

Xiaohui Bei

Division of Mathematical Sciences
School of Physical and Mathematical Sciences
Nanyang Technological University
Singapore, 637371

Email: xhbei@ntu.edu.sg
Tel: +65 6513 8655
<http://www.ntu.edu.sg/home/xhbei/>

Research Appointments

Nanyang Assistant Professor, School of Physical and Mathematical Sciences	March 2016 - present Nanyang Technological University
Assistant Professor, School of Physical and Mathematical Sciences	September 2015 - March 2016 Nanyang Technological University
Research Fellow, Algorithms and Complexity Department Host: Kurt Mehlhorn	September 2014 - August 2015 Max Planck Institute for Informatics
Research Fellow, School of Physical and Mathematical Sciences Host: Ning Chen	September 2012 - July 2014 Nanyang Technological University

Education

Ph.D. Computer Science, Tsinghua University, 2008.9 - 2012.7

Dissertation: Budget Feasible and General Mechanism Design in Prior-Free and Bayesian Settings
Advisor: Andrew Chi-Chih Yao

B.E. Computer Science and Technology, Tsinghua University, 2004.9 - 2008.7

Research Interests

Computational Economics (Algorithmic Game Theory and Mechanism Design)
Efficiency and Fairness in Resource Allocation
Social and Information Networks, Algorithm and Combinatorial Optimization

Publications

Conference Papers

1. Xiaohui Bei, Youming Qiao, Shengyu Zhang: **Networked Fairness in Cake Cutting**. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2017, to appear.
2. Guangda Huzhang, Xin Huang, Shengyu Zhang, Xiaohui Bei: **Online Roommate Allocation Problem**. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2017, to appear.
3. Xiaohui Bei, Ning Chen, Guangda Huzhang, Biaoshuai Tao, Jiajun Wu: **Cake cutting: Envy and Truth**. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2017, to appear.

4. Xiaohui Bei, Jugal Garg, Martin Hoefer, Kurt Mehlhorn: **Computing Equilibria in Markets with Budget-Additive Utilities**. In *European Symposium on Algorithms (ESA)*, 2016.
5. Xiaohui Bei, Jugal Garg, Martin Hoefer: **Ascending-Price Algorithms for Unknown Markets**. In *ACM Conference on Economics and Computation (EC)*, 2016.
6. Xiaohui Bei, Wei Chen, Jugal Garg, Martin Hoefer, Xiaoming Sun: **Learning Market Parameters using Aggregate Demand Queries**. In *AAAI Conference on Artificial Intelligence (AAAI)*, 2016.
7. Xiaohui Bei, Ning Chen, Shengyu Zhang: **Solving Linear Programming with Constraints Unknown**. In *The 42nd International Colloquium on Automata, Languages, and Programming (ICALP)*, 2015.
8. Xiaohui Bei, Ning Chen, Liyu Dou, Xiangru Huang, Ruixin Qiang: **Trial and Error in Influential Social Networks**. In *The 19th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2013.
9. Xiaohui Bei, Ning Chen, Shengyu Zhang: **On the Complexity of Trial and Error**. In *The 45th ACM Symposium on the Theory of Computing (STOC)*, 2013.
Invited to a special issue of *SIAM Journal on Computing (SICOMP)* for selected papers from STOC 2013.
10. Xiaohui Bei, Ning Chen, Xia Hua, Biaoshuai Tao, Endong Yang: **Optimal Proportional Cake Cutting with Connected Pieces**. In *The 26th AAAI Conference on Artificial Intelligence (AAAI)*, 2012.
11. Xiaohui Bei, Ning Chen, Nick Gravin, Pinyan Lu: **Budget Feasible Mechanism Design: From Prior-Free to Bayesian**. In *The 44th ACM Symposium on the Theory of Computing (STOC)*, 449-458, 2012.
12. Xiaohui Bei, Zhiyi Huang: **Bayesian Incentive Compatibility via Fractional Assignments**. In *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 720-733, 2011.
13. Xiaohui Bei, Wei Chen, Shang-Hua Teng, Jialin Zhang, Jiajie Zhu: **Bounded Budget Betweenness Centrality Game for Strategic Network Formations**. In *The 17th European Symposium on Algorithms (ESA)*, 227-238, 2009.

