

# Alex Cummaudo

## Curriculum Vitae

Brunswick, VIC, Australia  
BSc, BIT(Hons), PhD(c)



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### > Experience

#### **Applied Artificial Intelligence Institute, Deakin University, Burwood** DEC 2016–MAY 2020

Research Software Engineer

##### RESPONSIBILITIES

- Translate the Institute's engineering outcomes to applied research contributions.
- Improve AI integration into existing software engineering and business requirements elicitation methodologies.

##### ACHIEVEMENTS

- Developed an end-to-end system to detect racing bib numbers with machine learning that is now deployed at a major events company in India; *helped to decrease time to send marathon photos to runners thereby increasing sales.*
- Developed image annotation software to assist with labelling photos with metadata fed into training computer vision models; *improved throughput for annotators to 11 sec per label and AI model evaluation accuracy to 95%.*

#### **SEEK Ltd, Melbourne** AUG 2015–FEB 2016

iOS Developer (Industry Placement)

##### RESPONSIBILITIES

- Responsible to the iOS development team in producing the flagship SEEK.com.au iPhone and iPad apps.

##### ACHIEVEMENTS

- Led development on a new app feature to prompt users to leave app feedback after applying for a job; *improved App Store ratings from 1 to 4.5 stars on launch-day alone.*
- Co-developed app feature to notify personalised job recommendations to candidates when they become available; *became a central selling-point of a successful marketing campaign in late-2015.*

#### **Swinburne NICTA Software Innovation Lab (SSIL), Hawthorn** AUG 2014–AUG 2015

Software Engineer

##### RESPONSIBILITIES

- Responsible for development of client and innovation projects.

##### ACHIEVEMENTS

- Led development for automated drone-flight software; *enabled novices to bypass the expense and learning curve of flying commercial drones by use of a web-based waypoint plotting system to take photos and videos of aerial shots.*
- Developed bus fleet prototype visualising over 950 busses en-route on over 30 bus routes in Kuala Lumpur; *replaced high-maintenance \$1000 GPS units with \$100 smartphones while still retaining visualisation accuracy to 5 metres.*
- Implemented the inaugural flagship website for SSIL, working with content and UI designers to create content; *significantly improved brand profile and search engine optimisation results of SSIL.*
- Created a web-based IDE to prototype Android apps; *reduced time to market for app prototype development.*

#### **LeadSoftware Pty Ltd, Melbourne** MAR 2014–AUG 2016

Freelance UI/UX Designer

##### RESPONSIBILITIES

- Led UX and UI design for FairFind mobile app.
- Led UX and UI design for on-board taxi dispatch systems and mobile apps.

##### ACHIEVEMENTS

- Conducted iterative prototype processes using a mix of whiteboard, Pixelmator, Keynote and FluidUI with clients; *improved processes for designing UX of company's apps.*
- Liaised with the development team to explain the UI mock-ups developed and provided feedback on implemented designs; *improved designs increased the app store rating of beta apps.*

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## ➤ Education

### ➤ PhD (Soft.Eng./AI) MAR 2018–PRESENT

Applied Artificial Intelligence Institute  
Deakin University, Burwood

### ➤ BIT (Honours) MAR 2017–OCT 2017

Deakin University, Burwood  
H1 - First Class Honours

### ➤ BSc (Software Development) AUG 2013–DEC 2016

Swinburne University of Technology, Hawthorn  
GPA 4.0 of 4.0

### ➤ VCE FEB 2010–NOV 2012

Parade College, Bundoora  
ATAR 98.00 of 99.95.

#### TEACHING POSITIONS

### International House, The University of Melbourne, Parkville AUG 2017–NOV 2018

Senior Academic Resident Tutor

- Residential leadership position as an onsite pastoral carer/mentor to students and Head Tutor responsible for all resident and non-resident tutors reporting to Deputy Head of College.
- Streamlined existing methods to produce tutor duty rosters, student tutorial timetables, student feedback and attendance marking system using online tooling.

### Deakin University, Burwood MAR 2017–PRESENT

Sessional Tutor

### Swinburne University, Hawthorn MAR 2014–AUG 2016

Sessional Tutor

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## ➤ Awards & Honours

#### SWINBURNE UNIVERSITY OF TECHNOLOGY

- **University Medal 2017** 28 Aug 2017; *Most outstanding undergraduate student 2016.*
- **Swinburne CompSci. & SoftEng. Prize** 31 May 2017; *Highest GPA in the 2016 BSc. (SoftDev.) cohort.*
- **Top Student In A Unit Prize** Nov 2013, Dec 2014, Jul 2015; *Student with the highest mark in 12 subjects.*
- **Vice Chancellor's Scholarship** 31 Mar 2013; *Outstanding academic performance in Year 12.*

#### DEAKIN UNIVERSITY

- **Vice Chancellor's Prize** 3 Oct 2018; *Highest honours thesis mark for an undergraduate student in 2017.*

