Richie Lo Yat Long

E-MAIL yatlongglorichie@gmail.com • WEBSITE https://richielo.github.io/

EDUCATION

University of Oxford

- ❖ Master of Science (Computer Science) – **(Distinction, Class of 2021)**
- ❖ Relevant coursework: Bayesian Statistical Probabilistic Programming, Quantum Processes and Computation, Law and Computer Science, Advanced Topics in Machine Learning, Computational Game Theory
- ❖ Thesis: Cheap Talk Discovery and Utilization in Multiagent Reinforcement Learning, supervised by Professor Shimon Whiteson and Professor Jakob Foerster – **(The Hoare Prize for the best thesis, 2021)**

University of Hong Kong

- ❖ Bachelor of Engineering (Computer Science) **(First Class Honours, GPA: 3.71, Class of 2020)**
- ❖ Bachelor of Business Administration (Major in Information Systems and Computer Science) **(First Class Honours, GPA: 3.57, Class of 2018)**
- ❖ Relevant coursework: Introduction to Data Structures and algorithms, Computer Organization, Principles of Operating Systems, Software Engineering, Advanced Database Management, Design and Analysis of Algorithms, Machine Learning
- ❖ Thesis: Bidirectional Rollouts in Model-Based Reinforcement Learning, supervised by Professor Jia Pan

University of Illinois at Urbana-Champaign – GPA: 3.64

- ❖ Exchange student in the Department of Computer Science (2017 Spring)
- ❖ Relevant coursework: Artificial Intelligence, Communication Networks, Introduction to Data Mining, Brain, Behavior & Info Processing, Applied Linear Algebra

ACADEMIC HONOURS

The Hoare Prize for the best thesis in the MSc in Computer Science (2021)
Dean's Honours List (2016-2017, 2017-2018, 2019-2020)
Certificate of Merit, FYP/PG Paper Competition, IEEE (HK) Computational Intelligence Chapter (2017-2018)
Hong Kong Innovation and Technology Scholarship Award Scheme (2018)
Philip K H Wong Foundation Scholarships for Student Enrichment (2016)
HKU Foundation Scholarships for Outstanding Students (2013)

TECHNICAL SKILLS

Programming: Python, C#, C++, C, Haskell, HTML, CSS, JavaScript, PHP, SQL, Java
Machine Learning Topics: Deep Learning, Reinforcement Learning. Multi-Agent Reinforcement Learning, Natural Language Processing, Large Language Models
Machine Learning Tools: PyTorch, Tensorflow, Keras, Sci-kit Learn
Cloud Computing: AWS, Azure

PUBLICATIONS

Mohit Shridhar*, **Yat Long Lo***, Stephen James. **Generative Image as Action Models**. Conference on Robot Learning. 2024. https://genima-robot.github.io/.

Yat Long Lo, Biswa Sengupta, Jakob Foerster, Michael Noukhovitch. **Learning Multi-Agent Communication with Contrastive Learning.** In Proceedings of the 12th International Conference on Learning Representations (ICLR). 2024

Yat Long Lo, Christian Schroeder De Witt, Samuel Sokota, Jakob Foerster, Shimon Whiteson. **Cheap Talk Discovery and Utilization in Multi-Agent Reinforcement Learning**. In Proceedings of the 11th International Conference on Learning Representations (ICLR). 2023

Jobs Heitzig, Jörg Oechssler, Christoph Pröschel, Niranjana Ragavan, **Yat Long Lo**. Improving International Climate Policy via Mutually Conditional Binding Commitments. AI For Global Climate Cooperation Competition. 2023

Yat Long Lo, Biswa Sengupta. **Learning to Ground Decentralized Multi-Agent Communication with Contrastive Learning**. ICLR Workshop on Emergent Communication. 2022 (**Runner-up Best Paper**)

Yat Long Lo, Jia Pan and Albert Y.S. Lam. **Knowing When To Look Back: Bidirectional Rollouts in Dyna-style Planning**. ICAPS Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning. 2020

Sina Ghiassian, Banafsheh Rafiee, **Yat Long Lo** and Adam White. **Improving Performance in Reinforcement Learning by Breaking Generalization in Neural Networks**. In Proceedings of the 19th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS). 2020

Yat Long Lo and Sina Ghiassian. **Overcoming Catastrophic Interference in Online Reinforcement Learning with Dynamic Self-Organizing Maps**. NeurIPS Workshop on Biological and Artificial Reinforcement Learning. 2019

Zhiyu Liu, Wenhao Jiang, Kit Hang Lee, **Yat Long Lo**, Yui Lun Ng, Qi Dou, Varut Vardhanabhuti and Ka Wai Kwok. **A Two-Stage Approach for Automated Prostate Lesion Detection and Classification with Mask R-CNN and Weakly Supervised Deep Neural Network**. MICCAI Workshop on Artificial Intelligence in Radiation Therapy. 2019.