Journal Papers

1. Xiaohui Bei, Ning Chen, Nick Graven, Pinyan Lu: **Prior-Free Mechanism Design via Bayesian**. In *SIAM Journal on Computing (SICOMP)*, accepted.
2. Xiaohui Bei, Wei Chen, Shang-Hua Teng, Jialin Zhang, Jiajie Zhu: **Bounded Budget Betweenness Centrality Game for Strategic Network Formations**. In *Theoretical Computer Science*, 412(52): 7147-7168, 2011.

Teaching Experience

2017, 2016: **Discrete Mathematics**, Nanyang Technological University.

2016, 2015: **Algorithms and Theory of Computing**, Nanyang Technological University.

2015: **Algorithmic Game Theory**, Max-Planck-Institute for Informatics, Germany.

Selected Honors, Awards and Fellowships

Nanyang Assistant Professorship, Nanyang Technological University(SGD \$1,000,000), 2016.

Excellent Dissertation Award, Tsinghua University, 2012

Microsoft Research Asia Fellowship, 2011

Outstanding Student Second-Class Scholarship, Tsinghua University, 2006 & 2007

ACM International Collegiate Programming Contest, Beijing Site, first place, 2005

ACM International Collegiate Programming Contest, Beijing Site, second place, 2004

Outstanding Freshman Scholarship, Tsinghua University, 2004

Gold medalist, National Olympiad in Informatics, China, 2003

Selected Talks

Efficient Algorithms for Unknown Markets

- Shanghai Theory Day, Shanghai University of Finance and Economics, June 2016.
- Microsoft Research Asia, April 2016.
- Institute of Computing Technology, China Academy of Sciences, April 2016

Learning Market Parameters using Aggregate Demand Queries

- AAAI 2016.

Solving Linear Programming with Constraints Unknown

- ICALP 2015.

Balancing Fairness and Efficiency in Resource Allocation

- Joint Korea-Singapore Workshop on Discrete Mathematics, NTU, February 2017.
- Shanghai University of Finance and Economics, December 2016.
- Tokyo Institute of Technology, March 2015.
- Max Planck Institute for Informatics, September 2014.
- Singapore University of Technology and Design, November 2013.
- Winter School and Workshop on Algorithmic Game Theory, Nanyang Technological University, January 2013.

On the Complexity of Trial and Error

- STOC 2013.
- Center for Exploring the Limits of Computation, Tokyo Institute of Technology, September 2013.
- Microsoft Research Asia, April 2013.
- Tsinghua University, April 2013.

Trial and Error in Influential Social Networks

- Microsoft Research Asia, April 2013.

Budget Feasible Mechanism Design: From Prior-Free to Bayesian

- Annual Meeting of the Asian Association for Algorithms and Computation, Fudan University, April 2012.

Bounded Budget Betweenness Centrality Game for Strategic Network Formations

- ESA 2009.
- China Theory Week, Tsinghua University, September 2009.

Professional Services

Conference program committees

- WWW 2017
- AAAI 2017, 2016, 2015
- WINE 2017, 2016
- TAMC 2016

SPMS Mathematics and Economics(MAEC) program coordinator

SPMS MAS Final Year Project committee

Research Grants

Exploring Hidden and Private Data in Rich Domains. Nanyang Assistant Professorship Grant
1/5/2016-2020, Principal Investigator

Balancing Efficiency and Fairness in Resource Allocation Problems. Start-up Grant from Nanyang Technological University
1/9/15-31/3/2019, Principal Investigator