Tin Yiu Lai

Australian Citizen
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Personal Statement

I am an enthusiastic individual who persuades to exceed expectations. Collaboration and working as a team always help me to think from new angles. I am interested in solving complex challenges while developing elegant solutions and algorithms. The world of abstract thinking brings the beauty of simplicity. To me, engineering is about simplifying complexity.

Education

Doctor of Philosophy *in Computer Science* — Mar 2018 – Jun 2022
Artificial Intelligence, Machine Learning and Robotics — *The University of Sydney*

- ▷ Doctoral thesis on—*Robot Learning and Planning with a Probabilistic Perspective*
- ▷ Research interests include statistical machine learning techniques, multiagent systems, motion planning and probabilistic predictions with applications in robotics

Bachelor of Science *in Computer Science*, *combined with* — Mar 2013 – Nov 2017
Bachelor of Engineering *in Structural* *(Honours Class I)* — *The University of Sydney*

- ▷ Computer Science major core studies included:
  - Algorithms & Data structures
  - Computational Complexity
  - Information Theory
  - Formal Language Theory
  - Object-Oriented Design
  - Artificial Intelligence
- ▷ Civil Engineering specialised in *Structural*, core studies included:
  - Finite Element Analysis
  - Steel Structural Behaviour
  - Geotechnical Techniques
  - Partial Differential Equations
  - Fluid Behaviour
  - Reinforce Concrete Design

Cherrybrook Technology High School, Cherrybrook, NSW 2126, Australia — Jan 2006 – Dec 2012

HSC Subjects in:
- English
- Engineering
- Mathematics
- Mathematics Ext.1
- Japanese
- Chemistry
- Physics

- ▷ Rank 1st in school in *Maths., Engineering*. HSC Band 6/E4 in in *Maths., Maths. Ext. 1, Engineering, Japanese*

Work & Experience

Mission Systems Pty Ltd — June 2022 – Present
Computer and Machine Learning Scientist — *Sydney, Australia*

· Design autonomy algorithms for defence-related robotics systems; applying ML in optimising for mission objectives

The University of Sydney Business School — Feb 2022 – Present
Business Analytic Teaching Assistant — *Sydney, Australia*

· Organise teaching materials as a TA on statistical and machine learning-based business analytic subjects, e.g., Time Series and Forecasting, Machine Learning and Data Mining in Business, etc.

Shoal Group Pty Ltd — Dec 2021 – July 2022
Machine Learning Engineer — *Canberra, Australia*

· Worked on maritime machine learning assurance, e.g., on Autonomous Underwater Vehicles (AUVs) operations

Department of Defence – Defence Innovation Network — Dec 2021 – Apr 2022
Shoal Group Machine Learning PhD Intern — *Canberra, Australia*

· Initiative of the NSW Government with the Defence Science and Technology (DST) Group from the Australian Department of Defence, to utilise STEM PhD students' research skills on defence related projects

· Worked with industry partner Shoal Group's *Blue Water R&D Team* on systematic analysis of using simulation derived synthetic SONAR data from autonomous maritime vehicles for underwater objection detection

School of Computer Science, University of Sydney Jul 2019 – Present
Computer Science Academic Staff *Sydney, Australia*

- Teach and provide guidance to students, including final year capstone projects and data science subjects
- Review materials used in classes, explain various topics, answers questions, and supervise exams

The University of Sydney Library Aug 2018 – June 2022
Peer Learning Advisor *Sydney, Australia*

- Provide roving peer to peer support to students from a range of disciplines
- Facilitate workshops, services, forums and online communities to engage and help students
- Prompt innovation technologies, e.g., 3D printer/scanner, CNC machine, vinyl cutter, recording studio, VR

National Institute of Informatics (NII) Jan 2019 – Mar 2019
Invited Researcher, Unmanned aircraft system Traffic Management (UTM) lab *Tokyo, Japan*

- Invited to an Unmanned aircraft system Traffic Management (UTM) lab on a deep learning based computer vision model, designed for drone-assisted applications such as search & rescue or surveillance, using only onboard hardware
- Developed a working prototype that can simultaneously performs real-time human detection and activity recognition using only the onboard camera and processing power on UAVs

University of Sydney – Indigenous Tutorial Assistance Scheme (ITAS) 2016 – 2019 (Seasonal)
Indigenous Tutorial Assistance Scheme Tutor *Sydney, Australia*

