

Education

- 2018–present **Ph.D student**, *Computer Science*, Nanjing University, Nanjing.
Advisor: Professor Chongjun Wang
- 2016–2018 **MS**, *Computer Science*, Nanjing University, Nanjing.
Advisor: Professor Chongjun Wang
- 2010–2016 **BS**, *Computer Science*, Xi'an Jiaotong University, Xi'an.
Special Young Gifted Class, GPA: 87/100

Research Interest

Game theory, privacy and influence maximization

Research Experience

Nanjing University

- 2017–present **Crowdsourcing via economic incentive.**
- **Profit-driven crowdsourcing.** We consider a more general optimization objective for the budget-free platform user, *profit maximizing*, i.e., the difference between her utility and the total reward to the participants. We study the problem of how to maximize the profit in a crowdsourcing activity where the platform user's proceeds is a symmetric submodular demand valuation function and the users' cost information are prior-free.
 - **Cross-market crowdsourcing.** We consider that the crowdsourcer would like to allocate tasks to several different sub-markets with a shared budget. The crowdsourcer wants to maximize her utility through the crowdsourcing campaign with certain budget constraint. We design two optimization objectives for our problem, maximin model and linear model.
 - **Private data crowdsourcing.** We consider a scenario in which a data broker wishes to buy private information from a population from that he can estimate some statistics and resell the results to the data users in order to obtain profits. The owners of private data experience some cost for their loss of privacy, and compensation is necessary for the loss of privacy.

- 2016–2018 **Multicast routing auction..**

There has been extensive research on algorithmic game theory techniques for solving multicast routing problem in the networks. To solve this problem, VCG mechanism is applied, which pays a premium to incentivize the edges to reveal their cost truthfully. However, VCG mechanism for network construction may suffer from a new cheating pattern, named falsename bidding, where bidder can gain profit by submitting bids under multiple fictitious name. Such cheating can undermine efficiency and increase the expenditure of the auctioneer. To overcome this hurdle, we propose the core-selecting multicast routing mechanism.

Xi'an Jiaotong University

2016–2017 **Influence maximization**, *My undergraduate thesis in XJTU*.

Influence maximization is a problem of finding a small set of highly influential individuals in social networks to maximize the spread of influence. We consider how to sell the digital goods (near zero marginal cost) by viral marketing in social network. The question can be modeled as a profit maximization problem. The problem is an unconstrained submodular maximization. We adopt two efficient algorithms from two approaches. One is a famous algorithm from theoretical computer science and that can achieve a tight linear time approximation. The second is to propose a profit discount heuristic which improves the efficiency.

Honors

- 2016 Advanced Diploma in Accounting and Business (ACCA)
- 2016 National Endeavor Scholarship in Xi'an Jiaotong University
- 2018 Hasso-Plattner-Institute Scholarship for Ph.D. students in NJU

Research Funding

- 2018–present Research on Optimal Reverse Auction Design and its Approximation. Principal Investigator (High-level Scientific Research Foundation for Ph.D. Students in Nanjing University)

Selected Publications

- 2019 Wu J., Zhang Y, Qiao Y., Wang C.. Multi-unit Budget Feasible Mechanisms for Cellular Traffic Offloading[C]. In *the proceedings of the 18th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2019)* (CCF-B)
- 2018 Qiao Y., Wu J., Wang C.. A Truthful Profit-oriented Mechanism for Mobile Crowdsensing[C]. In *Proceedings of the the 16th IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA), Melbourne, Australia, December 11-13, 2018.* (CCF-C)
- 2018 Qiao Y., Wu J., Wang C.. A False-name-proof Protocol for Multicast Routing Auctions[C]. In *Proceedings of the the 16th IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA), Melbourne, Australia, December 11-13, 2018.* (CCF-C)
- 2017 Qiao Y., Wu J., Zhang L., Wang C.. Viral Marketing for Digital Goods in Social Networks[C]. In *Proceedings of the 19th Asia Pacific Web Conference (APweb), Beijing, China, 2017.* (CCF-C)(**This is a conference version of my undergraduate thesis in Xi'an Jiaotong University**)
- Book Chapter Wu J., Zhang L., Qiao Y, Wang C. Task Allocation in Multiagent Systems: A Survey of Some Interesting. In *chart of Interactions in Multiagent Systems* (Edited by Hao J. and Liang H.)
- Working Paper Qiao Y, Wu J, Wang C. Mechanism Design for Cross-Market Task Crowdsourcing. Submitted to *AAMAS-2019*(CCF-B)
- Working Paper Qiao Y, Wu J, Wang C. Differentially Private Auctions for Privacy Data Crowdsourcing. Submitted to *AAMAS-2019*(CCF-B)