

# Tonghan Wang

Science and Engineering Complex  
Harvard School of Engineering and Applied Sciences  
150 Western Avenue  
Cambridge, MA 02138  
[twang1@g.harvard.edu](mailto:twang1@g.harvard.edu)  
Google Scholar   [Homepage](#)

## Positions

Tsinghua University Sept 2026 –  
Assistant Professor, College of AI

Education

**Harvard University** 2025 (Expected)  
PhD in Computer Science  
*Advisors:* David C. Parkes, Milind Tambe; *Thesis Committee:* Peter Stone, Kiante Brantley

Tsinghua University 2021  
M.E. in Computer Science, Institute of Interdisciplinary Information Sciences (IIIS)  
National Scholarship (top 1%)  
*Advisor:* Chongjie Zhang

**Shandong University** 2018  
B.E. in Computer Science, Special Honors Program, Taishan Academy  
National Scholarship; Principal Scholarship (top 0.05%)

### Honors and Awards

**NeurIPS Spotlight** 2025  
Spotlight paper, Conference on Neural Information Processing Systems, 2025

**AAAI Oral** 2025  
Oral presentation, AAAI Conference on Artificial Intelligence, 2025

**EC Best Paper Award** 2024  
🏆 AI Track, ACM Conference on Economics and Computation, 2024

**NeurIPS Spotlight** 2022  
Spotlight paper, Conference on Neural Information Processing Systems, 2022

**ICLR Spotlight** 2022  
Spotlight paper, International Conference on Learning Representations, 2022

**ICLR Outstanding Reviewer Award** 2021  
International Conference on Learning Representations 2021

National Scholarship at Tsinghua University 2020

Awarded to top 1% students at IIIS, Tsinghua University

**NeurIPS Spotlight** 2020

Spotlight paper, Conference on Neural Information Processing Systems, 2020

**ICLR Spotlight** 2020

Spotlight paper, International Conference on Learning Representations, 2020

**Outstanding Undergraduates at Shandong University** 2017

Awarded to top 10 (0.05%) students at Shandong University

**National Scholarship at Shandong University** 2016

Awarded to top 1% students at Shandong University

**Principal Scholarship** 2016

Awarded to top 18 of 40000 (0.05%) students at Shandong University

**First Class Scholarship** 2015 – 2017

Top 1 student at Taishan Academy, a special honors program at Shandong University

## Publications

### Peer-Reviewed Conference Papers

[C27] **Tonghan Wang**, Yanchen Jiang, David C. Parkes. BundleFlow: Deep Menus for Combinatorial Auctions by Diffusion-Based Optimization. *Conference on Neural Information Processing Systems (NeurIPS)*. 2025.

[C26] Lingkai Kong\*, Haichuan Wang\*, **Tonghan Wang\***, Guojun Xiong, Milind Tambe. Composite Flow Matching for Reinforcement Learning with Shifted-Dynamics Data. *Conference on Neural Information Processing Systems (NeurIPS)*. 2025. **Spotlight**.

[C25] Davin Choo\*, Yuqi Pan\*, **Tonghan Wang**, Milind Tambe, Alastair van Heerden, Cheryl Johnson. Adaptive Frontier Exploration on Graphs with Applications to Network-Based Disease Testing. *Conference on Neural Information Processing Systems (NeurIPS)*. 2025.

[C24] Lingkai Kong, Haichuan Wang, Yuqi Pan, Cheol Woo Kim, Mingxiao Song, Alayna Nguyen, **Tonghan Wang**, Haifeng Xu, Milind Tambe. Robust Optimization with Diffusion Models for Green Security. *Conference on Uncertainty in Artificial Intelligence (UAI)*. 2025.

[C23] **Tonghan Wang\***, Heng Dong\*, Yanchen Jiang, David C. Parkes, Milind Tambe. On Diffusion Models for MultiAgent Partial Observability: Shared Attractors, Error Bounds, and Composite Flow. *International Conference on Autonomous Agents and Multiagent Systems (AA-MAS)*. 2025. **Oral**.

