

Brooke Knowles

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SKILLS

- **Programming:** Python, C#, Java, C/C++, SQL, JavaScript, HTML/CSS, QML.
- **Other Technical Skills:** Linux, Git, Data Analysis.
- **Soft Skills:** Communication, Teamwork; Problem Solving; Multi-Tasking.

EDUCATION

The University of Auckland

2019 - 2023

Bachelor of Engineering, Specialisation in Computer Systems Engineering

- Classes in programming, software design, hardware design, computer architecture & electronics.

PROFESSIONAL WORK EXPERIENCE

Rocket Lab

Nov. 2022 – Present

Flight Analysis Intern

Auckland

- Rocket Lab is a global leader in launch and space systems, and working on the flight analysis team I have been involved in the design and development of internal flight safety analysis software.
- Writing new Python scripts to process flight/weather/geographic data to aid in analysis and increase internal efficiency.
- Upgrading existing command line-based software and tooling to be more user friendly by developing GUI based desktop applications using Python in the back end and QML/Qt/JavaScript in the front end.

Guardians of New Zealand Superannuation Fund

Nov. 2021 – Feb. 2022

Summer Intern – Data Technology

Auckland

- NZ Super Fund invests government contributions to help fund the rising cost of universal superannuation.
- As an intern I spent the summer working with a team of software developers on investment applications.
- Main project was to refactor SQL stored procedures that process investment data into a C# service.
 - This reduced dependency on their databases, allowing for service to be expanded.
 - Made code easier to test & maintain, increasing productivity for developers.

OTHER WORK EXPERIENCE

Bricks 4 Kidz

April. 2022 – Nov. 2022

Teacher

Auckland

- Teaching Junior Robotics classes in primary schools.
- The kids learn to solve real world problems by building LEGO models and coding the behaviour of a robot to interact with that model, using LEGO WeDo.

EduExperts

April. 2022 – Nov. 2022

Maths Tutor

Auckland

- Teaching excelling year 4 students the maths curriculum meant for the year above.
- Helping year 6 and 7 students improve their maths skills and assisting them in preparing to compete in the annual Australian Mathematics competition.

Bestcoder Education

Feb. 2022 – Nov. 2022

Robotics and Computer Science Tutor

Auckland

- Teaching primary and intermediate school children aged 7-12 about robotics and computer science using Python and block coding.
- Developing lesson plans to allow students to learn a new programming concept and create a relevant project in each weekly 90-minute-long class.

McDonald's

Crew Trainer

May 2017 – Oct. 2021

Auckland & Rotorua

- Training new & existing staff on various stations around restaurant.
- Working as part of a team to deliver exceptional customer service in a fast-paced environment.
- Assisting managers in meeting target service times and running shifts.
- Making sure the correct McDonald's procedures and health & safety standards are being followed.

SELECTED UNIVERSITY PROJECTS

Flappy Bird Clone

2022

<https://github.com/brookeknowles/FlappyBirdVHDL>

- Developed a simple game console using only digital logic and digital design.
- In VHDL, myself and two partners created an implementation of the popular mobile game Flappy Bird using an FPGA board as the game console.

Handwritten Digit Recognition App

2021

<https://github.com/brookeknowles/HandwrittenDigitRecognitionApp>

Developed a handwritten digit recognition app using Python and TensorFlow

- Using PyQt, myself and a partner developed a GUI desktop application that allows the user to use their mouse to draw a digit from 0-9 onto a canvas
- Used TensorFlow and the MNIST dataset to train a CNN machine learning model to classify the handwritten digit as one of the 10 digits.

SELECTED PERSONAL PROJECTS

Portfolio Website

2023

<https://github.com/brookeknowles/portfolio-website>

- Made a personal website with React/JavaScript, Tailwind CSS, and Vite to learn more about front end development and show off some of my personal projects.

Discord Bot

2022

<https://github.com/brookeknowles/LeaMicheleBot>

- Discord bot themed around one of my favorite celebrity conspiracy theories, which allows for English text to be automatically translated into Emojis on request.
- New words and phrases could also be added to the bot by users.
- This project allowed me to learn more about interacting with public APIs and using asynchronous programming.

Music Charts to Spotify Playlist Maker

2022

<https://github.com/brookeknowles/Charts-Playlist-Maker>

- Pop music and keeping up with how different songs and artists are doing on charts around the world is hobby of mine, so I wanted a way to automate making playlists of these charts.
- Used BeautifulSoup to scrape data from chart websites, and Spotipy to interact with Spotify's API to create the playlists.
- Expanded on my Python knowledge learnt in university by learning the Flask framework to build a simple web interface for user to interact with.

LEADERSHIP/VOLUNTEER EXPERIENCE

University of Auckland Dessert Society

Jun. 2021 – Present

Tech Head (2023)

- Leader of the tech team, in charge of development of our app used by members to redeem discounts at various dessert stores around Auckland.

Event Coordinator (2022)

- Planning events for our club of over 200 members alongside members and outside sponsors.

Treasurer (2021)

- Managing the finances of UADS and communicating financial status of the club to other executive members.