zheng**, Fan Wu, and Guihai Chen, “ERA: Towards Privacy Preservation and Verifiability for Online Ad Exchanges”, *Journal of Network and Computer Applications. (JNCA)*, Volume 98, Number 15, Pages 1-10, Nov. 2017.
- J10. 吴帆, 郑臻哲**. 基于博弈论的频谱动态管理研究, 计算机研究与发展 [J], 53(1):38-52, 2016.
- J11. 郑臻哲, 吴帆, 陈贵海**. 大数据交易市场构建, 中国计算机学会通讯 [J], 2019 年第 1 期.
- J12. 郑臻哲, 吴帆, 陈贵海**. 多维度防策略性云带宽预留拍卖机制设计, 计算机学报 [J], 2019 年第四期.

### Conference Papers

- C1. Zhenzhe Zheng** and R. Srikant: “Optimal Search Segmentation Mechanisms for Online Platform Markets”, in Proceedings of the 15th Conference on Web and Internet Economics (**WINE** 2019), Columbia University, New York NY, Dec. 10-12, 2019.
- C2. Zhenzhe Zheng** and R. Srikant: “A Game-Theoretic Model for Product Placement in Online Platform Markets”, in 8th IFAC Workshop on Distributed Estimation and Control in Networked Systems (**NecSys** 2019), Chicago, IL, USA, Sep. 16-17, 2019. Invited Paper.
- C3. Zhenzhe Zheng**, Weichao Mao\*, Fan Wu, and Guihai Chen “Challenges and Opportunities in IoT Data Markets”, in the *4th International Workshop on Social Sensing (IEEE SocialSense 2019)*, Montreal, Canada, Apr. 15, 2019. (Invited Paper).
- C4. Zhenzhe Zheng**, R. Srikant, and Guihai Chen: “Pricing for Revenue Maximization in Inter-DataCenter Networks”, in Proceedings of the *37th IEEE International Conference on Computer Communications (IEEE INFOCOM 2018)*, Honolulu, HI, USA, Apr. 16-19, 2018.
- C5. Zhenzhe Zheng**, Yanqing Peng\*, Fan Wu, Shaojie Tang, and Guihai Chen, “An Online Pricing Mechanism for Mobile Crowdsensing Data Markets”, in Proceedings of the *18th ACM International Symposium on Mobile Ad Hoc Networking and Computing (ACM MobiHoc 2017)*, Madras, Chennai, India, Jul. 10-13, 2017.
- C6. Zhenzhe Zheng**, Zhaoxiong Yang\*, Fan Wu, and Guihai Chen, “Mechanism Design for Mobile Crowdsensing with Execution Uncertainty”, in Proceedings of the *37th IEEE International Conference on Distributed Computing (IEEE ICDCS 2017)*, Atlanta, GA, USA, June 5-8, 2017.
- C7. Shengzhong Liu<sup>†</sup>, Zhenzhe Zheng<sup>†</sup>**, Fan Wu, Shaojie Tang, and Guihai Chen: “Context-Aware Data Quality Estimation in Mobile Crowdsensing”, in Proceedings of the *36th IEEE International Conference on Computer Communications (IEEE INFOCOM 2017)*, Atlanta, GA, USA, May 1-4, 2017. (<sup>†</sup>: Co-Primary Authors).

