Liangyawei Kuang

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Introduction

I am a postgraduate researcher at **the Hong Kong University of Science and Technology (HKUST)**. My research goal is to develop learning algorithms and techniques that could endow machines and systems with greater autonomy and intelligence to acquire the skills for executing complex tasks. I am interested in the intersection of reinforcement learning, decision-theoretic planning, and multi-agent systems. Currently, I focus on solving Multi-Agent Reinforcement Learning problems under scalability and reliability consideration & diving theoretical and algorithmic foundation of Reinforcement Learning.

Research Experience

Multi-Agent Reinforcement Learning   Apr. 2021 - present
Coursework and literature review from Multi-Agent Planning Under Uncertainty to Multi-Agent Reinforcement Learning (MARL). Implementing basic algorithms on single-agent Planning, single-agent Reinforcement Learning (RL), and MARL. For researchers on MARL, the goal is to solve some key challenges in MARL, including Non-Stationarity, Non-Unique Learning Goals, and Scalability.
URL https://github.com/klyw1998/Implementation-of-RL-Algorithms
Advisor: Prof. Fangzhen Lin

Multi-Agent Systems   Dec. 2021 - present
Multi-Agent Systems (MAS) research is to study systems that consist of a group of agents that can potentially interact with each other. It was called Distributed Artificial Intelligence which is a classical interdiscipline research area, including game theory, control, and learning. It re-emerged in recent years with the rising of advanced learning techniques
URL https://github.com/klyw1998/Multi-Agent-Systems
Advisor: Prof. Fangzhen Lin

Education

HKUST, Hong Kong, China   Aug. 2021 - present
Master of Philosophy in Individualized Interdisciplinary Program
(Robotics and Autonomous Systems)
Advisor: Prof. Fangzhen Lin

HKUST (Guangzhou), Guangzhou, China   Sept. 2022 - Dec. 2022
Cross Campus Virtual Exchange (Remote)

Northeastern University, MA, U.S.A.   Jul. 2020 - Jun. 2021
Thesis-based Master of Computer Engineering in Computer Vision, Machine Learning and Algorithms (degree discontinued)

University of California, Irvine, CA, U.S.A.   Aug. 2019 - Jun. 2020
Final year visiting in Electrical Engineering & Computer Science Department

Hong Kong Polytechnic University, Hong Kong, China   Jan. 2019 - Jun. 2019
One-semester exchange in Mechanical Engineering Department

Harbin Institute of Technology, Harbin, China   Aug. 2016 - Jun. 2020

Bachelor of Engineering in Mechatronics Engineering

Teaching	*HKUST*, Lecturer	Spring 2022
	Multi-Robot Systems	
	Course link: https://github.com/klyw1998/Multi-Robot-Systems	
	Northeastern University, Teaching Assistant	Fall 2020
	EECS 7311: Two Dimensional Signal and Image Processing	

Skills	**Programming**	Python, C/C++, MATLAB, R, SQL, Java
	Libraries	NumPy, Matplotlib, Scikit-Learn,
		OpenAI Gym, PyTorch, TensorFlow2
	Languages	Mandarin, Classical Chinese, English (IELTS: 7), Beginner on Latin
	Others	LaTeX, Linux, ROS, Docker, Vim, Microsoft Office

Invited Talks	*Cooperative Multi-Agent Reinforcement Learning*	2022
	Seminar in Robotics and Autonomous Systems Thrust,	
	System Hub, HKUST(Guangzhou)	

Projects	*On-Campus Food Delivery System via Multi-Agent Pathfinding*, HKUST	2021
	Project page: https://github.com/klyw1998/Multi-Agent-Pathfinding	
	Home Credit Default Risk competition at Kaggle, HKUST	2022
	Ranked top **14%** (Bronze Medal level) based on Machine Learning techniques.	
	This project is carried out by only two participants in less than one week's work!	
	Project page: https://github.com/klyw1998/Statistical-Machine-Learning	

Honours	*Postgraduate Studentship*, HKUST	2021 - 2023
	Meritorious Winner (top **6%** in 2019), Mathematical Contest in Modeling	2019
	Outstanding Student Leader, Harbin Institute of Technology	2017 & 2018
	Second Class Scholarship, Harbin Institute of Technology	2017 & 2018
	SMC Scholarship, Harbin Institute of Technology	2017