

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.

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*
- 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 studies include: *Algorithms, Data structures, Computational Complexity, Artificial Intelligence*
▷ Structural Engineering include: *FEA Modelling, Partial Differential Equations, Fluid Behaviour, Structural Analysis*
- Cherrybrook Technology High School, Cherrybrook, NSW 2126, Australia** Jan 2006 – Dec 2012
▷ Rank 1st in school in *Maths., Engineering*. HSC Band 6/E4 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 on: *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
· 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
- School of Computer Science, University of Sydney** Jul 2019 – Present
Computer Science Academic Staff
Sydney, Australia
· Teach, provide guidance, supervise exams, explain & answer questions on capstone projects and data science subjects
- The University of Sydney Library** Aug 2018 – June 2022
Peer Learning Advisor
Sydney, Australia
· Provide peer to peer support, facilitate workshops/services on: 3D printer/scanner, CNC machine, recording studio, VR
- National Institute of Informatics (NII)** Jan 2019 – Mar 2019
Invited Researcher, Unmanned aircraft system Traffic Management (UTM) lab
Tokyo, Japan
· Developed a deep learning based real-time search & rescue computer vision models for embedded hardware on UAVs
- University of Sydney – Indigenous Tutorial Assistance Scheme (ITAS)** 2016 – 2019 (Seasonal)
Indigenous Tutorial Assistance Scheme Tutor
Sydney, Australia
- AECOM** Dec 2016 – Feb 2017
Geotechnical Intern
138 Shatin Rural Committee Road, Hong Kong
- Freelance** Apr 2014 – Jan 2018 (Seasonal)
Freelance Software Developer
Remote / Sydney, Australia

University of Sydney – Club & Societies
Voluntary uni club executive

Mar 2013 – Nov 2017
Sydney, Australia

Meinhardt Group (C&S)
Structural Team Trainee

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

AWARDS, GRANTS & SCHOLARSHIPS

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

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