- Provided academic supports for indigenous students on subject concepts and exams—an academic initiative of the Commonwealth Government's tutorial support scheme *(Rehired in Apr–Jul 2016; May–Jul 2017; Apr–Oct 2018; Apr–Jul 2019)*

AECOM Dec 2016 – Feb 2017
Geotechnical Intern *138 Shatin Rural Committee Road, Hong Kong*

- Site monitoring on ELS (Excavation Lateral Support); check force balance/rotational moments within struts
- Designs multi-stages excavations and temporary working scaffold for structural support
- Schedules laboratory triaxial test of on-site drillholes, to obtain soil properties and site profile
- Use PLAXIS to obtain diaphragm walls forces, and SLOP/W & SEEP/W for modelling soil behaviour
- Involved in projects such as HK Metro Station Excavation, HK Airport Sub-sea Tunnel monitoring, etc.

Freelance Apr 2014 – Jan 2018 (Seasonal)
Freelance Software Developer *Remote / Sydney, Australia*

- Designs and maintains eBusiness service with SQL backend and web frontend; devised Java-based Android app for events

University of Sydney – Club & Societies Mar 2013 – Nov 2017
Voluntary uni club executive *Sydney, Australia*

- Organises, plans, and leads social activities to facilitate student engagement. Supervises general meeting and AGM with club executives. Communicats and organises events with uni coordinators, speakers, professors.

Meinhardt Group (C&S) Dec 2015 – Feb 2016
Structural Team Trainee *33-35 Wong Chuk Hang Rd, Hong Kong*

- Tasks includes modifying amendments for building department submission, updating CAD files of drafting, modelling collision impacts, verifying building standards calculations via ETABS & SAFE
- Worked as a group to check calculation of safety measure, e.g., connections and member capacity checking
- Created 3D models of structural interior or temporary work via software like Sketchup and Navisworks
- Involved in projects such as Ocean Park stadium tender, Boiler upgrades, HK airport hangar design

Self Employed Nov 2012 – Aug 2013
Private Tutor for High School students *Sydney, Australia*

- Develops lessons and activities on Maths & Physics for improving students' study skills and test scores

Awards, Grants & Scholarships

University of Sydney Completion Stipend Scholarship Jul 2022
Scholarships Office *Commonwealth Gov. of Australia & University of Sydney*

· Established to support HDR students to complete their research studies, funded by the Commonwealth Gov. of Australia

Defence Innovation Network Internship Scholarship Dec 2021 – Apr 2022
Defence Innovation Network (DIN) *Defence Science and Technology (DST) Group & NSW Gov.*
· Scholarship that funds PhD students who are partnered in the DIN Internship program—a university-led initiative to enhances NSW capacity on Defence R&D, for incorporating latest innovations within academics

Paulette Isabel Jones Completion Stipend Scholarship Dec 2021
Scholarships Office *University of Sydney*
· A gift from the late Paulette Isabel Jones to support Higher Degree by Research students in their research endeavour

Postgraduate Research Support Scheme (PRSS) June 2019; July 2020; Nov 2021
Faculty of Engineering – Higher Degree Research Administration Centre *University of Sydney*
· Provide direct support for postgraduate students on conference expenses, field costs, publication costs, etc.

University of Sydney Postgraduate Awards (UPA) Mar 2018
Scholarships Office *University of Sydney*
· Designed to assist with general living costs and are awarded to students of exceptional research potential to undertake a higher degree by research at the university

Research Training Program (RTP) Scholarships Mar 2018
Department of Education and Training *Commonwealth Gov. of Australia*
· RTP fees offset support and pays for the tuition fees of a higher degree by research (HDR) student

University of Sydney Honour Roll 2017
2017 University of Sydney Honour Roll *University of Sydney*
· Awarded to students of distinction through the conferral of graduates honours from the Faculty of Engineering and Information Technologies

School of Information Technologies High Honour Roll Apr 2016
School of IT 2016 Awards Ceremony *University of Sydney*
· Awarded to individuals with distinguishing results in IT unit of studies in 2015

School of Civil Engineering Paddle Pop Stick Bridge Competition Jun 2014
School of Civil Engineering (joint sponsored by Robert Bird Group & Talis Civil Pty Ltd) *University of Sydney*
· Competition on designing paddle pop stick bridges with maximum structural efficiency (best strength-to-mass ratio)
· Won competition with cash-prize: 2nd Prize $450 (overall) + Best on Afternoon $100 (class division)

