# Hongao Wang

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## EDUCATION

**Shanghai Jiao Tong University** — Shanghai, China
B.S.E. in Information Engineering — 2014–2018

**Purdue University** — West Lafayette, IN, USA
Ph.D. in Computer Science — 2021–2026 (expected)

## EXPERIENCE

**Shanghai University of Finance and Economics** — Shanghai, China
Part-time and Volunteer Student Intern at ITCS — 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** — Singapore
Project Officer at SPMS — 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 $\alpha$-$\beta$ order.)

[1] A. Burudgante, P. Valiant, and **H. Wang**, "New bounds for circular trace reconstruction", In submission.

[2] S. Hanneke and **H. Wang**, "Universal multiclass transductive online learning", In submission.

[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

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

## ACADEMIC SERVICES

- Subreviewer at WINE'18 & SAGT'19

- Reviewer at AAAI'21 & NeurIPS' 25

## HOBBIES

- **Reading:** Textbooks and Intro books in other area, such as, politics, economics and philosophy. Now I am reading World Order.
  Fantasy novels and mystery fictions.
- **Games:** Video Games: Assassin's Creed, Monster Hunter, etc.
  Board Games: Hanabi, Dixit, etc. Learning D&D
- **Swimming:**

## LANGUAGES

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