

Joel Richardson – Curriculum Vitae

joelrichardson.au

Education

Macquarie University

Master of Research (Mathematics)

Sydney, Australia

Est. 2025

- Thesis Project on Tangent Categories

The University of Queensland

Bachelor of Computer Science (Honours)

Brisbane, Australia

2023 - 2024

- Dean's Commendation for Academic Excellence
- Thesis Project on Computer Algebra
- 6.5 GPA, Honours Class I

The University of Queensland

Bachelor of Mathematics/Bachelor of Computer Science

Brisbane, Australia

2019 - 2022

- Major in Pure Mathematics
- 6.3 GPA across honours level courses
- Reports on Coxeter Groups and Quivers

Employment

The University of Queensland

Tutor, Mathematics and Computer Science

Tutor, Mathematics

Brisbane, Australia

February 2024 - November 2024

February 2022 - November 2022

Veitch Lister Consulting

Software Engineer

Graduate Software Engineer

Brisbane, Australia

September 2024 - January 2025

November 2022 - February 2024

Talks

Australian Category Seminar

Talk on the tangent bundle monad

Sydney, Australia

April 2025

UQ Mathematics Student Society

Talk on Simplicial Sets

Talk on Berlekamp's Algorithm

Brisbane, Australia

August 2024

April 2024

Various High Schools

Taught lambda calculus at Groves Christian College

Taught lambda calculus at Trinity Bay State High School

(Various), Australia

August 2024

June 2024

Programming

Languages	Haskell, C, Java, Python, Javascript, MATLAB, Elm, SQL, Dafny
Operating Systems	Linux, OpenBSD, Windows, macOS

Projects and Experience

<i>Compiler/Interpreter Programming</i>	2021- present
<i>Mathematics; Theorem verification, Numerical Solvers, Symbolic Algebra</i>	2022- present
<i>Computing optimal play of various games, including snatch and wordle</i>	2016- 2022
<i>Machine learning; neural networks, genetic algorithms, word2vec</i>	2017- 2022
<i>Mixed integer programming with Gurobi</i>	2021- 2022
<i>FOL Theorem-Proof verifier (uqcs hackathon project)</i>	2022
<i>Non-euclidean rendering with SDF ray marching</i>	2020- 2021
<i>Compiler code optimisation</i>	2021
<i>Automated software testing; data flow analysis, constraint based analysis</i>	2021
<i>Network programming</i>	2016- 2020
<i>CPU design and implementation in Minecraft</i>	2018- 2020
<i>3D rasterization</i>	2019- 2020
<i>OpenBSD kernel programming</i>	2020
<i>Formal software verification in dafny</i>	2020
<i>Image processing with Processing 3</i>	2018- 2019
<i>Game programming with Gamemaker: studio</i>	2014- 2018