- C8.** **Zhenzhe Zheng**, Fan Wu, Shaojie Tang, and Guihai Chen, “Unknown Combinatorial Auction Mechanisms for Heterogeneous Spectrum Redistribution”, in *Proceedings of the 15th ACM International Symposium on Mobile Ad Hoc Networking and Computing (ACM MobiHoc 2014)*, Philadelphia, PA, USA, Aug. 11-14, 2014.
- C9.** **Zhenzhe Zheng**, Fan Wu, and Guihai Chen: “SMASHER: Strategy-Proof Combinatorial Auction Mechanisms for Heterogeneous Channel Redistribution”, in *Proceedings of the 14th ACM International Symposium on Mobile Ad Hoc Networking and Computing (ACM MobiHoc 2013)* short paper, Bangalore, Indian, Jul. 29 - Aug. 1, 2013.
- C10.** **Zhenzhe Zheng**, Juntao Wang\*, Fan Wu, and Guihai Chen, “SAIL: A Strategy-Proof Combinatorial Auction Mechanism for Cooperative Communication”, in *Proceedings of the 19th IEEE International Conference on Parallel and Distributed Systems (IEEE ICPADS 2013)*, Seoul, Korea, Dec. 15-18, 2013.
- C11.** Chaoyue Niu, **Zhenzhe Zheng**, Fan Wu, Shaojie Tang, and Guihai Chen, “Online Pricing with Reserve Price Constraint for Personal Data Markets”, in *Proceedings of the 36th IEEE International Conference on Data Engineering, (IEEE ICDE 2020)*, short paper, Dallas, Texas, USA, April 20-24, 2020.
- C12.** Weichao Mao\*, **Zhenzhe Zheng**, and Fan Wu, “Pricing for Revenue Maximization in IoT Data Markets: An Information Design Perspective”, in *Proceedings of the 38th Annual IEEE International Conference on Computer Communications (IEEE INFOCOM 2019)*, Paris, France, Apr. 29 - May 2, 2019.
- C13.** Chaoyue Niu, **Zhenzhe Zheng**, Shaojie Tang, Xiaofeng Gao, and Fan Wu, “Making Big Money from Small Sensors: Trading Time-Series Data under Pufferfish Privacy”, in *Proceedings of the 38th Annual IEEE International Conference on Computer Communications (IEEE INFOCOM 2019)*, Paris, France, Apr. 29 - May 2, 2019.
- C14.** Chaoyue Niu, **Zhenzhe Zheng**, Fan Wu, Shaojie Tang, Xiaofeng Gao, and Guihai Chen, “Unlocking the Value of Privacy: Trading Aggregate Statistics over Private Correlated Data”, in *Proceedings of the 23rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (ACM SIGKDD 2018)*, London, UK, Aug. 19-23, 2018.
- C15.** Weichao Mao\*, **Zhenzhe Zheng**, Fan Wu, and Guihai Chen, “Online Pricing for Revenue Maximization with Unknown Time Discounting Valuations”. in *Proceedings of the 27th International Joint Conference on Artificial Intelligence and the 23rd European Conference on Artificial Intelligence (IJCAI-ECAI 2018)*, Stockholm, July 13-19, 2018.
- C16.** Zun Li\*, **Zhenzhe Zheng**, Fan Wu, and Guihai Chen, “On Designing Optimal Data Purchasing Strategies for Online Ad Auctions”. in *Proceedings of the 2018 International Conference on Autonomous Agents & Multiagent Systems (AAMAS 2018)*, Stockholm, July 11-13, 2018.
- C17.** Shuo Yang, Kunyang Han, **Zhenzhe Zheng**, Shaojie Tang, and Fan Wu: “Towards Personalized Task Matching in Mobile Crowdsensing via Fine-Grained User Profiling”, in *Proceedings of the 37th IEEE International Conference on Computer Communications (IEEE INFOCOM 2018)*, Honolulu, HI, USA, Apr 16-19, 2018.
- C18.** Chaoyue Niu\*, **Zhenzhe Zheng**, Fan Wu, Xiaofeng Gao, and Guihai Chen, “Trading Data in Good Faith: Integrating Truthfulness and Privacy Preservation in Data Markets”, in *Proceedings of the 33rd IEEE International Conference on Data Engineering, (IEEE ICDE)*, short paper, San Diego, California, USA, April 19-22, 2017.
- C19.** Xiao Ma\*, **Zhenzhe Zheng**, Fan Wu, and Guihai Chen, “Trust-Based Time Series Data Model for Mobile Crowdsensing”, in *Proceedings of the 2017 IEEE International Conference on Communications (IEEE ICC, 2017)*, Paris, France, May 21-25, 2017.
- C20.** Yangsu Liu\*, **Zhenzhe Zheng**, Fan Wu, and Guihai Chen, “Fault Tolerant Mechanism Design for Time Coverage in Crowdsensing System”, in *Proceedings of the 36th IEEE International Performance Computing and Communications Conference (IPCCC 2017)*, San Diego, California, USA, Dec. 10-12, 2017.
- C21.** Xiang Wang\*, **Zhenzhe Zheng**, Fan Wu, Xiaoju Dong, Shaojie Tang, and Guihai Chen, “Strategy-Proof Data Auctions with Negative Externalities (Extended Abstract)”. in *Proceedings of the 2016 International Conference on Autonomous Agents & Multiagent Systems (AAMAS 2016)*, Singapore, May 9-13, 2016.

- C22.** Yuanyuan Li, Linghe Kong, Fan Wu, **Zhenzhe Zheng**, and Guihai Chen, “MAPM: Movement-based Adaptive Prediction Mechanism for Energy Conservation in Body Sensor Networks”, in Proceedings of the *2016 IEEE Global Communications Conference (IEEE GLOBECOM, 2016)*, Washington, DC USA, Dec. 4-8, 2016.
- C23.** Minping Zhou\*, Chaoyue Niu\*, **Zhenzhe Zheng**, Fan Wu, and Guihai Chen, “An Efficient, Privacy-Preserving, and Verifiable Online Auction Mechanism for Ad Exchanges”, in Proceedings of the *2015 IEEE Global Communications Conference (IEEE GLOBECOM, 2015)*, San Diego, CA, USA, Dec. 6-10, 2015.
- C24.** Fan Wu, Junming Liu\*, **Zhenzhe Zheng**, and Guihai Chen, “Online Incentive Mechanisms with discounting bids”. in Proceedings of the *28th AAAI Conference on Artificial Intelligence (AAAI 2014)*, Quebec City, Canada, July 27-31, 2014.
- C25.** Yang Gui, **Zhenzhe Zheng**, Fan Wu, and Guihai Chen, “SOAR: Strategy-Proof Auction Mechanisms for Distributed Cloud Bandwidth Reservation”, in Proceedings of the *14th IEEE International Conference on Communication Systems (IEEE ICCS, 2014)*, Macau, Nov. 19 - 21, 2014. **Best Student Paper Award.**

