

Experience

Open source contribution

Cached File Explorer - in rust

Isolated poisoned thread issue to minimal reproducible steps, and created a pull request bug fix which was merged into the project.

ARES (Aerospace and Rocket Engineering Society)

<https://eng.unimelb.edu.au/ares>

Flight simulations team member

As a flight simulations team member I was responsible for supporting 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 bottom of CV)

Python developer July 2023 - Present

Automating trajectory optimisation done for rocket simulations, to improve simulation teams efficiency, reliability and accuracy.

React and Typescript / Javascript developer Jan 2023 - July 2023

Effectively collaborated with industry software developers and master of computing students in React 3JS Fibre.

Completed tickets such as implementing fins with a dynamic count into a 3JS 3D render.



Queen's College IT Support 2022

Supported students across numerous technical issues

Education

The University of Melbourne *June 2021 - Present*

Bachelor of Science

Major in Computing and Software Systems

Ballarat Grammar *Graduated September 2020*

Academic scholarship 10%

VCE Specialist and Methods Mathematics

VCE Chemistry and Physics

Academic projects and performance

The University of Melbourne

2023

IT Project

current

Utilising React to build on quicksort algorithm visualisation software

<https://algorithms-in-action.github.io/>

Models of Computation (Haskell)

current

Computer systems (C)

77%

OS Memory allocation code.

A functional multithreaded web server.

2022

Linear Algebra (Matlab)

81%

Algorithms and Data Structures (C)

76%

(92% project average)

Implemented a QuadTree, Linked list, Dijkstra and A*

Foundations of Algorithms (C)

75%

(91% project average, 100% MST)

Object Oriented Software Development (Java)

76%

2021

Foundations of Computing (Python)

98%

Engineering Modelling And Design

77%

Extracurricular Projects

CHelp - in C

<https://github.com/HenryRoutson/CHelp>

2023

Utilised C meta-programming to track dynamic memory in C, providing improved debugging and bug detection abilities for C programmers. Program displays data and location of un-free'd allocations on program completion, and allows checks for the number of different types of allocations.

./tests/9_main

```
ERROR: wrong number of unfreed mallocs
      expected : 0
      found    : 1
```

```
      mallocs are listed below,
      in reverse allocation order
UNFREED   ---
file_name : tests/9_main.c
line_number : 34
print_func :
1 s2 3.000000
      ---
      FREED
```

AutoHeader - in Rust 2022

<https://github.com/HenryRoutson/autoheader>

Implemented “Public” keyword into the c programming language to automate the creation of header files.
Uses automated testing and regular expressions.

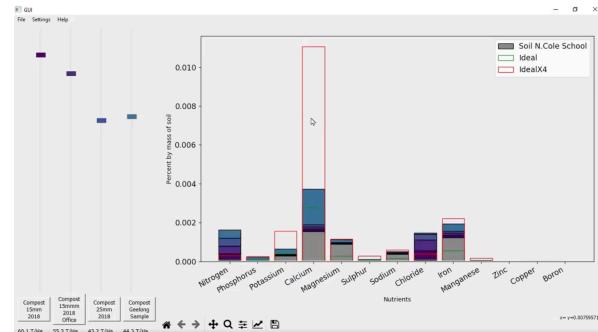
Leetcode competitive programming
<https://leetcode.com/HenryRoutson/>

2020 - Present

113 practice programming problems solved in numerous languages including Python, C and Rust.
Posted solutions have over 1.5 thousand views.

Soil Nutrient calculator - in Python (VCE Software development) 2019
<https://github.com/HenryRoutson/Soil-value-calculator>

Architected GUI Software for a multi million dollar business after 5 months of learning programming.
Performs Vector calculus to find the ideal compost for a particular soil and crop combination.
This project remains in use, quantifying the product value to customers and continuing to improve their crop yield and quality.



Skills

Git SQL / Databases Data Structures and Algorithms Optimisation Linux

Other

ARES 3D rendering work