Distinguished Achievers Award 2012
2012 Higher School Certificate (HSC) *NSW Board of Studies, Australia*
· Certificates for *Distinguish Achievement* (highest level of performance) in HSC: awarded for (i) *Mathematics*, (ii) *Mathematics Extension 1*, (iii) *Engineering Studies*, and (iv) *Japanese Beginners*

High School Academic Award 2012
Year 12 Academic Award Ceremony *Cherrybrook Technology High School*
· Academic Awards for ranking 1st in (i) *Mathematics*, and (ii) *Engineering Studies* in the entire school

Academic Works

Tin Lai. Real-Time Aerial Detection and Reasoning on Embedded-UAVs in Rural Environments. *IEEE Transactions on Geoscience and Remote Sensing*, 61:1–7, 2023 [article, arXiv]

Xiaoting Xu, Tin Lai, Sayka Jahan, Farnaz Farid, and Abubakar Bello. A Machine Learning Predictive Model to Detect Water Quality and Pollution. *Machine Learning Perspective in the Convolutional Neural Network Era,* Special Issue of *Future Internet*, 14(11):324, 2022 [article]

Tin Lai. Discover Life Skills for Planning as Bandits via Observing and Learning How the World Works. In *IEEE/RSJ Proceedings of The International Conference on Intelligent Robots and Systems (IROS)*, pages 11360–11365. IEEE, 2022 [article, arXiv]

Tin Lai and Fabio Ramos. LTR*: Rapid Replanning in Executing Consecutive Tasks with Lazy Experience Graph. In *IEEE/RSJ Proceedings of The International Conference on Intelligent Robots and Systems (IROS)*, pages 8784–8790. IEEE, 2022 [article, arXiv]

Tin Lai. A Review on Visual-SLAM: Advancements from Geometric Modelling to Learning-Based Semantic Scene Understanding using Multi-Modal Sensor Fusion. *Simultaneous Localization and Mapping for Mobile Robot Navigation,* Special Issue of *Sensors*, 22(19):7265, 2022 [article, arXiv]

Hansel Hu, Tin Lai, and Farnaz Farid. Feasibility study of constructing a screening tool for adolescent diabetes detection applying machine learning methods. *Applications of Body Worn Sensors and Wearables,* Special Issue of *Sensors*, 22(16):6155, 2022 [article]

Weiming Zhi, Tin Lai, Lionel Ott, Edwin Bonilla, and Fabio Ramos. Learning Efficient and Robust Ordinary Differential Equations via Invertible Neural Networks. In *Proceedings of the 39th International Conference on Machine Learning (ICML)*, volume 162 of *Proceedings of Machine Learning Research*, pages 27060–27074. PMLR, 2022 [article, arXiv, video]

Weiming Zhi, Tin Lai, Lionel Ott, and Fabio Ramos. Diffeomorphic Transforms for Generalised Imitation Learning. In *Proceedings of The 4th Annual Learning for Dynamics and Control Conference (L4DC)*, volume 168 of *Proceedings of Machine Learning Research*, pages 508–519. PMLR, 2022 [article]

Tin Lai, Weiming Zhi, Tucker Hermans, and Fabio Ramos. L4KDE: Learning for KinoDynamic Tree Expansion. *Computing Research Repository (CoRR)*, 2022 [arXiv]

Tin Lai, Weiming Zhi, Tucker Hermans, and Fabio Ramos. Parallelised Diffeomorphic Sampling-based Motion Planning. In *Proceedings of the 5th Conference on Robot Learning (CoRL)*, volume 164 of *Proceedings of Machine Learning Research*, pages 81–90. PMLR, 2022 [article, arXiv]

Tin Lai and Fabio Ramos. Adaptively Exploits Local Structure with Generalised Multi-Trees Motion Planning. *IEEE Robotics and Automation Letters (RA-L)*, 7(2):1111–1117, 2022 [article, arXiv]

Xipei Wang, Haoyu Zhang, Yuanbo Zhang, Meng Wang, Jiarui Song, Tin Lai, and Matloob Khushi. Learning Non-Stationary Time-Series with Dynamic Pattern Extractions. *IEEE Transactions on Artificial Intelligence (TAI)*, 3(5):778–787, 2022 [article, arXiv]

Tin Lai. `sbp-env`: A python package for sampling-based motion planner and samplers. *Journal of Open Source Software*, 6(66):3782, 2021 [article, arXiv]

Tin Lai and Fabio Ramos. PlannerFlows: Learning Motion Samplers with Normalising Flows. In *IEEE/RSJ Proceedings of The International Conference on Intelligent Robots and Systems (IROS)*, pages 2542–2548. IEEE, 2021 [article, arXiv]

