

# 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)*

**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<sup>A</sup>T<sub>E</sub>X

## Awards

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

**2016 – 2017 : 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.