Yat Long Lo, Chung Yu Woo and Ka Lok Ng. **The Necessary Roadblock to Artificial General Intelligence: Corrigibility**. AI Matters. 2019. (**Winner of 2018 ACM SIGAI Student Essay Contest on Artificial Intelligence Technologies**)

Subham De, Shreyans Chowdhary, Aniket Shirke, **Yat Long Lo**, Robin Kravets, and Hari Sundaram. **Finding by counting: a probabilistic packet count model for indoor localization in BLE environments**. In Proceedings of the 11th Workshop on Wireless Network Testbeds, Experimental evaluation & Characterization, pp. 67-74. ACM, 2017.

Larry Di Girolamo, Shashank Bansal, M. Butler, Dongwei Fu, Yizhao Gao, H. Joe Lee, Yan Liu, **Yat Long Lo**, David Raila, Kandace Turner et al. **The Terra Data Fusion Project: An Update**. In AGU Fall Meeting Abstracts. 2017.

INDUSTRY EXPERIENCE

Senior Research Engineer, Dyson Robot Learning Lab, Dyson
February 2023 – Current

- ❖ *Lead and contribute to robot learning research projects*
- ❖ *Develop sample-efficient imitation learning and reinforcement learning algorithms for robot manipulation*
- ❖ *Contribute and maintain robot learning training infrastructure and codebases*

- ❖ *Sample project: diffusion-based imitation learning algorithm for semantic generalization in robotic manipulation*
- ❖ *Supervised by Dr. Stephen James*

Co-founder, Rooka
February 2023 – Current
- ❖ *Co-founded and led the technical development at Rooka, a start-up offering [a legal drafting assistant](#) powered by large language models.*
- ❖ *Led the research effort in applying natural language processing techniques and large language models for low-resource languages like Czech, Polish, and Slovak. The technology used includes LangChain and LlamaIndex*

AI Researcher – DRL for Power Markets, Shell Research
July 2022 – February 2023
- ❖ *Recipient of Special Recognition Award in Artificial Intelligence*
- ❖ *Provided subject-matter expertise and technical leadership across the team's AI portfolio projects*
- ❖ *Worked closely with traders to develop time-series prediction models*
- ❖ *Developed reinforcement learning models for energy trading-related applications*
- ❖ *Sample projects: AI for battery trading, solar fuel cell control, wind farm control*

Machine Learning Scientist Intern, Chief Technology Office-Solution Incubation Team, Zebra Technologies
September 2021 – June 2022
- ❖ *Developed machine learning tools for warehouse automation (e.g., task scheduling)*
- ❖ *Conducted research on large-scale multi-agent systems in warehouses*
- ❖ *Supervised by Dr. Biswa Sengupta*

Junior Developer – Machine Learning (Micro-Internship), EcoSync Oxford
December 2020
- ❖ *Optimized the company's deep reinforcement learning codebase – 400x Speedup*
- ❖ *Integrated a prediction model into the reinforcement learning codebase as a simulator*

Research Intern, Fano Labs
June-August 2018
- ❖ *Conducted research on natural language processing*
- ❖ *Research Focus: Universal sentence representation for low-resource languages (e.g. Cantonese) with deep neural networks*
- ❖ *Side focus: Developed deep learning models for Chinese character recognition in videos*
- ❖ *Supervised by Professor Albert Y.S. Lam*

Data Science intern, Inference Analytics
July-September 2017
- ❖ *Inference Analytics is a data analytics startup company based in Chicago*
- ❖ *Worked on the development of a recommendation engine with real customer data with tools including PySpark and Keras*
- ❖ *Made use of deep neural networks for next-basket recommendation*

Intern, Developer Experience Group, Microsoft
June-August 2016
- ❖ *Built demos making use of Microsoft's Technology, E.g. IOT weather station demo, Universal Windows Applications, Smart Mirror Application*
- ❖ *Technologies/Techniques used: C#, SQL, SQL Server, Microsoft Azure, JSON over HTTP, Server/Client Architecture*

Developer Intern, QWeUs Ltd
January-May 2016
- ❖ *QWeUs is a startup company in mobile gaming stationed at Cyberport*
- ❖ *Developed mobile game applications with C# on Unity Engine*

