Richie Lo Yat Long

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EDUCATION

University of Oxford

- Master of Science (Computer Science) – **(Distinction, Class of 2021)**
- 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)**
- 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)

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, 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

INDUSTRY EXPERIENCE

Applied Scientist II, GenAI/AGI, Amazon
November 2024 – Current

- *Conduct LLM research with a focus on post-training (keywords: SFT, RLHF, Tool Use, RL)*
- *Develop inference latency optimization methods (e.g., model-based routing) that are deployed to Alexa+*

Co-founder, Rooka
February 2023 – December 2024

- *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*

Senior Research Engineer, Dyson Robot Learning Lab, Dyson
February 2023 – July 2024

- *Led and contributed to robot learning research projects*
- *Developed sample-efficient imitation learning and reinforcement learning algorithms for robot manipulation*
- *Contributed and maintained robot learning training infrastructure and codebases*
- *Sample project: diffusion-based imitation learning algorithm for semantic generalization in robotic manipulation*
- *Supervised by Dr. Stephen James*

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*

Research Intern, Fano Labs
June-August 2018

- *Conducted research on unsupervised sentence representation for low-resource languages (e.g. Cantonese)*

- *Supervised by Professor Albert Y.S. Lam*

Intern, Developer Experience Group, Microsoft
June-August 2016

- *Built demos with Microsoft's Technology, E.g. IOT weather station demo, Universal Windows Applications, Smart Mirror Application*
- *Technologies used: C#, SQL, SQL Server, Microsoft 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.

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*

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*

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 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*