

# TIN YIU LAI

Australian Citizen

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## PERSONAL STATEMENT

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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

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**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 1<sup>st</sup> in school in *Maths., Engineering.* HSC Band 6/E4 in *Maths., Maths. Ext. 1, Engineering, Japanese*

## WORK & EXPERIENCE

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**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***Computer Science Academic Staff*

Jul 2019 – Present

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***Peer Learning Advisor*

Aug 2018 – June 2022

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)***Invited Researcher, Unmanned aircraft system Traffic Management (UTM) lab*

Jan 2019 – Mar 2019

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)***Indigenous Tutorial Assistance Scheme Tutor*

2016 – 2019 (Seasonal)

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***Geotechnical Intern*

Dec 2016 – Feb 2017

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***Freelance Software Developer*

Apr 2014 – Jan 2018 (Seasonal)

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***Voluntary uni club executive*

Mar 2013 – Nov 2017

Sydney, Australia

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

**Meinhardt Group (C&S)***Structural Team Trainee*

Dec 2015 – Feb 2016

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***Private Tutor for High School students*

Nov 2012 – Aug 2013

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***Scholarships Office*

Jul 2022

Commonwealth Gov. of Australia &amp; 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 enhance 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: 2<sup>nd</sup> 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 1<sup>st</sup> in (i) *Mathematics*, and (ii) *Engineering Studies* in the entire school

## ACADEMIC WORKS

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- 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 (LADC)*, 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 Galdes, 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, Sane Ebrahimzadeh Sepasgozar, Tin Lai, Winson Su, Kakarla Reddy, Sara Shirozhan, 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

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### 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-based Motion 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 Planning 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 & Software*
- 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 & Software*
- 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 & Software*
- 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

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#### 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

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#### 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