

Qingfeng Lan

Curriculum Vitae

University of Alberta
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📄 <https://lancelqf.github.io/>

I'm a PhD student at the University of Alberta. I have broad interests in artificial intelligence, especially reinforcement learning and representation learning. Currently, I am working on projects about policy gradient algorithms and optimizers for reinforcement learning.

Education

- 2020 - Present **Doctor of Philosophy in Computing Science**, *University of Alberta*, Canada.
Advisor Rupam Mahmood
- 2018 - 2020 **Master of Science in Computing Science**, *University of Alberta*, Canada.
Thesis Predictive Representation Learning for Language Modeling
Advisor Alona Fyshe
- 2014 - 2018 **Bachelor of Engineering in Computer Science and Technology**, *University of Chinese Academy of Sciences*, China.
Thesis A Deep Top-K Relevance Matching Model for Ad-hoc Retrieval
Advisors Yanyan Lan (thesis advisor), Guojie Li (tutor)
- 17.10 - 18.03 **Visiting Non-Matriculated Programme**, *University of Oxford*, England.
Tutor Leslie Ann Goldberg

Research

- 19.06 - 20.06 **Predictive Representation Learning for Language Modeling.**
- Proposed Predictive Representation Learning (PRL) which explicitly constrains Long Short Term Memory networks (LSTMs) to encode specific predictions by general value functions
 - Improved the convergence rate and data efficiency of two strong language modeling methods significantly
- 2019.09 - 12 **Reducing Selection Bias in Counterfactual Reasoning for Individual Treatment Effects Estimation.**
- Proposed a new graphical model which includes the latent variables of the observed features
 - Explicitly removed selection bias by separating the learned representations of features into parts
- 2019.04 - 09 **Maxmin Q-learning: Controlling the Estimation Bias of Q-learning.**
- Highlighted that the effect of overestimation bias on learning efficiency is environment-dependent
 - Proposed a new variant of Q-learning algorithm called Maxmin Q-learning which provides a parameter-tuning mechanism to flexibly control bias

- 2017.07 - 09 **A Deep Top-K Relevance Matching Model for Ad-hoc Retrieval.**
- Proposed a deep relevance matching model for ad-hoc retrieval problem
 - Leveraged Top-K pooling to capture the details of interaction scores and applied term gating networks to control the contribution of each query term to the final matching score

Employment

- 2019 - Present **Research Assistant**, *Alberta Machine Intelligence Institute, University of Alberta, Edmonton, Canada.*
- 17.07 - 18.04 **Research Assistant**, *Key Laboratory of Network Data Science and Technology, Chinese Academy of Sciences, Beijing, China.*

Publications

Refereed Articles

- 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.*
- 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.*

Others

- 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.*

Open-Source Code

Explorer.

A reinforcement learning frame based on Pytorch for exploring new ideas.

Gym Games.

A gym compatible version of various games for reinforcement learning.

Teaching Experience

- 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

Computer skills

- Advanced Python, PyTorch
- Intermediate Tensorflow, Keras, C/C++, Octave/MATLAB, Verilog
- Basic Haskell