Yu-Jie Zhang

RIKEN AIP

yu-jie.zhang@riken.jp
yujie-zhang96.github.io

EDUCATION

The University of Tokyo, Japan — October 2021 - September 2024
Ph.D., Complexity Science and Engineering — Supervisor: Prof. Masashi Sugiyama

Nanjing University, China — June 16, 2021
M.Sc., Computer Science and Technology — Supervisor: Prof. Zhi-Hua Zhou

Tongji University, China — July 01, 2018
B.Sc., Electronic Science and Technology — GPA: 4.91/5.00, ranking 1/32

WORK EXPERIENCE & ACTIVITIES

RIKEN Center for Advanced Intelligence Project, Japan — January 2025- Now
Postdoctoral Researcher — Supervisor: Prof. Masashi Sugiyama

The Institute for AI and Beyond, Japan — April 2022- September 2024
Research Assistant

RESEARCH INTEREST

I am generally interested in exploring the theoretical foundations of machine learning and developing methods with sound theoretical guarantees. Currently, I focus on developing provably adaptive and reliable methods for *non-stationary and open-world environments*. My research topics include:

- **Sequential Decision-making in Non-stationary Environments**: We develop online learning methods that adapt promptly to non-stationary environment with regret guarantees
  - *Key Words: online optimization, bandits, reinforcement learning, dynamic regret bound.*
- **Supervised Learning in Open-world Environments**: We develop reliable methods to learn with weak supervision and handle unknown classes with excess risk guarantees.
  - *Key Words: distribution shift, weakly supervised learning, unknown classes, excess risk bound.*

PUBLICATIONS

Preprints

1. Soichiro Nishimori, Yu-Jie Zhang, Thanawat Lodkaew, Masashi Sugiyama. On Symmetric Losses for Robust Policy Optimization with Noisy Preferences. *In submission.*

Conference Publications

1. Yu-Jie Zhang, Sheng-An Xu, Peng Zhao, Masashi Sugiyama. Generalized Linear Bandits: Almost Optimal Regret with One-Pass Update. **NeurIPS 2025**.
2. Yu-Jie Zhang, Peng Zhao, and Masashi Sugiyama. Non-stationary Online Learning for Curved Losses: Improved Dynamic Regret via Mixability. **ICML 2025**.
3. Jing Wang, Yu-Jie Zhang, Peng Zhao, and Zhi-Hua Zhou. Heavy-Tailed Linear Bandits: Huber Regression with One-Pass Update. **ICML 2025**.
4. Yuting Tang, Yivan Zhang, Johannes Ackermann, Yu-Jie Zhang, Soichiro Nishimori, Masashi Sugiyama. Recursive Reward Aggregation. **RLC 2025**.

5. Long-Fei Li, Yu-Jie Zhang, Peng Zhao, and Zhi-Hua Zhou. Provably Efficient Reinforcement Learning with Multinomial Logit Function Approximation. **NeurIPS 2024**.
6. Yu-Yang Qian, Peng Zhao, Yu-Jie Zhang, Masashi Sugiyama, Zhi-Hua Zhou. Efficient Non-stationary Online Learning by Wavelets with Applications to Online Distribution Shift Adaptation. **ICML 2024**
7. Wei Wang, Takashi Ishida, Yu-Jie Zhang, Gang Niu, and Masashi Sugiyama. Learning with Complementary Labels Revisited: A Consistent Approach via Negative-Unlabeled Learning. **ICML 2024**.
8. Yu-Jie Zhang and Masashi Sugiyama. Online (Multinomial) Logistic Bandit: Improved Regret and Constant Computation Cost. **NeurIPS 2023** [Spotlight]
9. Yu-Jie Zhang, Zhen-Yu Zhang, Peng Zhao, and Masashi Sugiyama. Adapting to Continuous Covariate Shift via Online Density Ratio Estimation. **NeurIPS 2023**.
10. Xin-Qiang Cai, Yu-Jie Zhang, Chao-Kai Chiang and Masashi Sugiyama. Imitation Learning from Vague Feedback. In Advances in Neural Information Processing Systems 36 **NeurIPS 2023**.
11. Yong Bai*, Yu-Jie Zhang*, Peng Zhao, Masashi Sugiyama, and Zhi-Hua Zhou. Adapting to Online Label Shift with Provable Guarantees. **NeurIPS 2023**. (* equal contribution)
12. Zhen-Yu Zhang, Yu-Yang Qian, Yu-Jie Zhang, Yuan Jiang, Zhi-Hua Zhou. Adaptive Learning for Weakly Labeled Streams. **KDD 2022**.
13. Yu-Jie Zhang, Yu-Hu Yan, Peng Zhao and Zhi-Hua Zhou. Towards Enabling Learnware to Handle Unseen Jobs. In Proceedings of the 35th AAAI Conference on Artificial Intelligence (**AAAI**), 2021.
14. Peng Zhao, Yu-Jie Zhang and Zhi-Hua Zhou. Exploratory Machine Learning with Unknown Unknowns. **AAAI 2021**.
15. Yu-Jie Zhang, Peng Zhao, Lanjihong Ma and Zhi-Hua Zhou. An Unbiased Risk Estimator for Learning with Augmented Classes. **NeurIPS 2020**.
16. Peng Zhao, Yu-Jie Zhang, Lijun Zhang and Zhi-Hua Zhou. Dynamic Regret of Convex and Smooth Functions. **NeurIPS 2020**.
17. Yu-Jie Zhang, Peng Zhao, and Zhi-Hua Zhou. A Simple Online Algorithm for Competing with Dynamic Comparators. **UAI 2020**.

Journal Publications

17. Sijia Chen, Yu-Jie Zhang, Wei-Wei Tu, Peng Zhao, and Lijun Zhang. Optimistic Online Mirror Descent for Bridging Stochastic and Adversarial Online Convex Optimization. Journal of Machine Learning Research (**JMLR**), 25(178):1−62, 2024.
18. Peng Zhao, Yu-Jie Zhang, Lijun Zhang, and Zhi-Hua Zhou. Adaptivity and Non-stationarity: Problem-dependent Dynamic Regret for Online Convex Optimization. Journal of Machine Learning Research (**JMLR**), 25(98):1−52, 2024.
19. Peng Zhao, Jia-Wei Shan, Yu-Jie Zhang and Zhi-Hua Zhou. Exploratory Machine Learning with Unknown Unknowns. Artificial Intelligence (**AIJ**), 327:104059, 2024.

AWARDS & HONORS

- Dean's Award for Outstanding Achievement (Doctoral Course), GSFS, UTokyo, 2025.
- AISTATS 2025 Best Reviewer, 2025
- Top Reviewer for NeurIPS, 2023
- Top Reviewer for UAI, 2023

- Top Reviewer for NeurIPS, 2022
- The University of Tokyo Fellowship, Tokyo, 2021
- Outstanding Master Dissertation Award by Jiangsu Computer Society, Nanjing, 2021
- Excellent Graduate of Nanjing University, Nanjing, 2021
- National Graduate Scholarship for Master Student, MOE of PRC, 2020

ACADEMIC SERVICE

- **Reviewer for Conference**: NeurIPS (2021-2025), ICML (2022-2025), ICLR (2022-2025), AISTATS (2021-2025), UAI (2022-2024), AAAI (2021, 2024), IJCAI (2020-2023), ECAI (2020).
- **Reviewer for Journal**: Journal of Machine Learning Research (JMLR), IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), Frontiers of Computer Science.