

Qingfeng Lan

Curriculum Vitae

University of Alberta
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🌐 [Personal Website](#)
📄 [Google Scholar](#)

I am interested in developing simple and efficient algorithms supported by sound theories and verified by rigorous experiments. In particular, my research focuses on designing continual (reinforcement) learning algorithms with higher sample, memory, and computation efficiency. I have also worked on meta-learning, exploration, language modeling, and quantum reinforcement learning.

Education

- 20.09 - 25.03 **Doctor of Philosophy in Computing Science**, *University of Alberta*, Canada.
Supervisor [A. Rupam Mahmood](#)
- 18.09 - 20.08 **Master of Science in Computing Science**, *University of Alberta*, Canada.
Supervisor [Alona Fyshe](#)
- 14.09 - 18.07 **Bachelor of Engineering in Computer Science and Technology**, *University of Chinese Academy of Sciences*, China.
Advisor [Yanyan Lan](#) (thesis advisor), [Guojie Li](#) (tutor)
- 17.10 - 18.03 **Visiting Non-Matriculated Programme**, *University of Oxford*, England.
Tutor [Leslie Ann Goldberg](#)

Employment

- 22.07 - 23.01 **Research Intern**, *Sea AI Lab*, Singapore.
Collaborator [Zhongwen Xu](#), [Shuicheng Yan](#)
Project Learning to Optimize for Reinforcement Learning. [\[Link\]](#)
- 22.01 - 22.06 **Research Intern**, *Huawei Noah's Ark Lab*, Edmonton, Canada.
Collaborator [Yangchen Pan](#), [Jun Luo](#)
Project Memory-efficient Reinforcement Learning with Value-based Knowledge Consolidation. [\[Link\]](#)
- 17.07 - 18.04 **Research Assistant**, *Key Laboratory of Network Data Science and Technology*, *Chinese Academy of Sciences*, Beijing, China.
Collaborator [Yixing Fan](#), [Yanyan Lan](#), [Jiafeng Guo](#)
Project A Deep Top-K Relevance Matching Model for Ad-hoc Retrieval. [\[Link\]](#)

Publications

*: Equal contribution

Conference and Journal Articles

- ICLR-2024 **Provable and Practical: Efficient Exploration in Reinforcement Learning via Langevin Monte Carlo.**
Haque Ishfaq*, **Qingfeng Lan***, Pan Xu, A. Rupam Mahmood, Doina Precup, Anima Anandkumar, Kamyar Azizzadenesheli. *International Conference on Learning Representations, 2024*. **Poster**. [\[Link\]](#)
- TMLR-2023 **Memory-efficient Reinforcement Learning with Value-based Knowledge Consolidation.**
Qingfeng Lan, Yangchen Pan, Jun Luo, A. Rupam Mahmood. *Transactions on Machine Learning Research, 2023*. **CoLLAs certification**. [\[Link\]](#)
- AISTATS-2022 **Model-free Policy Learning with Reward Gradients.**
Qingfeng Lan, Samuele Tosatto, Homayoon Farrahi, A. Rupam Mahmood. *International Conference on Artificial Intelligence and Statistics, 2022*. **Poster**. [\[Link\]](#)
- ICLR-2020 **Maxmin Q-learning: Controlling the Estimation Bias of Q-learning.**
Qingfeng Lan, Yangchen Pan, Alona Fyshe, Martha White. *International Conference on Learning Representations, 2020*. **Poster**. [\[Link\]](#)
- CCIR-2018 **A Deep Top-K Relevance Matching Model for Ad-hoc Retrieval.**
Zhou Yang, **Qingfeng Lan**, Jiafeng Guo, Yixing Fan, Xiaofei Zhu, Yanyan Lan and Yue Wang, Xueqi Cheng. *China Conference on Information Retrieval, 2018*. **Best Paper Award Candidate**. [\[Link\]](#)

Workshop and Non-Refereed Articles

- ICML-2023 **Elephant Neural Networks: Born to Be a Continual Learner.**
Qingfeng Lan, A. Rupam Mahmood. *ICML Workshop on High-dimensional Learning Dynamics, 2023*. **Poster**. [\[Link\]](#)
- arXiv-2023 **Learning to Optimize for Reinforcement Learning.**
Qingfeng Lan, A. Rupam Mahmood, Shuicheng Yan, Zhongwen Xu. *arXiv preprint arXiv:2302.01470, 2023*. [\[Link\]](#)
- EWRL-2023 **Overcoming Policy Collapse in Deep Reinforcement Learning.**
Shibhansh Dohare, **Qingfeng Lan**, A. Rupam Mahmood. *Sixteenth European Workshop on Reinforcement Learning, 2023*. **Poster**. [\[Link\]](#)
- Master Thesis **Predictive Representation Learning for Language Modeling.**
Qingfeng Lan. 2020. [\[Link\]](#)
- arXiv-2021 **Variational Quantum Soft Actor-Critic.**
Qingfeng Lan. *Quantum Computing Course Project, 2021*. [\[Link\]](#)
- NeurIPS-2019 **Reducing Selection Bias in Counterfactual Reasoning for Individual Treatment Effects Estimation.**
Zichen Zhang, **Qingfeng Lan**, Lei Ding, Yue Wang, Negar Hassanpour, Russell Greiner. *NeurIPS Workshop on Causal Machine Learning, 2019*. **Poster Spotlight**. [\[Link\]](#)

Academic Services

- Reviewer JMLR 2020, NeurIPS 2022-2023, ICLR 2023-2024, AISTATS 2023, CoLLAs 2023-2024.

Open-Source Code

[Jaxplorer.](#)

A Jax reinforcement learning framework for exploring new ideas.

[Optim4RL.](#)

A Jax framework of learning to optimize for reinforcement learning.

[Explorer.](#)

A PyTorch reinforcement learning framework for exploring new ideas.

[Gym Games.](#)

A collection of Gymnasium compatible games for reinforcement learning.

[Quantum Explorer.](#)

A quantum reinforcement learning framework based on PyTorch and PennyLane.

Teaching Experience

Fall 2023 **Teaching Assistant**, *University of Alberta*, Edmonton, Canada.
CMPUT 340: Introduction to Numerical Methods

Winter 2019 **Teaching Assistant**, *University of Alberta*, Edmonton, Canada.
CMPUT 175: Introduction to the Foundations of Computation II

Fall 2018 **Teaching Assistant**, *University of Alberta*, Edmonton, Canada.
CMPUT 174: Introduction to the Foundations of Computation I

Awards & Honors

2023 **Alberta Innovates Graduate Student Scholarship**, CAD 31,000.
University of Alberta

Computer skills

Language Python, Matlab, C
Framework PyTorch, Jax, Tensorflow