

# Hongao Wang

Website: [phijack.github.io](https://phijack.github.io)  
Email: [phijack618@gmail.com](mailto:phijack618@gmail.com)  
[wang5270@purdue.edu](mailto:wang5270@purdue.edu)  
GitHub: [github.com/phijack](https://github.com/phijack)

## EDUCATION

### Shanghai Jiao Tong University

B.S.E. in Information Engineering

Shanghai, China

2014–2018

### Purdue University

Ph.D. in Computer Science

Advisor: Steve Hanneke and Paul Valiant

West Lafayette, IN, USA

2021–2026 (expected)

## EXPERIENCE

### Shanghai University of Finance and Economics

Part-time and Volunteer Student Intern at ITCS

Shanghai, China

2017–2018

- Prophet Inequality for Bipartite Matching
- This project was done with Prof. Nick Gravin. In this project, we provide a  $\frac{1}{3}$ -prophet inequality for bipartite matching and a counterexample showing no algorithm can reach  $\frac{1}{2.25}$ -approximation.

## EMPLOYMENT

### Nanyang Technological University

Project Officer at SPMS

Singapore

2019–2021

- MMS Allocation for Mixed Goods
- This work was done with Prof. Xiaohui Bei, Dr. Shengxin Liu and Xinhang Lu. We study the problem of how to build an MMS allocation on the mixed of divisible and indivisible goods.
- Prophet Inequality for  $k$ -copy matroid constraint
- This work is doing with Prof. Nick Gravin and Prof. Matthew Weinberg. In this project, we try to build a prophet inequality for  $k$ -copy matroid constraint based on OCRS method.

## PUBLICATIONS

(All authors are listed in  $\alpha\text{-}\beta$  order.)

- [1] S. Hanneke and **H. Wang**, “Universal multiclass transductive online learning”, In submission.
- [2] A. Burudgante, P. Valiant, and **H. Wang**, “New bounds for circular trace reconstruction”, in *17th Innovations in Theoretical Computer Science Conference (ITCS 2026)*, 2026.
- [3] N. Alon, N. Gravin, T. Pollner, A. Rubinstein, **H. Wang**, S. M. Weinberg, and Q. Zhang, “A Bicriterion Concentration Inequality and Prophet Inequalities for k-Fold Matroid Unions”, in *16th Innovations in Theoretical Computer Science Conference (ITCS 2025)*, R. Meka, Ed., ser. Leibniz International Proceedings in Informatics (LIPIcs), vol. 325, Dagstuhl, Germany: Schloss Dagstuhl – Leibniz-Zentrum für Informatik, 2025, 4:1–4:22, ISBN: 978-3-95977-361-4.
- [4] S. Hanneke, A. Shaeiri, and **H. Wang**, “For universal multiclass online learning, bandit feedback and full supervision are equivalent”, in *36th International Conference on Algorithmic Learning Theory*, 2025.

- [5] S. Hanneke, A. Shaeiri, and **H. Wang**, “Non-uniform multiclass learning with bandit feedback”, in *The Thirty-ninth Annual Conference on Neural Information Processing Systems*, 2025.
- [6] S. Hanneke and **H. Wang**, “A theory of optimistically universal online learnability for general concept classes”, in *The Thirty-eighth Annual Conference on Neural Information Processing Systems*, 2024.
- [7] T. Dang, W. McKelvie, P. Valiant, and **H. Wang**, *Improving pearson's chi-squared test: Hypothesis testing of distributions – optimally*, 2023. arXiv: 2310.09408 [math.ST].
- [8] X. Bei, S. Liu, X. Lu, and **H. Wang**, “Maximin fairness with mixed divisible and indivisible goods”, *Autonomous Agents and Multi-Agent Systems*, vol. 35, no. 2, p. 34, Jun. 2021, ISSN: 1573-7454.
- [9] X. Bei, S. Liu, C. K. Poon, and **H. Wang**, “Candidate selections with proportional fairness constraints”, in *Proceedings of the 19th International Conference on Autonomous Agents and Multiagent Systems, AAMAS '20, Auckland, New Zealand, May 9-13, 2020*, 2020, pp. 150–158.
- [10] N. Gravin and **H. Wang**, “Prophet inequality for bipartite matching: Merits of being simple and non adaptive”, in *Proceedings of the 2019 ACM Conference on Economics and Computation*, ser. EC '19, Phoenix, AZ, USA, 2019, pp. 93–109.

## TEACHING

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- **Teaching Assistant** at Nanyang Technological University  
*Discrete Mathematics (MH1812)* Fall 2019&2020
- **Teaching Assistant** at Purdue University  
*Advanced Topics in Algorithm (CS39000-ATA)* Fall 2023
- **Teaching Assistant** at Purdue University  
*Randomized Algorithms (CS58800)* Spring 2024
- **Teaching Assistant** at Purdue University  
*Introduction to The Analysis of Algorithms (CS38100)* Fall 2024

## ACADEMIC SERVICES

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- Subreviewer at WINE'18 & SAGT'19
- Reviewer at AAAI'21 & NeurIPS' 25

## SKILLS

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- Programming: Python, Java, MATLAB
- Problem Solving

## LANGUAGES

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- **English:** Foreign Language, Fluently
- **Chinese:** Mother Tongue, Native