## HONORS AND AWARDS

---

<b>China Computer Federation (CCF) Excellent Doctoral Dissertation Award (5 total recipients in China) (CCF 优秀博士学位论文)</b>	Dec. 2018
ACM China Doctoral Dissertation Award Nominee (ACM 中国优秀博士学位论文提名)	Nov. 2018
<b>Excellent PhD Dissertation of SJTU (15 total recipients in SJTU)</b> (上海交通大学优秀博士学位论文)	Mar. 2019
<b>Ten Academic Stars in SJTU</b> (上海交通大学首届学术之星)	Oct. 2016
<b>Microsoft Research Asia Ph.D. Fellowship (13 total recipients)</b>	Sep. 2015
<b>Google Ph.D. Fellowship (44 global recipients, 8 in East Asia)</b>	Aug. 2015
Baidu Ph.D. Scholarship Nominee	Oct. 2015
SJTU Oversea Post Doc Program (上海交通大学海外师资博士后计划)	Oct. 2017
SJTU SEIIE Scholarship for Excellent Doctoral Dissertation (上海交通大学电子信息与电气工程学院优秀博士论文培育基金)	Oct. 2016
<b>National Scholarship</b>	2017, 2014, 2011
Tang Lixin Scholarship	Aug. 2017
Excellent Graduate of Shanghai	Mar. 2015
<b>Best Student Paper Award, IEEE ICCS</b>	Nov. 2014
The <b>first</b> place TAC Ad Exchange (AdX) competition hosted by Trading Agent Research	May 2014
Student Travel Grant for IEEE ICPADS	Dec. 2013
China Aerospace Science Industry Corporation (CASIC) Scholarship	2012 - 2013
2011 International Mathematical Contest in Modeling (MCM), Honorable Mention	Apr. 2011
The 35 <sup>th</sup> ACM/ICPC Asia Regional Hangzhou site, Bronze Prize	Oct. 2010

## PROFESSIONAL ACTIVITIES

---

### Program Committee Member

- The 4th ACM/IEEE International Conference on Internet-of-Things Design and Implementation (Posters and Demos) (IoTDI 2019)
- The 5th International Conference on Big Data Computing and Communications, (BigCom 2019)
- The 3rd International Conference on Big Data Computing and Communications, (BigCom 2017)

### Conference Reviewer

- The 20th International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc'19)
- The 38th IEEE Conference on Computer Communications (INFOCOM'19)
- IEEE/ACM International Symposium on Quality of Service (IWQoS'19)
- The Association for Computing Machinery's Special Interest Group on Measurement and Evaluation 2018, (SIGMETRICS'18)
- The 19th International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc'18)

- The 37th IEEE Conference on Computer Communications (INFOCOM'18)
- The 16th International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt'18)
- FIP working group WG7.3 on performance modeling and analysis (IFIP Performance'17)
- The 36th IEEE International Conference on Distributed Computing Systems (ICDCS'16)
- The 24th IEEE International Conference on Network Protocols (ICNP'16)
- The 36th IEEE International Conference on Distributed Computing Systems (ICDCS'16)
- The 35th IEEE Conference on Computer Communications (INFOCOM'16)
- The 34th IEEE Conference on Computer Communications (INFOCOM'15)
- The 33rd IEEE Conference on Computer Communications (INFOCOM'14)
- The 23rd International Conference on Computer Communications and Networks (ICCN 2014)
- The International Conference on Computing, Networking and Communications (ICNC 2013)

### **Journal Reviewer**

- INFORMS Operation Research (OR)
- IEEE Transactions on Networking (TON)
- IEEE Journal on Selected Areas in Communications (JSAC)
- IEEE Transactions on Parallel and Distributed Systems (TPDS)
- IEEE Transactions on Mobile Computing (TMC)
- IEEE Transactions on Wireless Communications (TWC)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Transactions on Vehicular Technology (TVT)
- IEEE Transactions on Cognitive Communications and Networking
- IEEE Access
- IEEE Network Magazine
- Springer Peer-to-Peer Networking and Applications