

Liangyawei Kuang

Room 1007-24, Research Postgraduate Hub, HKUST, Clear Water Bay, Kowloon, Hong Kong.
lkuang@connect.ust.hk <https://klyw1998.github.io/LiangyaweiKuang/> <https://www.deadsecond.com>

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
Self-study 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. This study is aimed to solve one or more of the key challenges in MARL, including Non-Stationarity, Non-Unique Learning Goals, and Scalability, et al., and explore more theoretical foundations for MARL.
[URL Implemented Algorithms on single-agent RL and MARL](#)
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 interdisciplinary research area, including game theory, control, planning, et al., but not only machine learning. This study is to explore more research directions for MARL with the knowledge of classical MAS and other related research areas.
[URL Reinforcement Learning for Cooperative 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 Bachelor of Engineering in Mechatronics Engineering	Aug. 2016 - Jun. 2020
Teaching	<i>HKUST</i> , Lecturer Multi-Robot Systems Course link: https://www.deadsecond.com/teaching	Spring 2022
	<i>Northeastern University</i> , Teaching Assistant EECS 7311: Two Dimensional Signal and Image Processing	Fall 2020
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 L ^A T _E X, Linux, ROS, Docker, Vim, Microsoft Office	
Invited Talks	<i>Cooperative Multi-Agent Reinforcement Learning</i> Seminar in Robotics and Autonomous Systems Thrust, System Hub, HKUST(Guangzhou)	2022
Projects	<i>On-Campus Food Delivery System via Multi-Agent Pathfinding</i> , HKUST Project page: https://github.com/klyw1998/Multi-Agent-Pathfinding	2021
	<i>Home Credit Default Risk competition at Kaggle</i> , HKUST 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	2022
Honours	<i>Postgraduate Studentship</i> , HKUST <i>Meritorious Winner</i> (top 6% in 2019), Mathematical Contest in Modeling <i>Outstanding Student Leader</i> , Harbin Institute of Technology <i>Second Class Scholarship</i> , Harbin Institute of Technology <i>SMC Scholarship</i> , Harbin Institute of Technology	2021 - 2023 2019 2017 & 2018 2017 & 2018 2017