

Yudong Luo

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School of Computer Science
University of Waterloo
ON, Canada

Research Interest My research interests lie broadly in Artificial Intelligence and focus on **Reinforcement Learning** (RL). I am particularly interested in risk-averse RL and safe RL.

Education **University of Waterloo**, Canada
Doctor of Philosophy in Computer Science, 2020 - 2024(expected)
Advisor: Pascal Poupart
Committee: Mohammad Ghavamzadeh (Amazon), Yuying Li (UWaterloo),
Hongyang Zhang (UWaterloo), Yash Vardhan Pant (UWaterloo)

Simon Fraser University, Canada
Master of Science in Computing Science, 2018 - 2020
Advisor: Oliver Schulte

Shanghai Jiao Tong University, China
Bachelor of Engineering in Computer Science and Engineering, 2014 - 2018

Research Internships **Huawei Noah's Ark Lab**, Toronto, Canada July 2022 - Dec. 2022
Worked on risk-averse RL w.r.t. mean-variance optimization.

Mitacs at SportLogiq, Vancouver, Canada Mar. 2020 - Jun. 2020
Worked on inverse RL for agent evaluation in real world sports game.

National University of Singapore, Singapore July 2017 - Sep. 2017
Worked on algorithm transparency and trust-worthy machine learning.

Publications A Simple Mixture Policy Parameterization for Improving Sample Efficiency of CVaR Optimization.
Yudong Luo, Yangchen Pan, Han Wang, Philip Torr, Pascal Poupart.
In *Reinforcement Learning Conference (RLC)*, 2024

An Alternative to Variance: Gini Deviation for Risk-averse Policy Gradient.
Yudong Luo, Guiliang Liu, Pascal Poupart, Yangchen Pan.
In *Advances in Neural Information Processing Systems (NeurIPS)*, 2023

Benchmarking Constraint Inference in Inverse Reinforcement Learning.
Guiliang Liu, **Yudong Luo**, Ashish Gaurav, Kasra Rezaee, Pascal Poupart.
In *International Conference on Learning Representations (ICLR)*, 2023

Distributional Reinforcement Learning with Monotonic Splines.
Yudong Luo, Guiliang Liu, Haonan Duan, Oliver Schulte, Pascal Poupart.
In *International Conference on Learning Representations (ICLR)*, 2022

Uncertainty-Aware Reinforcement Learning for Risk-Sensitive Player Evaluation in Sports Game.
Guiliang Liu, **Yudong Luo**, Oliver Schulte, Pascal Poupart.
In *Advances in Neural Information Processing Systems (NeurIPS)*, 2022

Learning Selective Communication for Multi-Agent Path Finding.
 Ziyuan Ma*, **Yudong Luo***, Jia Pan. (* equal contribution)
 In *IEEE International Conference on Robotics and Automation (ICRA)*, 2022

Distributed Heuristic Multi-Agent Path Finding with Communication.
 Ziyuan Ma*, **Yudong Luo***, Hang Ma. (* equal contribution)
 In *IEEE International Conference on Robotics and Automation (ICRA)*, 2021

Inverse Reinforcement Learning for Team Sports: Valuing Actions and Players.
Yudong Luo, Oliver Schulte, Pascal Poupart.
 In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2020

Deep soccer analytics: Learning an action-value function for evaluating soccer players.
 Guiliang Liu, **Yudong Luo**, Oliver Schulte, Tarak Kharrat.
 In *European Conference on Machine Learning (ECML) Journal Track*, 2020

EEG-based Emotion Recognition Using Domain Adaptation Network.
 Yi-Ming Jin, **Yu-Dong Luo**, Wei-Long Zheng, Bao-Liang Lu.
 In *International Conference on Orange Technologies (ICOT)*, 2017

Leveraging Approximate Constraints for Localized Data Error Detection.
 Mohan Zhang, Oliver Schulte, **Yudong Luo**.
 In *Exploiting Artificial Intelligence Techniques for Data Management Workshop at SIGMOD*, 2021

Valuing Sports Actions and Players with Inverse Reinforcement Learning.
Yudong Luo and Oliver Schulte.
Artificial Intelligence in Team Sports Workshop at AAAI, 2020

Under Review

Benchmarking Large Neighborhood Search for Multi-Agent Path Finding
 Jiaqi Tan, **Yudong Luo**, Jiaoyang Li, Hang Ma.

Risk, Reward, and Reinforcement Learning in Hockey Analytics
 Sheng Xu, Oliver Schulte, **Yudong Luo**, Pascal Poupart, Guiliang Liu.

Talks

An Alternative to Variance: Gini Deviation for Risk-averse Policy Gradient.
 At Vector Institute, 2023

Risk-Sensitive Player Evaluation in Sports Game.
 At ETH Zurich, Jan. 2023 (online)

Multi-Agent Path Finding using Deep RL with Communication.
 At University of Southern California , Nov. 2022 (online)

Distributional Reinforcement Learning with Monotonic Splines.
 At Vector Institute, 2022

Selected Awards

Ontario Graduate Scholarship, Ontario province	2023
President's Graduate Scholarship, UWaterloo	2023
Cheriton Graduate Scholarship, UWaterloo School of CS	2023, 2024
Waterloo AI Institute Graduate Scholarship, Waterloo.AI	2024
Mathematical Contest In Modeling (MCM), Meritorious Winner (top 7%)	2017

Activities	Reviewer for ICRA 2022, 2024; AAMAS 2022; NeurIPS 2022-2024; ICLR 2024; ICML 2024; RLC 2024	
Engineering Internships	Baidu Inc., Shanghai, China Worked in a video recommendation group.	Apr. 2018 - Aug. 2018
	Tencent, Shanghai, China Worked in a beauty camera group.	Feb. 2018 - Apr. 2018