HENRY ROUTSON

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High performing Computing major at The University of Melbourne, with extensive and multifaceted experience in Git, SQL, Data Structures, Algorithms, Optimization and Linux.
Eager to learn in a fast-paced environment.

EDUCATION

The University of Melbourne Jun 2021 – Dec 2024
Bachelor of Science, Major in Computing and Software Systems

Ballarat Grammar Sep 2020
- Academic scholarship
- VCE: Software Development, Specialist and Methods Mathematics, Chemistry and Physics

EXPERIENCE

Aerospace and Rocket Engineering Society (ARES), The University of Melbourne
Flight Simulations Team Member Jan 2023 – Present
- Supports creating rocket trajectory simulations to inform rocket ballast and airbrake deployment configuration in competition to get as close to 30,000 feet as possible.

Operations Team Member (3D rendering – see next page) Jan 2023 – Present

Python Developer Jul 2023 – Present
- Automates trajectory optimization for rocket simulations to improve efficiency, reliability, and accuracy

React and TypeScript / JavaScript Developer Jan – Jul 2023
- Collaborated with industry software developers and Master of Computing students in React 3JS Fibre
- Implemented fins with a dynamic count into a 3JS 3D render

Open-source contribution
Cached File Explorer - in rust July 2023
- Isolated poisoned thread issue to minimal reproducible steps, and created a pull request bug fix which was merged into the project

Supabase Auth UI
- Allowed additional UI configuration options and added documentation to one of the most popular flutter packages.

Queen's College IT Support, **The University of Melbourne** 2022
- Supported 350 students and staff across various technical issues

SELF-DIRECTED PROJECTS

Mutual social app – in React native, transferred to Flutter *https://github.com/HenryRoutson/Mutual* 2024
Firebase Fire store, database integration, user authentication, Expo, Typescript, cloud functions

Leetcode Competitive Programming 2021 – Present
https://leetcode.com/HenryRoutson/
- Solved 113 practice programming problems in numerous languages including Python, C and Rust
- Posted solutions have over 1.5 thousand views

CHelp - in C 2023
https://github.com/HenryRoutson/CHelp
- Utilised meta-programming to track dynamic memory in C and improved debugging and bug detection abilities for C programmers

- Developed cross platform program that displays data and location of un-freed allocations on program completion, and allows checks for the number of different types of allocations

AutoHeader - in Rust 2022
https://github.com/HenryRoutson/autoheader
- Implemented “Public” keyword into C programming language to automate the creation of header files
- Uses automated testing and regular expression.

Light Wakeup - in Swift 2021
https://github.com/HenryRoutson/Light-Wakeup/tree/main
- Completed a dark and light swift UI and interfaced this with IOS notifications

Soil Nutrient Calculator - in Python (VCE Software development) 2019
- See video here.
- Architected GUI Software for a multi-million dollar business which performs Vector calculus to find the ideal compost for any soil and crop combination
- This remains in use, quantifying the product value to customers and continuing to improve their crop yield and quality

ACADEMIC PROJECTS AND PERFORMANCE

The University of Melbourne Subjects

IT Project (JavaScript / TypeScript, React, HTML, CSS)
- Our project utilises React to build on quicksort algorithm visualization software
- Improved code standards and redesigned stack visualization to improve students ability to understand the quicksort algorithm.
- Please see video

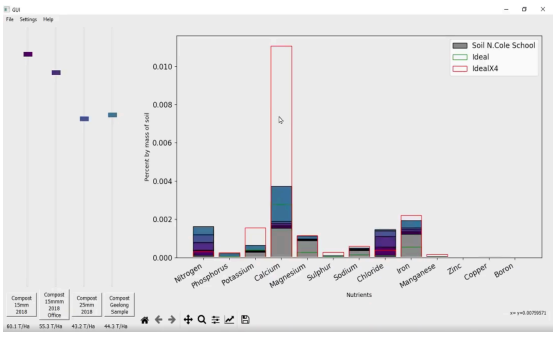
Models of Computation (Haskell)
- My Haskell code was chosen as the solution for numerous practice problems within a cohort of 600

Computer Systems (C)
- Developed functional memory allocator for operating systems and a multi-threaded web server

Algorithms and Data Structures (C)
- Implemented a Quadtree, Linked list, Dijkstra and A*

Foundations of Computing (Python)
- Achieved overall 98%, one of the highest marks in the cohort

WORK SAMPLES

Cinematic 3D visualisation of 2023 ARES Spaceport competition rocket in Blender	VCE software development final project in Python using a PyQt5 GUI and Matplotlib
	

ENGAGEMENT

- UniMelb Competitive Programming Club – Participant 2022

References available upon request