- **Pham Family Honours Scholarship** 5 Apr 2017; *Highest academic achievement for a graduate commencing in 2017.*

- **Deakin Scholarship of Excellence** 1 Mar 2017; *Displayed highest academic promise for an undergraduate student commencing in 2017.*

#### PARADE COLLEGE

- **Dux Award** 8 Feb 2013; *Achieved one of the highest ATAR scores in the College.*
- **Chair of Academic Prefect Committee** 2012; *Chaired Committee contributing to academic advancement.*

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## ➤ Skills & Hobbies

#### GENERAL SKILLS

- Excellent Communication Skills ➤ Public Speaking ➤ Project Management & Leadership ➤ Research ➤ Reporting ➤ Teaching ➤ Mentoring

#### TECHNICAL SKILLS

- High Coding Standards ➤ Frontend / Backend Development ➤ iOS Development ➤ RESTful API Design ➤ Dynamic Programming ➤ Concurrent Programming ➤ Objective-C ➤ Swift ➤ JavaScript ➤ SQL ➤ Ruby ➤ Python ➤ C# ➤ Java ➤ C ➤ C++ ➤ .NET ➤ Pascal ➤ CSS3 ➤ L<sup>A</sup>T<sub>E</sub>X

#### SOFTWARE SKILLS

- Microsoft Office ➤ GSuite (Google Docs, Sheets, and Forms) ➤ Git ➤ MySQL/SQL Server ➤ MongoDB ➤ Apache ➤ Nginx ➤ AWS ➤ Emacs ➤ Trello ➤ Pixelmator ➤ Lucidchart ➤ Visio

#### HOBBIES & INTERESTS

- Hiking ➤ Travel ➤ Higher Education ➤ Vintage Computing & Telephony

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## ➤ Major Open Source Software Contributions

### Doubtfire Learning Management System

<http://github.com/doubtfire-lms>

- Developed web-based front-end in Angular.
- Developed processor for student work upload pretty-printed to PDFs.
- Developed visualisations representing mass student learning and progression.
- Developed ticketing system for student helpdesk.
- Used at Swinburne and Deakin universities with over 15k active monthly users.

### SplashKit Educational SDK

<http://splashkit.io>

- Developed language translation processor.
- Developed automated generation of C code using API parser written in Ruby.
- Developed automated SplashKit API documentation from Headerdoc and published to website.
- Developed and designed the SplashKit website used by students.

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## ➤ Academic Publications

- A. Cummaudo, S. Barnett, R. Vasa, J. Grundy, and M. Abdelrazek, **"Beware the evolving 'intelligent' web service! An integration architecture tactic to guard AI-first components,"** presented at the *ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)*, November 2020. (In Press)
- A. Cummaudo, R. Vasa, S. Barnett, J. Grundy, and M. Abdelrazek, **"Interpreting Cloud Computer Vision Pain-Points: A Mining Study of Stack Overflow,"** presented at the *35th IEEE International Conference on Software Maintenance and Evolution (ICSE)*, July 2020. (In Press)
- A. Cummaudo, R. Vasa, J. Grundy, M. Abdelrazek, and A. Cain, **"Losing confidence in quality: unspoken evolution of intelligent computer vision services,"** presented at the *35th IEEE International Conference on Software Maintenance and Evolution (ICSME)*, October 2019. doi:10.1109/ICSME.2019.00051
- A. Cummaudo, R. Vasa, J. Grundy, **"What should I document? A preliminary systematic mapping study into API documentation knowledge,"** presented at the *13th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)*, September 2019. doi:10.1109/ESEM.2019.8870148
- T. Ohtake, A. Cummaudo, M. Abdelrazek, R. Vasa and J. Grundy, **"Merging Intelligent API Responses using a Proportional Representation Approach,"** presented at the *2019 International Conference on Web Engineering (ICWE)*, Jun 2019, pp. 391–406. doi:10.1007/978-3-030-19274-7\_28
- J. Renzella, A. Cummaudo, A. Cain, J. Grundy, and J. Meyers, **"SplashKit: A Development Framework for Motivating and Engaging Students in Introductory Programming,"** presented at the *2018 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, Dec 2018, pp. 40–47. doi:10.1109/TALE.2018.8615203
- J. Meyers, A. Cain, J. Renzella, and A. Cummaudo, **"A Proposal for Integrating Gamification into Task-Oriented Portfolio Assessment,"** presented at the *2018 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, Dec 2018, pp. 1022–1027. doi:10.1109/TALE.2018.8615174
- C.-Y. Law, J. Grundy, A. Cain, R. Vasa, and A. Cummaudo, **"User Perceptions of using an open learner model visualisation tool for facilitating self-regulated learning,"** presented at the *Proceedings of the Nineteenth Australasian Computing Education Conference*, Jan 2017, pp. 55–64. doi:10.1145/3013499.3013502

References available upon request.