Weiming Zhi, Tin Lai, Lionel Ott, and Fabio Ramos. Trajectory Generation in New Environments from Past Experiences. In *IEEE/RSJ Proceedings of The International Conference on Intelligent Robots and Systems (IROS)*, pages 7911–7918. IEEE, 2021 [article, arXiv]

Weiming Zhi, Tin Lai, Lionel Ott, and Fabio Ramos. Anticipatory Navigation in Crowds by Probabilistic Prediction of Pedestrian Future Movements. In *Proceedings of The International Conference on Robotics and Automation (ICRA)*, pages 8459–8464. IEEE, 2021 [article, arXiv]

Tin Lai and Philippe Morere. Robust hierarchical planning with policy delegation. *Computing Research Repository (CoRR)*, 2020 [arXiv]

Tin Lai, Philippe Morere, Fabio Ramos, and Gilad Francis. Bayesian local sampling-based planning. *IEEE Robotics and Automation Letters (RA-L)*, 5(2):1954–1961, April 2020 [article, arXiv]

Tin Lai, Weiming Zhi, and Fabio Ramos. Occ-traj120: Occupancy maps with associated trajectories. *Computing Research Repository (CoRR)*, 2019 [arXiv]

Rúben Geraldes, Artur Gonçalves, Tin Lai, Mathias Villerabel, Wenlong Deng, Ana Salta, Kotaro Nakayama, Yutaka Matsuo, and Helmut Prendinger. UAV-based situational awareness system using deep learning. *IEEE Access*, 7:122583–122594, 2019 [article, video]

Tin Lai, Fabio Ramos, and Gilad Francis. Balancing global exploration and local-connectivity exploitation with rapidly-exploring random disjointed-trees. In *Proceedings of The International Conference on Robotics and Automation (ICRA)*, pages 5537–5543. IEEE, 2019 [article, arXiv, video]

Faham Tahmasebinia, Marjo Niemelä, Sanee Ebrahimzadeh Sepasgozar, Tin Lai, Winson Su, Kakarla Reddy, Sara Shirowzhan, Samad Sepasgozar, and Fernando Marroquin. Three-dimensional printing using recycled high-density polyethylene: Technological challenges and future directions for construction. *Buildings*, 8(11):165, 2018 [article]

Tin Lai. Numerical modelling of structural behaviour of continuously reinforced concrete pavement. Bachelor's Honours Thesis, The University of Sydney, Oct 2017 [engrXiv]

Professional Activities

Teaching Experience (at *The University of Sydney*)

- 2023 S1C - *QBUS6810 Statistical Learning and Data Mining*
- 2023 S1C - *COMP5703/DATA5703 Capstone Project*
- 2022 S2C - *QBUS6830 Financial Time Series and Forecasting*
- 2022 S2C - *QBUS3840 Choice Modelling*
- 2022 S2C - *COMP5703/DATA5703 Capstone Project*
- 2022 S1C - *COMP5703/DATA5703 Capstone Project*
- 2022 S1C - *QBUS3820 Machine Learning and Data Mining in Business*
- 2022 S1C - *QBUS3850 Time Series and Forecasting*
- 2021 S2C - *COMP5703/DATA5703 Capstone Project*
- 2021 S2C - *COMP5310 Principles of Data Science*
- 2021 S1C - *COMP5703/DATA5703 Capstone Project*
- 2020 S2C - *COMP5703/DATA5703 Data Science Capstone Project*
- 2020 S2C - *DATA1002/DATA1902 Informatics: Data and Computation*
- 2020 S1C - *COMP5703/DATA5703 Data Science Capstone Project*
- 2019 S2C - *DATA1002/DATA1902 Informatics: Data and Computation*
- 2019 S2C - *ITAS for COMP2007/COMP2907 Algorithm and Complexity*
- 2019 S2C - *ITAS for INFO1105 Data Structure*
- 2019 S2C - *COMP5703/DATA5703 Data Science Capstone Project*
- 2018 S2C - *ITAS for COMP2007/COMP2907 Algorithm and Complexity*
- 2017 S1C - *ITAS for COMP3109 Programming Language and Paradigm*
- 2017 S1C - *ITAS for INFO1105 Data Structure*
- 2016 S1C - *ITAS for COMP2007/COMP2907 Algorithm and Complexity*
- 2016 S1C - *ITAS for INFO1103 Introduction to Programming*

