

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** more stores without sharding.

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)

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, \LaTeX

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

2016 : **Borealysis**

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

2013 : **Evolutionary Image Compression Algorithm**

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