# Qingfeng Lan

*Curriculum Vitae*

*University of Alberta*
*Edmonton, Alberta, Canada*
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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 optimiziers for reinforcement learning.

## Education

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| 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

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| 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-2017** **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.

## Awards & Honors

**2017.10** **Second-Class Academic Scholarship**, University of Chinese Academy of Sciences

**2017.10** **National Endeavor Fellowship**

**2016.12** **The Interdisciplinary Contest in Modeling, Honorable Mention**

**2016.12** **Academic Scholarship**, Chinese Academy of Sciences

**2016.11** **Third-Class Academic Scholarship**, University of Chinese Academy of Sciences

**2015.12** **National Endeavor Fellowship**

**2015.11** **Second-Class Academic Scholarship**, University of Chinese Academy of Sciences

## 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