Review Activities for Journals and Conferences

- 2023 *IEEE - Robotics and Automation Letters (RA-L)*
- 2023 *IEEE - The International Conference on Robotics and Automation (ICRA)*
- 2022 *IEEE/RSJ - The International Conference on Intelligent Robots and Systems (IROS)*
- 2022 *MDPI - Applied Sciences (ISSN 2076-3417)*

- 2022 *MDPI - Energies (ISSN 1996-1073)*
- 2022 *Frontiers Media SA - Frontiers in Robotics and AI (ISSN 2296-9144)*
- 2022 *SAGE - International Journal of Advanced Robotic Systems (IJARS)*
- 2022 *MDPI - Buildings (ISSN 2075-5309)*
- 2021 *IEEE/RSJ - The International Conference on Intelligent Robots and Systems (IROS)*
- 2021 *MDPI - Applied Sciences (ISSN 2076-3417)*
- 2021 *MDPI - Buildings (ISSN 2075-5309)*
- 2021 *SAGE - International Journal of Advanced Robotic Systems (IJARS)*
- 2021 *MDPI - ISPRS International Journal of Geo-Information (IJGI) (ISSN 2220-9964)*
- 2021 *IEEE - The International Conference on Robotics and Automation (ICRA)*
- 2020 *IEEE/RSJ - The International Conference on Intelligent Robots and Systems (IROS)*
- 2020 *IEEE - The International Conference on Robotics and Automation (ICRA)*
- 2020 *SAGE - International Journal of Advanced Robotic Systems (IJARS)*
- 2020 *MDPI - ISPRS International Journal of Geo-Information (IJGI) (ISSN 2220-9964)*
- 2020 *MDPI - Applied Sciences (ISSN 2076-3417)*
- 2020 *MDPI - Buildings (ISSN 2075-5309)*
- 2019 *IEEE - The International Conference on Robotics and Automation (ICRA)*
- 2019 *PMLR - Conference on Neural Information Processing Systems Workshop (NeurIPS)*

Talks, Seminars, and Tours

- 2022 Oct. IROS (Kyoto): *Discover life skills for planning with bandits via learning how the world works*
- 2022 Oct. IROS (Kyoto): *Rapid Replanning in Consecutive Pick-and-Place Tasks with Lazy Experience Graph*
- 2021 Nov. CoRL (London/virtual): *Parallelised Diffeomorphic Sampling-basedMotion Planning*
- 2021 Oct. USYD PeerPod Podcast: *"Ask HDR" - What I wish I knew when I started my PhD*
- 2021 Sep. IROS (Czech Republic/virtual): *Learning Motion Samplers with Normalising Flows*
- 2021 Aug. U.Sydney Library: *Think. Create. Innovate.*
- 2021 May. U.Sydney Library: *Technology Tour on Drone and VR Demonstration*
- 2021 Mar. U.Sydney Library: *New Semester Welcoming Week Tour at Fisher Library*
- 2021 Mar. U.Sydney Faculty of Science: *Think. Create. Innovate.*
- 2020 Feb. U.Sydney Library: *University of Sydney Library Tour*
- 2020 Feb. U.Sydney Faculty of Engineering: *Engineering New Students Orientation*
- 2019 Sep. U.Sydney HDR Talk: *"How to HDR" - Experience on getting started as a PhD*
- 2019 Aug. Reading Group: *Presenting recent works on Learning-based Motion Planing and Predictions*
- 2019 Jul. U.Sydney Faculty of Engineering: *Postgraduate Welcoming Talk for Commencing Students*
- 2019 May. ICRA (Montreal): *Balancing Global Exploration and Local-Conn. Exploitation with RRdT*
- 2019 Mar. NII (Tokyo): *Simultaneous Pedestrians Detection and Multi-Activities Recognition*
- 2018 Oct. CTDS Reading Group: *Presenting recent advancements on Gaussian Process*

