



# SAM TOYER

2/7 Cowper St., Ainslie ACT 2602, Australia ✉

sam@qxcv.net @

+61 0466 477 040 ☎

## EDUCATION

**Bachelor of Advanced Computing (R&D, Honours)**  
Australian National University (ANU)  
GPA 7.0/7.0; University Medal

2014 - 2017

## PUBLICATIONS AND REPORTS

**Action Schema Networks: Generalised Policies with Deep Learning**

S. Toyer, F. Trevizan, S. Thiébaux, L. Xie (2017)

AAAI '18

**Generalised Policies for Probabilistic Planning with Deep Learning**

S. Toyer (2017)

ANU

(Honours thesis)

**Human Pose Forecasting via Deep Markov Models**

S. Toyer, A. Cherian, T. Han, S. Gould (2017)

DICTA '17

(oral)

**Publishing and Using Earth Observation Data with the RDF Data Cube and the Discrete Global Grid System**

D. Brizhinev, S. Toyer, K. Taylor, Z. Zhang (2017)

W3C Note

(w3.org/TR/eo-qb/)

**QBCov: A Linked Data Interface for Discrete Global Grid Systems**

Z. Zhang, S. Toyer, D. Brizhinev, M. Ledger, K. Taylor, M. Purss (2016)

AGU Fall Meeting '16

(extended abstract)

## RESEARCH EXPERIENCE

**Learning for planning (Honours thesis)**

Supervisors: Sylvie Thiebaux (ANU/Data61), Lexing Xie (ANU/Data61)

2017

Thesis used novel techniques from deep learning to obtain generalised solutions to probabilistic planning problems. First-author conference paper accepted to AAAI 2018.

**Numeric planning for conformant probabilistic planning**

Supervisor: Enrico Scala (ANU)

2016 - 2017

Devised strategies for translating conformant probabilistic planning problems into numerical planning problems. Presented findings in a seminar at Data61/CSIRO.

**Linked Earth observations**

Supervisors: Kerry Taylor (ANU), Matthew Purss (Geoscience Australia)

2016

Investigated the use of linked data and discrete global grid systems to represent satellite imagery. Led to seminar at Geoscience Australia, extended abstract at the AGU Fall Meeting, and publication of a W3C Note through the W3C/OGC Spatial Data on the Web Working Group.

**Projects in pose estimation**

Supervisor: Anoop Cherian (ANU/ACRV)

2015 - 2017

Completed two semester-long projects, both on the theme of improving human pose estimation in videos by making more effective use of temporal information. Continued to work on pose forecasting afterwards, leading to a publication at an Australian vision conference (DICTA 2017).

**Robust map-augmented localisation using particle filters**

Supervisor: Jose Alvarez (NICTA)

2015

Investigated and implemented a map-matching algorithm to improve vehicle localisation.

## EMPLOYMENT AND TEACHING EXPERIENCE

**Research Engineer**

Seasure Pty Ltd

2017 - present

First employee at a local startup, working full-time on methods for testing and debugging computer vision systems.

<b>Summer Scholarship</b> Australian National University	2016 - 2017
Worked on conformant probabilistic planning with Enrico Scala, as noted in “Research Experience”.	
<b>Tutor</b> Australian National University	2015 - 2017
Tutored Formal Methods in Software Engineering (2015), The Craft of Computing (2015-2017), Introduction to Programming for Data Scientists (2016-2017), and Artificial Intelligence (2017). Participated in the Tutor Quality Program in 2015-2017.	
<b>Summer Internship</b> Australian National University	2014 - 2015
Developed CodeBench, a web-based application for teaching Python programming. CodeBench has since been used in The Craft of Computing and Introduction to Programming for Data Scientists, and its development has continued over 2015 and 2016.	
<b>Tutor</b> Simply Tuition	2014 - 2015
Provided high school students with in-home tuition in mathematics, English and physics.	

## AWARDS

University Medal <i>ANU award which recognises “exceptional academic excellence”</i>	2017
CECS Citation for Outstanding Contribution to Student Learning (joint award with Stephen Gould, Mark Reid, Armin Haller and Jeffrey Fisher) <i>Awarded for work on two new introductory programming courses</i>	2016
Google Prize for Computer Science (Honours) <i>Annual award for third-year ANU computer science student with highest marks</i>	2016
College of Engineering and Computer Science Dean’s List	2014
Boyapati Computer Science & Mathematics Prize for First Year	2014
National University Scholarship (ANU) <i>Awarded to students with 99.90+ ATAR score—the top 0.27% of school-leavers</i>	2014 - 2017
Australian Student Prize <i>Government award for top 500 Australian high school graduates in each year</i>	2013

## CONFERENCES, WORKSHOPS, AND OTHER ACTIVITIES

International Conference on Digital Image Computing: Techniques and Applications (DICTA)	Conference (presenting)	2017
International Joint Conference on Artificial Intelligence (IJCAI)	Conference (attending)	2017
1 <sup>st</sup> Summer School on Cognitive Robotics, MIT	Summer school (attending)	2017