Internship Trainee (Mobile Application Development), PokeGuide Ltd
July-December 2015
- ❖ *Developed features including geolocation, navigation and shop browsing system on the Android mobile application*
- ❖ *Created the company's website*
- ❖ *Conducted business negotiations with shops in Hong Kong and strategic planning of application launch*

RESEARCH EXPERIENCE

Research Visitor, Reinforcement Learning and Artificial Intelligence Laboratory, Alberta Machine Intelligence Institute, University of Alberta
November 2018 – February 2020
- ❖ *Conducted research on reinforcement learning focusing on step-size (learning rate) selection methods and catastrophic interference in online reinforcement learning agent*
- ❖ *Supervised by Professor Richard Sutton*

Research Assistant, Group for Interventional Robotic and Imaging System, University of Hong Kong
July 2018 – September 2019
- ❖ *Conducted research on applying artificial intelligence and deep learning techniques to medical images*
- ❖ *Developed reinforcement learning agent to localize prostate lesions and lung opacities in MRI and X-ray images*
- ❖ *Supervised by Professor Ka Wai Kwok*

Machine Learning Researcher, capstone research project on depression detection with machine learning, University of Hong Kong
January 2018 – June 2018
- ❖ *Conducted research on classifying detection from social media text using various machine learning methods like support vector machines and deep neural networks*
- ❖ *Achieved an accuracy of 85%, using multichannel convolutional neural network, trained on both Chinese and English social media text data*
- ❖ *Received Certificate of Merit in IEEE (HK) Computational Intelligence Chapter FYP & PG Competition 2017-18*
- ❖ *Supervised by Professor Michael Chau*

Research Assistant, Business Analytics Laboratory, Faculty of Business, University of Hong Kong
Oct 2017 – June 2018
- ❖ *Provided technical work to on-going business analytics research projects in data mining, text mining and data crawling*
- ❖ *Supervised by Professor Michael Chau*

Research Assistant, National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign
May- August 2017
- ❖ *Worked on Terra Data Fusion project, one of NASA's ACCESS projects*
- ❖ *Developed metadata generation programs for the data of the satellite TERRA, in compliant with NASA's standard*
- ❖ *Developed applications that handle and process petascale satellite data on supercomputer Blue Waters*
- ❖ *Supervised by Blue Water Professor – Professor Larry Di Girolamo, Dr. Guangyu Zhao and the HDF group*

ACCOMPLISHMENTS AND AWARDS

2nd runner up, AI Driving Olympics, International Conference on Robotics and Automation, IEEE
2019
- ❖ *Developed and deployed machine learning models (using reinforcement learning and imitation learning) onto robotic vehicle to participate in the Lane-following challenge of the competition*
- ❖ *Supervised by Professor Loretta Choi*

1st runner up, InnoTech Law Hackathon, Law Society of Hong Kong
2018
- ❖ *Developed a prototype to transcribe and summarize audio files using speech recognition and natural language processing technologies*

Winner, Cyberport University Partnership Programme, Cyberport, Hong Kong
2016
- ❖ *A financial technology (FinTech)-focused entrepreneurship programme*
- ❖ *Took business courses and received mentoring at Stanford Graduate School of Business*
- ❖ *Received HKD 100000 funding from Cyberport to further develop the award-winning FinTech project*
- ❖ *Developed and designed a virtual stock investment platform that aims to gamify the process to appeal to beginners*

1st runner up, National Finalist, Imagine Cup Hong Kong (Innovation), Microsoft
2016
- ❖ *Led a team of 5 people to develop a virtual reality mobile application using the Unity Engine*
- ❖ *Incorporated the concept of 'Memory Palace' into the application to improve one's learning efficiency*

VOLUNTEERING

Reviewer, ICML
2023, 2024
Reviewer, NeurIPS
2022, 2023

Programme Committee Member, AI for Agent-Based Modeling workshop, ICML
2022, 2023

Reviewer, IEEE Transactions on Intelligent Transportation Systems
September 2021

Senior Consultant, Oxford Strategy Group Digital
January-July 2021
- ❖ A machine learning consultancy project with startup companies CollectWise and BudFox
- ❖ *Develop time-series prediction models and automated trading model for cryptocurrencies trading*

Machine Learning Researcher, Rhodes Artificial Intelligence Lab (RAIL)
November 2020 – March 2022
- ❖ Work on improving an Informal Settlement Mapping too using machine learning in collaboration with the World Food Programme