Technology Workshops

- 2022 Jun. U.Sydney ThinkSpace: *Programmable Electronics: Learn to fly & code with Tello Drone*
- 2022 May U.Sydney CreateSpace: *Workshop on 3D Scanning and Techniques*
- 2022 Apr. U.Sydney ThinkSpace: *Programmable Electronics: Learn to fly & code with Tello Drone*
- 2021 Oct. U.Sydney CreateSpace: *Workshop on 3D Modelling with Fusion 360 (online)*
- 2021 Oct. U.Sydney CreateSpace: *Workshop on 3D Printing & Modelling (online)*
- 2021 Sep. U.Sydney CreateSpace: *Workshop on 3D Printing & Modelling (online)*
- 2021 Jun. U.Sydney CreateSpace: *Workshop on 3D Scanning and Techniques*
- 2021 Jun. U.Sydney School of Physics: *Flexible Learning Space for Day Conference*
- 2021 May. U.Sydney ThinkSpace: *Programmable Electronics: Learn to fly & code with Tello Drone*
- 2021 May. U.Sydney CreateSpace: *Workshop on 3D Printing 101 (hybrid)*
- 2021 Apr. U.Sydney School of Business: *BUS5221 Q&A session*
- 2021 Apr. U.Sydney CreateSpace: *Workshop on 3D Printing 101 (hybrid)*
- 2021 Mar. U.Sydney CreateSpace: *Workshop on 3D Scanning and Techniques*
- 2021 Mar. U.Sydney Library: *Student Orientation on Plan Your Semester*

- 2021 Mar. U.Sydney CreateSpace: *Workshop on 3D Scanning and Techniques*
- 2021 Mar. U.Sydney ThinkSpace: *Workshop on 3D Printing 101*
- 2021 Mar. U.Sydney ThinkSpace: *Workshop on Programming with Drone*
- 2020 Oct. U.Sydney ThinkSpace: *Drone Workshop for Student Experience Team Development Day*
- 2020 Mar. OzBerry: *Workshop on Open Source Hardware & Softwave*
- 2020 Mar. U.Sydney ThinkSpace: *Workshop on Programming with Drone*
- 2020 Feb. U.Sydney ThinkSpace: *Workshop on CNC Carving Machine*
- 2019 Oct. U.Sydney ThinkSpace: *Workshop on Programming with Drone*
- 2019 Sep. OzBerry: *Workshop on Open Source Hardware & Softwave*
- 2019 Sep. U.Sydney ThinkSpace: *Workshop on Soldering Techniques*
- 2019 Jul. U.Sydney ThinkSpace: *Workshop on 3D Printing 101*
- 2019 May. U.Sydney ThinkSpace: *Workshop on CNC Router Machine and Design*
- 2019 Apr. OzBerry: *Workshops on Open Source Hardware & Softwave*
- 2018 Dec. OzBerry: *Workshops on Open Source Hardware & Software, e.g., Arduino, RaspberryPi, Beaglebone, Open WRT, Android, etc.*

Program Committees

- 2021–*Present* U.Sydney Library: "How to HDR (Higher Degree by Research)" Podcast Preparation
- 2021–*Present* U.Sydney ThinkSpace/CreateSpace: Design workshops learning outcomes and curriculum
- 2020–*Present* U.Sydney ThinkSpace/CreateSpace: Technology workshops Organiser
- 2019–2020 U.Sydney ThinkSpace: Technology workshops Organiser

Seasonal University-wise Services

- 2019–*Present* U.Sydney AIU: Academic consultations for students in breach of academic integrity
- 2019–*Present* U.Sydney ThinkSpace/CreateSpace: Workshops on CNC, 3D printing, VR, Electronics
- 2019–*Present* U.Sydney Exam Ready—Workshops on outlining exam study and preparation plan
- 2019–*Present* U.Sydney Library: Focus & Study—Workshop on the Pomodoro technique

Personal Strengths

Key Skills

Critical thinking in approaching challenges
Quick adaptation in unseen environment
Visualise complex problem w/ abstract thinking

Language

Bilingual in *English, Cantonese*
Basic in *Mandarin, Japanese*

Technical Strengths

Computer Languages	C, C++, Python, FORTRAN, Java, Rust, Go, LaTeX, PostgreSQL, HTML, PHP, jQuery, JavaScript, CoffeeScript, TypeScript, MATLAB, R, VBA, Shell Scripts (`POSIX shell/bash/fish/DOS batch`), Processing, Lisp, Haskell, ProLog, ANTLR4
Professional Applications	AutoCAD, MatLab, Google Sketchup, Weka, Strand7, Abaqus FEA, RAPT, ETAB, SAFE, PLAXIS, SLOP/W, SEEP/W, Navisworks, Visual Studio, Robot Operating System (ROS) framework, MOOS-IvP
General Software & Tools	Microsoft Office suite, iWork, Adobe Photoshop/Illustrator
Operating Systems	Linux variants, Windows
Miscellaneous	Software configuration management, strong verbal and written communication skills, excellent troubleshooting and debugging skills, exceptional problem solving skills