

# 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

### 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*

### 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 12<sup>th</sup> 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 11<sup>th</sup> 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 19<sup>th</sup> 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 11<sup>th</sup> 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

**2<sup>nd</sup> 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*

**1<sup>st</sup> 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*