Alex Cummaudo

Curriculum Vitae

Brunswick, VIC, Australia
BSc, BIT(Hons), PhD(c)
alexcu@me.com
https://alexcu.me
linkedin.com/in/alexcu

Experience

Applied Artificial Intelligence Institute, Deakin University, Burwood

Research Software Engineer **DEC 2016–MAY 2020**

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

iOS Developer (Industry Placement) **AUG 2015–FEB 2016**

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

Software Engineer **AUG 2014–AUG 2015**

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

Freelance UI/UX Designer **MAR 2014–AUG 2016**

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*.

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
Senior Academic Resident Tutor AUG 2017–NOV 2018

- 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
Sessional Tutor MAR 2017–PRESENT

Swinburne University, Hawthorn
Sessional Tutor MAR 2014–AUG 2016

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.*

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 · LaTeX

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

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.

Academic Publications

- A. Cummaudo, S. Barnett, R. Vasa, and J. Grundy, "**Threshy: Supporting Safe Usage of Intelligent Web Services**," 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). arXiv preprint arxiv:2008.08252
- 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). arXiv preprint arxiv:2005.13186
- 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) arXiv preprint arXiv:2001.10130.
- 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.