[C22] Yunfan Zhao\*, **Tonghan Wang\***, Dheeraj Mysore Nagaraj, Aparna Taneja, Milind Tambe. The Bandit Whisperer: Communication Learning for Restless Bandits. *AAAI Conference on Artificial Intelligence (AAAI)*. 2025. **Oral**.

[C21] **Tonghan Wang\***, Yanchen Jiang\*, David C. Parkes. GemNet: Menu-Based, Strategy-Proof Multi-Bidder Auctions Through Deep Learning. *ACM Conference on Economics and Computation (EC)*. 2024.  **Best Paper, AI Track**.

- [C20] Safwan Hossian\*, **Tonghan Wang**\*, Tao Lin\*, Yiling Chen, David C. Parkes, Haifeng Xu. Multi-Sender Persuasion: A Computational Perspective. *International Conference on Machine Learning (ICML)*. 2024.
- [C19] Edwin Zhang, Sadie Zhao, **Tonghan Wang**, Safwan Hossain, Henry Gasztowtt, Stephan Zheng, David C. Parkes, Milind Tambe, Yiling Chen. Position: Social Environment Design. *International Conference on Machine Learning (ICML)*. 2024.
- [C18] **Tonghan Wang**, Paul Dütting, Dmitry Ivanov, Inbal Talgam-Cohen, David C. Parkes. Deep Contract Design via Discontinuous Piecewise-Affine Neural Networks. *Conference on Neural Information Processing Systems (NeurIPS)*. 2023.
- [C17] Heng Dong, Junyu Zhang, **Tonghan Wang**, Chongjie Zhang. Symmetry-Aware Robot Design with Structured Subgroups. *International Conference on Machine Learning (ICML)*. 2023.
- [C16] Heng Dong\*, **Tonghan Wang**\*, Jiayuan Liu, Chongjie Zhang. Low-Rank Modular Reinforcement Learning via Muscle Synergy. *Conference on Neural Information Processing Systems (NeurIPS)*. 2022.
- [C15] Yipeng Kang\*, **Tonghan Wang**\*, Qianlan Yang, Xiaoran Wu, Chongjie Zhang. Non-Linear Coordination Graphs. *Conference on Neural Information Processing Systems (NeurIPS)*. 2022. **Spotlight**.
- [C14] Weijun Dong, Qianlan Yang, Zhizhou Ren, Jianhao Wang, **Tonghan Wang**, Chongjie Zhang. Self-Organized Polynomial-time Coordination Graphs. *International Conference on Machine Learning (ICML)*. 2022.
- [C13] **Tonghan Wang**\*, Liang Zeng\*, Weijuan Dong, Qianlan Yang, and Chongjie Zhang. Context-Aware Sparse Deep Coordination Graphs. *International Conference on Learning Representations (ICLR)*. 2022. **Spotlight**.
- [C12] Chenghao Li, **Tonghan Wang**, Chengjie Wu, Yiqin Yang, Qianchuan Zhao, Chongjie Zhang. Celebrating Diversity in Shared Multi-Agent Reinforcement Learning. *Conference on Neural Information Processing Systems (NeurIPS)*. 2021.
- [C11] **Tonghan Wang**, Tarun Gupta, Anuj Mahajan, Bei Peng, Shimon Whiteson, and Chongjie Zhang. RODE: Learning Roles to Decompose Multi-Agent Tasks. *International Conference on Learning Representations (ICLR)*. 2021.
- [C10] Yihan Wang\*, Beining Han\*, **Tonghan Wang**\*, Heng Dong, and Chongjie Zhang. DOP: Off-Policy Multi-Agent Decomposed Policy Gradients. *International Conference on Learning Representations (ICLR)*. 2021.
- [C9] Yipeng Kang, **Tonghan Wang**, Gerard de Melo. Incorporating Pragmatic Reasoning Communication into Emergent Language. *Conference on Neural Information Processing Systems (NeurIPS)*. 2020. **Spotlight**.
- [C8] **Tonghan Wang**, Heng Dong, Victor Lesser, and Chongjie Zhang. ROMA: Multi-Agent Reinforcement Learning with Emergent Roles. *International Conference on Machine Learning (ICML)*. 2020.
- [C7] **Tonghan Wang**\*, Jianhao Wang\*, Yi Wu, and Chongjie Zhang. Influence-Based Multi-Agent Exploration. *International Conference on Learning Representations (ICLR)*. 2020. **Spot-**

**light.**

[C6] **Tonghan Wang\***, Jianhao Wang\*, Chongyi Zheng, and Chongjie Zhang. Learning Nearly Decomposable Value Functions with Communication Minimization. *International Conference on Learning Representations (ICLR)*. 2020.

