

Xin-Qiang Cai

Biography

Currently, I am a second-year Ph.D. student of the Department of Complexity Science and Engineering in The University of Tokyo and a member of Sugiyama-Yokoya-Ishida Lab. Also, I am working as a research assistant on Beyond AI Institution.

I got my M.Sc. degree in Computer Science and Technology in June 2021 from Nanjing University as a member of LAMDA Group, supervised by professor Zhi-Hua Zhou and professor Yuan Jiang.

I got my B.Sc. degree in Aircraft Design and Engineering in June 2018 from Northwestern Polytechnical University. In the same year, I was admitted to study for an M.Sc degree in Nanjing University without an entrance examination.

Research Interests

Currently, I am focusing on the subfields:

- **Class Incremental Learning:** classification problems with emerging new classes;
- **Reinforcement Learning & Imitation Learning:** learning a sequential-decision-making agent from the environment and/or demonstrations;
- **Learning with Weak Supervision:** learning a model from noisy, limited, or imprecise sources.

Preprint

Kaiyan Zhao, Qiyu Wu, **Xin-Qiang Cai**, Yoshimasa Tsuruoka. *Leveraging Multi-lingual Positive Instances in Contrastive Learning to Improve Sentence Embedding*. In: Arxiv. [arxiv]

Publication

- **Xin-Qiang Cai**, Yu-Jie Zhang, Chao-Kai Chiang, Masashi Sugiyama. *Imitation Learning from Vague Feedback*. In: **Proceedings of the Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS'23)**, New Orleans, US, Dec. 10-16, 2023. To Appear.

- **Xin-Qiang Cai**, Pushi Zhang, Li Zhao, Jiang Bian, Masashi Sugiyama, Ashley Juan Llorens. *Distributional Pareto-Optimal Multi-Objective Reinforcement Learning*. In: **Proceedings of the Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS'23)**, New Orleans, US, Dec. 10-16, 2023. To Appear.
- **Xin-Qiang Cai**, Yao-Xiang Ding, Zi-Xuan Chen, Yuan Jiang, Masashi Sugiyama, Zhi-Hua Zhou. *Seeing Differently, Acting Similarly: Imitation Learning with Heterogeneous Observations*. In: **Proceedings of the Eleventh International Conference on Learning Representations (ICLR'23) (spotlight)**, Kigali, Rwanda, May 1-5, 2023.
- Zi-Xuan Chen*, **Xin-Qiang Cai***, Yuan Jiang, Zhi-Hua Zhou. *Anomaly Guided Policy Learning from Imperfect Demonstrations*. In: **Proceedings of the 21th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'22) (oral)**, Auckland, New Zealand, May 9-13, 2022. Page: 244-252.
- **Xin-Qiang Cai**, Yao-Xiang Ding, Yuan Jiang, Zhi-Hua Zhou. *Imitation Learning from Pixel-Level Demonstrations by HashReward*. In: **Proceedings of the 20th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'21) (oral)**, online, May 3-7, 2021. Page: 279-287.
- **Xin-Qiang Cai**, Peng Zhao, Kai Ming Ting, Xin Mu, Yuan Jiang. *Nearest Neighbor Ensembles: An Effective Method for Difficult Problems in Streaming Classification with Emerging New Classes*. In: **Proceedings of the 19th IEEE International Conference on Data Mining (ICDM'19)**, Beijing, China, Nov. 8-11, 2019. Page: 970-975.

Patent

- 一种摄像器材记录的视频图像数据的高维模仿学习方法. Patent No. 202011450396.1, 2020.

Service

Conference

- NeurIPS 2023
- ICML 2023
- IJCAI 2023
- SDM 2023
- NeurIPS 2022
- UAI 2022

- ICML 2022
- IJCAI 2022
- CCML 2021
- IJCAI 2021
- ECAI 2020
- CIKM 2020

Journal

- IEEE Transactions on Neural Networks and Learning Systems(TNNLS)

Awards & Honors

- Japan Society for the Promotion of Science (JSPS, 日本學術振興会) DC2 Fellowship. 2023
- MSRA Collaborative Research Program Fellowship (D-CORE 2022). 2022
- SPRING GX Fellowship. 2021
- Excellent Graduate of Nanjing University. 2021
- AAMAS 2021 Attendance Scholarship. 2020
- Excellent Graduate Student of Nanjing University. 2019
- YeePay Scholarship of Nanjing University, Second Prize. 2019
- ICDM Student Travel Award. 2019
- Yingcai Scholarship of Nanjing University, Second Prize. 2018
- Nanjing University Academic Scholarship, First Prize. 2018&2019&2020
- ZhongAn Hackathon Contest, AI scenario, First Prize. 2018
- Excellent Graduate of Northwestern Polytechnical University. 2018
- China Collegiate Computer Contest, First Prize. 2017
- The ACM-ICPC Asia Regional Contest, Qingdao Site 2017, Silver Medal. 2017
- The ACM-ICPC Asia Regional Contest, Xinjiang Site 2017, Bronze Medal. 2017
- Interdisciplinary Contest in Modeling, Honorable Mention. 2017
- China Collegiate Computer Contest, First Prize. 2017

- Interdisciplinary Contest in Modeling, Honorable Mention. 2016
- Contemporary Undergraduate Mathematical Contest in Modeling, Third Prize. 2016
- China Collegiate Programming Contest, Hangzhou Site 2016, Silver Medal. 2016
- China Collegiate Computer Contest, First Prize. 2016
- The ACM-ICPC Asia Regional Contest, Xi' an Site 2016, Bronze Medal. 2016
- The ACM-ICPC Asia Regional Contest, Shanghai Site 2016, Bronze Medal. 2016
- The ACM-ICPC Asia Regional Contest, China-Final, Bronze Medal. 2015
- Contemporary Undergraduate Mathematical Contest in Modeling, Second Prize. 2015
- The ACM-ICPC Asia Regional Contest, Shaanxi Provincial Contest, Silver Medal. 2015
- National Scholarship. 2015-2016
- National Scholarship. 2014-2015

Correspondence

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