# Lachlan Rigg

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I'm a passionate, inspired and driven software engineer about to graduate from UNSW with a Bachelor of Science in Computer Science. I am constantly learning to become a better engineer everyday and am always looking for ways to improve my ability to build and design quality software.

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## EDUCATION

**Bachelor of Science (Computer Science)**
University of New South Wales, Sydney

*Graduating August, 2025*

**Key Subjects**: Object-Oriented Design & Programming, Data Structures & Algorithms, Software Engineering Fundamentals, Computer Systems Fundamentals, Advanced C++ Programming, Software Construction: Techniques & Tools, Database Systems

**Ringwood Secondary College** - Year 12

*Graduated 2013*

## TECHNICAL SKILLS

**Programming Languages & Frameworks**

- ***Javascript*** (React, React Native, Typescript, Node.js, Testing (Jest))
  - Brain Training app front-end written in React Native. Building portfolio website using React. Typescript utilised for type safety. Experience in backend work through academic projects in Node.js/Express.js.
- ***Python*** (Scripting)
  - Built a localised reproduction of Git solely in Python. Achieved the same project written in Bash.
- ***C/C++*** (Memory management, smart pointers, custom iterators, system emulation)
  - Building a Chip-8 emulator in C++ to reproduce the Chip-8 system and allow for emulation of Chip-8 games
- ***HTML & CSS*** (TailwindCSS, JSX/TSX, dynamic webpage design)
  - Styled front-end for portfolio site, as well as some academic projects, using TailwindCSS.
- **Java** (Spring Framework, Rest API Development, OOP, Testing (JUnit, Mockito, Spring Test))
  - Currently building a fitness coaching app utilising Spring framework for the backend. Database management, authentication and API development all handled through Spring (Spring Web, Spring Data, Spring Security).

**Databases**

- **PostgreSQL -** Proficiency in writing SQL queries and creating/designing database schemas in PostgreSQL
- **SQLite -** Experience working with SQLite for utilising local databases on mobile applications.

**Tools**

- **Git** - Experienced with branching, merging, rebasing, and resolving conflicts. Proficient in using Git for version control and collaboration.
- **Github -** Primary online platform used for Git repositories. Experience with pull requests, code reviews, issue tracking, and project management. Familiar with GitHub Actions for CI/CD.
- **Docker** - Proficient in containerising applications using Dockerfiles and Docker Compose. Experience with building, deploying, and managing Docker containers.
- **Jira** - Experienced in using Jira for project management, issue tracking, and agile development. Familiar with creating and managing projects, epics, user stories, tasks, and sprints. Proficient in using Jira's workflow features, including customising workflows and transitioning issues.

## PERSONAL PROJECTS

Throughout my academic career at UNSW, I have completed many projects both within my degree's curriculum and in my spare time writing passion projects.

*Some project highlights include:*

***Stronger Brains - Cross Platform Brain Training App for Disadvantaged Kids (Complete)***

- *Helped develop a cross platform mobile application that brings Stronger Brains' brain training and educational web platform to an offline mobile solution, designed to allow access to their brain training program from detention centres and other strictly offline premises. The app is utilising the Stronger Brains API to retrieve and manipulate key user data such as brain exercise statistics and user profiles. Technologies used include React Native for frontend and Express backend with a SQLite on device database.*

*https://github.com/unsw-cse-comp99-3900/capstone-project-2025-t1-25t1-3900-w16a-apple*

***mc8Emu - Chip-8 Emulator (In Progress)***

- *Currently developing a Chip-8 emulator from the ground up, including a faithful recreation of the Chip-8 instruction set and a graphical front-end capable of rendering Chip-8 graphics. This project aims to provide an accurate and enjoyable platform for running and experiencing classic Chip-8 ROMs. Technologies used include CMake for compilation, GoogleTest as the testing framework and C++ as the main language of choice.*

*https://github.com/lachierigg05/mc8emu*

**Eddy/Pushy - Version Control System in Python and Bash (Complete)**

- Developed two independent implementations of a simplified version control system as part of an academic project. Pushy utilises POSIX compliant Bash scripting to provide core version control features, while Eddy achieves similar functionality using Python, demonstrating proficiency in both scripting languages and version control concepts.

*Project asked to keep private to avoid plagiarism for future academic projects*