

TIN YIU LAI

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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.

WORK & EXPERIENCE

- Fait Corporation Pty Ltd** Brisbane, Australia
Chief Technology Officer June 2024 – Present
- Lead the design and deployment of next-generation electric Vertical Take-Off and Landing (eVTOL) systems and sustainable aerospace technologies, integrating data-driven AI for autonomous decision-making, and digital twin asset management
 - Oversee the end-to-end tech stack for AAM platforms, including computer vision systems, propulsion design, sensor integration, flight control software, mission planning, emergency protocols, comm systems, and overall system integration
- Chief of Autonomy* Jan 2024 – June 2024
- Design autonomy system architecture for eVTOL aircraft, including vision, trajectory planning, control and optimisation
- Mission Systems Pty Ltd** Jun 2022 – Jan 2024
Computer and ML Scientist Lead Sydney, Australia
- Develop autonomy algorithms for defence-related robotic with ML to optimise mission performance & decision-making
- Shoal Group Pty Ltd** Dec 2021 – Jul 2022
Machine Learning Engineer Canberra, Australia
- Systematic analysis of using simulation derived synthetic SONAR data from AUVs for underwater objection detection
- Department of Defence – Defence Innovation Network** Dec 2021 – Apr 2022
Shoal Group Machine Learning PhD Intern Canberra, Australia
- Initiative of NSW Gov. & Aus. Dept. of Defence DSTG, to utilise STEM PhD students' research on defence related projects
- The University of Sydney** Sydney, Australia
Business Analytic Teaching Assistant · University of Sydney Business School Feb 2022 – Jan 2024
- Organise Master's-level teaching materials on: *Time Series & Forecasting, Machine Learning & Data Mining in Business*, etc.
- Computer Science Academic Staff · School of Computer Science* Jul 2019 – Jan 2024
- Teach, prepare materials, provide guidance and support to Master's-level data science subjects and capstone projects
- Research Assistant · School of Physics* Sep 2023 – Dec 2023
- Launched an astrophysics dashboard to visualise radio sources detected in the VAST survey for interactive data exploration
- Learning Advisor · The University of Sydney Library* Aug 2018 – Jun 2022
- Provide peer to peer support, facilitate workshops/services on: 3D printer/scanner, CNC machine, recording studio, VR
- ITAS Tutor · Indigenous Tutorial Assistance Scheme* 2016 – 2019 (Seasonal)
- Voluntary uni club executive · Club & Societies* Mar 2013 – Nov 2017
- Western Sydney University** Sydney, Australia
Cybersecurity Workshop Organiser · School of Computer, Data and Mathematical Sciences Sep 2023 – Feb 2024
- Research Assistant · School of Social Science* 2022 - 2024 (Seasonal)
- Digital trust initiatives using ML for detecting malicious activity in IoT & fraudulent behaviour in social computing contexts
- Freelance Technology Consultant** Apr 2013 – Jan 2021 (Seasonal)
Freelance Software Developer Remote / Sydney, Australia
- National Institute of Informatics (NII)** Jan 2019 – Mar 2019
Invited Researcher · Unmanned aircraft system Traffic Management (UTM) lab Tokyo, Japan
- AECOM** Dec 2016 – Feb 2017
Geotechnical Intern 138 Shatin Rural Committee Road, Hong Kong

Meinhardt Group (C&S)

Structural Team Trainee

Dec 2015 – Feb 2016
33-35 Wong Chuk Hang Rd, Hong Kong**EDUCATION**

Doctor of Philosophy in Computer Science*Artificial Intelligence, Machine Learning and Robotics*▷ Doctoral thesis on—*Robot Learning and Planning with a Probabilistic Perspective*

Mar 2018 – Jun 2022

*The University of Sydney***Bachelor of Science in Computer Science, combined with****Bachelor of Engineering in Structural (Honours Class I)**▷ Computer Science studies include: *Algorithms, Data structures, Computational Complexity, Artificial Intelligence*▷ Structural Engineering include: *FEA Modelling, Partial Differential Equations, Fluid Behaviour, Structural Analysis*

Mar 2013 – Nov 2017

*The University of Sydney***Cherrybrook Technology High School, Cherrybrook, NSW 2126, Australia**▷ Rank 1st in school in *Maths., Engineering*. HSC Band 6/E4 in *Maths., Maths. Ext. 1, Engineering, Japanese*

Jan 2006 – Dec 2012

AWARDS, GRANTS & SCHOLARSHIPS

University of Sydney Completion Stipend Scholarship*Scholarships Office*Jul 2022
*Commonwealth Gov. of Australia & University of Sydney***Defence Innovation Network Internship Scholarship***Defence Innovation Network (DIN)*Dec 2021 – Apr 2022
*Defence Science and Technology (DST) Group & NSW Gov.***Paulette Isabel Jones Completion Stipend Scholarship***Scholarships Office*Dec 2021
*University of Sydney***Postgraduate Research Support Scheme (PRSS)***Faculty of Engineering – Higher Degree Research Administration Centre*June 2019; July 2020; Nov 2021
*University of Sydney***University of Sydney Postgraduate Awards (UPA)***Scholarships Office*Mar 2018
*University of Sydney***Research Training Program (RTP) Scholarships***Department of Education and Training*Mar 2018
*Commonwealth Gov. of Australia***University of Sydney Honour Roll***2017 University of Sydney Honour Roll*2017
*University of Sydney***School of Information Technologies High Honour Roll***School of IT 2016 Awards Ceremony*Apr 2016
*University of Sydney***School of Civil Engineering Paddle Pop Stick Bridge Competition***School of Civil Engineering (joint sponsored by Robert Bird Group & Talis Civil Pty Ltd)*Jun 2014
*University of Sydney***Distinguished Achievers Award***2012 Higher School Certificate (HSC)*2012
*NSW Board of Studies, Australia***High School Academic Award***Year 12 Academic Award Ceremony*2012
*Cherrybrook Technology High School***TECHNICAL STRENGTHS**

Computer Languages	C, C++, Python, Rust, FORTRAN, CUDA, WGSL, Java, Kotlin, Go, \LaTeX , SQL, jQuery, PHP, JavaScript, TypeScript, MATLAB, R, VBA, Shell Scripts (POSIX shell/bash/fish/DOS batch), Processing, Lisp, Haskell, ProLog, ANTLR4
AI & ML Tools	Pytorch, MLflow, DVC, Prefect, Airflow, Hugging Face, LangChain, Jupyter
Infra & Observability	Docker, Nix, Ansible, Kubernetes, WireGuard, OpenTelemetry, Grafana, Prometheus
Middleware & Protocols	ROS, MOOS-IvP, Cap'nProto, Protobuf, RPC, ZeroMQ, MQTT, RESTful APIs
Professional Applications	AutoCAD, Google SketchUp, Weka, Strand7, Abaqus FEA, RAPT, ETABS, SAFE, PLAXIS, SLOPE/W, SEEP/W, Navisworks
Operating Systems	Linux variants (Arch, Ubuntu, Debian, CentOS, NixOS, etc.), Windows