

Matthew Lake

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Education

2014 – 2019 : Bachelor of Engineering (Software) & Bachelor of Arts (History, Mathematics)

University of Queensland, GPA: 6.49 / 7

2019 : UQ Computing Society management committee member.

2017 : Studied abroad at University College London on a UQ Exchange Scholarship.

Experience

2018 – 2019 : Amazon, Software Development Engineer Intern

Developed a library for API logging using Spring Aspect-Oriented-Programming and Java annotations. Built infrastructure to redact sensitive customer data, and designed blacklists adhering to internal Data Classification standards.

Worked on a high-availability Java Spring backend service managing on-site fulfilment of Amazon Fresh pickup orders. Tuned the DynamoDB database to support 10x scaling.

Designed algorithms for non-linear spatial location of RFID tags for a prototype smart warehouse.

Developed Chaos Engineering tools for AWS Lambda, using Python and Node JS.

First place in two internal hackathons, and second place in an internal algorithms contest.

2017 – 2019 : University of Queensland, Tutor

Prepared lessons, taught classes, and graded assessment. Student feedback rating of 4.86 / 5.

CSSE2002 'Programming in the Large' (3 Semesters)

Taught OOP design patterns, formal specifications, and intermediate Java programming.

CSSE3100 'Reasoning About Programs' (1 Semester)

Taught predicate logic, formal verification, and automated correctness proofs.

2016 – 2017 : University of Queensland, Summer Research Scholar

Worked with Professor Ian Hayes on extending Java to support interface-like Capabilities to enforce explicit permissions and restrict cross-object privilege access.

Researched implementations of runtime interface dispatch and subtype checking, and began implementation of Capabilities in the OpenJDK Parser / Compiler.

2016 : Google Summer of Code for The Julia Language

Developed an IDE-integrated interactive tutorial system for Julia. Presented at JuliaCon 2016.

2014 – 2016 : Tehnika Group, Web Developer

Full stack web development and maintenance of large line-of-business web applications in JavaScript (Node and Angular), PHP and C# (ASP.NET).

Skills

Languages : *Proficient:* Java, C#, Julia, Python, HTML / CSS, SQL; *Familiar:* JavaScript, C, Matlab, PHP

Technologies : AWS, Spring, Git, Linux, L^AT_EX

Awards

2017 – 2019 : Hawken Scholar Awarded to the top 5% of the UQ Engineering cohort.

2016 – 2018 : Dean's Commendation for Academic Excellence

2016 : Winner of UQ Computing Society Hackathon

For UQFlix, a ASP.NET Core web-app which streams video-on-demand from the UQ Library and offers recommendations using genre-based collaborative filtering machine learning in Julia.

2015 : Paul Gampe Open Source Award at the UQ ITEE Excellence Showcase

For spearheading the open-sourcing of the FarmSim class project with over 60 contributors.

2015 : QUT Hackathon Prize

An academic citation metrics web-app using Node JS and the Microsoft Academic Knowledge API.

2013 : Australian Student Prize Awarded to the top 500 students nationally by the Education Minister.

Projects

Borealysis, github.com/hax0rs/Borealysis

Machine learning analysis of BHP borehole data at Uearthed Hackathon, achieving 90% accuracy using Deep Neural Networks and Nested Decision Forests through AzureML.

Evolutionary Image Compression Algorithm, github.com/mgtlake/EvolImageCompression

Genetic algorithm in C# for lossless image compression: up to 20% smaller than zipped PNG.