[C5] Xinliang Song, **Tonghan Wang**, and Chongjie Zhang. Convergence of Multi-Agent Learning with a Finite Step Size in General-Sum Games. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*. 2019.

[C4] **Tonghan Wang**, Xueying Qin, Fan Zhong, Baoquan Chen, and Ming C. Lin. Compact Object Representation of a Non-Rigid Object for Real-Time Tracking in AR Systems. *International Symposium on Mixed and Augmented Reality (ISMAR)*. 2018.

## Journal Papers

[C3] Michael J. Curry, Zhou Fan, Yanchen Jiang, Sai Srivatsa Ravindranath, **Tonghan Wang**, David C. Parkes. Automated Mechanism Design: A Survey. *ACM SIGecom Exchanges*. 2025.

[C2] Rongjun Qin\*, Feng Chen\*, **Tonghan Wang\***, Lei Yuan, Xiaoran Wu, Zongzhang Zhang, Chongjie Zhang, Yang Yu. Multi-Agent Policy Transfer via Task Relationship Modeling. *Science China Information Sciences (SCIS)*. 2024.

[C1] Chenghao Li, **Tonghan Wang**, Chengjie Wu, Qianchuan Zhao, Jun Yang, Chongjie Zhang. Celebrating Diversity With Subtask Specialization in Shared Multiagent Reinforcement Learning. *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*. 2023.

## Preprints and Peer-Reviewed Workshop Papers

[P3] Siyang Wu\*, **Tonghan Wang\***, Xiaoran Wu, Jingfeng Zhang, Yujing Hu, Changjie Fan, Chongjie Zhang. Model and Method: Training-Time Attack for Cooperative Multi-Agent Reinforcement Learning. *Deep Reinforcement Learning Workshop at NeurIPS*. 2022.

[P2] Rongjun Qin\*, Feng Chen\*, **Tonghan Wang\***, Lei Yuan, Xiaoran Wu, Zongzhang Zhang, Chongjie Zhang, Yang Yu. Multi-Agent Policy Transfer via Task Relationship Modeling. *Deep Reinforcement Learning Workshop at NeurIPS*. 2022.

[P1] Xinyi Yang, Liang Zeng, Heng Dong, Chao Yu, Xiaoran Wu, Huazhong Yang, Yu Wang, Milind Tambe, **Tonghan Wang**. Policy-to-Language: Train LLMs to Explain Decisions with Flow-Matching Generated Rewards. 2025.

## Teaching Assistant

|   |             |
|---|-------------|
| AM 220: Geometric Methods for Machine Learning, Harvard University      | Spring 2024 |
| Deep Reinforcement Learning, Tsinghua University                        | Spring 2020 |
| Artificial Intelligence: Principles and Techniques, Tsinghua University | Fall 2020   |
| Artificial Intelligence: Principles and Techniques, Tsinghua University | Fall 2019   |
| Linear Algebra, Shandong University                                     | Fall 2016   |

## Professional Services

*Conference Reviewer*

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| International Conference on Learning Representations ( <i>ICLR</i> )       | 2021 – |
| Conference on Neural Information Processing Systems ( <i>NeurIPS</i> )     | 2021 – |
| International Conference on Machine Learning ( <i>ICML</i> )               | 2021 – |
| AAAI Conference on Artificial Intelligence ( <i>AAAI</i> )                 | 2020 – |
| International Joint Conference on Artificial Intelligence ( <i>IJCAI</i> ) | 2020 – |

*Journal Reviewer*

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| Autonomous Agents and Multi-Agent Systems                                  | 2025       |
| Transactions on Pattern Analysis and Machine Intelligence ( <i>TPAMI</i> ) | 2024, 2025 |