

OSCAR 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 in a new angle. I am interested in solving complex challenges while developing an elegant solution and algorithm. The world of abstract thinking brings the beauty of simplicity. To me, engineering is about simplifying complexity.

EDUCATION

University of Sydney, Camperdown, NSW 2006 Mar 2018 – Present

Doctor of Philosophy *in Engineering & Information Technologies*

- ▷ Research interests: Machine learning in field Robotics on Reinforcement Learning
- ▷ The aim is to develop reinforcement learning (RL) agent that can learn policies directly from high-dimensional sensory inputs, and makes value judgement based on both spatial and temporal scale by estimating total rewards that an agent can expected with minimal human interference.

University of Sydney, Camperdown, NSW 2006 Mar 2013 – Nov 2017

B. Civil Engineering *in Structural* & B. Science *in Computer Science (Honours Class I)*

- ▷ Civil Engineering specialised in Structural, core studies included:
 - Steel Structural Behaviour - Geotechnical Techniques - Fluid Behaviour
 - Reinforce Concrete Design - Site Surveying - Project Management
- ▷ Computer Science major core studies included:
 - Algorithm Complexity & Development - Language / Compiler Implementation
 - Object-Oriented Software Design - Artificial Intelligence

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

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

- ▷ First in school in *Mathematics, Engineering*.
- ▷ HSC Band 6/E4 in *Mathematics, Mathematics Extension 1, Engineering, Japanese*

PUBLICATIONS

Tin Lai, Fabio Ramos, and Gilad Francis. Balancing global exploration and local-connectivity exploitation with rapidly-exploring random disjointed-trees. In *2019 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE, Submitted for review ([video](#))

AWARDS & SCHOLARSHIPS

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 *Australian Government*

- Provides block grants to support both domestic and overseas students undertaking Research Doctorate and Research Masters degrees

School of Information Technologies High Honour Roll

Apr 2016

*School of IT 2016 Awards Ceremony**University of Sydney*

- Awarded to individuals with distinguish results in IT unit of studies in 2015

School of Civil Engineering Paddle Pop Stick Bridge Competition

Jun 2014

*School of Civil Eng. - Intro. to Eng. Disciplines (ENGG1800)**University of Sydney*

- Competition joint sponsored by *Robert Bird Group* and *Talis Civil Pty Ltd*, on designing and building a paddle pop stick bridge that has maximum structural efficiency (best strength-to-mass ratio)
- Won cash-prize: 2nd Prize \$450 (overall) + Best on Afternoon \$100 (class division)

Distinguished Achievers Award

2012

*2012 Higher School Certificate (HSC) in NSW**Cherrybrook Technology High School*

- Certificates for *Distinguish Achievement* (highest level of performance) in HSC: awarded for *Mathematics*, *Mathematics Extension 1*, *Engineering Studies*, and *Japanese Beginners*

High School Academic Award

2012

*Year 12 Academic Award Ceremony**Cherrybrook Technology High School*

- Academic Awards for ranking 1st in *Mathematics*, and *Engineering Studies* in the entire school

WORK & EXPERIENCE

University of Sydney Library

Aug 2018 – Present

*Peer Learning Advisor**University of Sydney, Australia*

- Provides 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 technology, e.g., 3D printer, digital carving machine, recording studio, and VR

University of Sydney – ITAS

Apr 2016 – Present (Seasonal)

*Indigenous Tutorial Assistance Scheme Tutor**University of Sydney, Australia*

- Help indigenous students whose in Indigenous Tutorial Assistance Scheme (ITAS), an academic initiative of the Commonwealth Government's tutorial support
- Academic supports for their understanding of academic concepts and assignments
- Rehired throughout different semesters (*Apr – Jul 2016; May – Jul 2017; Apr 2018 - Present*)

AECOM

Dec 2016 – Feb 2017

*Internship - Geotechnical Intern**138 Shatin Rural Committee Road, Hong Kong*

- Worked in a geo team that mainly focus on ELS (Excavation Lateral Support) and site monitoring
- Tasks included checking force balance/rotational moments within struts, designing different stages within an excavation, providing temporary work for structural support
- Schedule laboratory triaxial test of on-site drillholes, to obtain soil properties and site profile
- Use PLAXIS to obtain diaphragm walls forces, use SLOP/W and SEEP/W for modelling soil behaviour
- Involved in projects such as HK Metro Station Excavation, HK Airport Sub-sea Tunnel monitoring etc.

City University of Hong Kong

Dec 2015 – Dec 2016

*Part-time Voluntary Research Helper**Tat Chee Avenue, Kowloon, Hong Kong*

- Worked remotely on research project titled *Daylighting simulation in Hong Kong Buildings*
- Used Matlab to simulate the indoor lighting profile under different structural layouts

Meinhardt (C&S), Hong Kong Limited

Dec 2015 – Feb 2016

*Internship - Structural Team Trainee**33-35 Wong Chuk Hang Rd, Hong Kong*

- Work on amendments from building department, updates CAD files of drafting
- Modelling collision impacts, performing calculation via ETABS, SAFE etc. against building standards
- Work as a group to check calculation of safety measure, e.g., connections and member capacity checking
- Create 3D models of structural interior or temporary work via software like Sketchup and Navisworks
- Been involved in projects such as Ocean Park tender, Boiler upgrades, HK airport hangar design etc.

University of Sydney – Club & Societies

Mar 2013 – Nov 2017

Voluntary uni club executive

University of Sydney, Australia

- Organising, planning, and leading social activities that are targeted towards uni students
- Supervising and holding official meetings with other club executives
- Communicating with uni coordinators and professor whenever needed

Cherrybrook Technology High School

Nov 2012 – Aug 2013

Private tutor

Australia

- Provide private tutor twice a week to high school students taking Maths & Physics
- Develop lessons, activities to teach students with improved studying skills and test scores

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++, Java, Python, Go, L^AT_EX, PostgreSQL, HTML, PHP, jQuery, JavaScript, CoffeeScript, MATLAB, R, VBA, Shell Scripts, Processing, Lisp, Haskell, ProLog, ANTLR4

Professional Applications

AutoCAD, MatLab, Google Sketchup, Weka, Strand7, Abaqus FEA, RAPT, ETAB, SAFE, PLAXIS, SLOP/W, SEEP/W, Navisworks

General Software & Tools

Word, Excel, PowerPoint, Publisher, iWork, Adobe Photoshop, Illustrator

Operating Systems

Linux, MacOS X, Windows, ROS

Miscellaneous

Software configuration management, strong verbal and written communication skills, excellent troubleshooting and debugging skills, exceptional problem solving skills