

Uday Daroch

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EDUCATION

University of Canterbury

Bachelor of Software Engineering with Honours (4th year)

Christchurch, NZ

Feb. 2022 – Nov 2025

EXPERIENCE

University Programming Tutor - University of Canterbury COSC121-131

Feb 2025 – Present

- **Concept Explanation** Guided students through programming concepts, breaking down complex topics into clear, understandable explanations.
- **Code Review and Debugging** Assisted students in reviewing and debugging code, helping them identify errors and improve problem-solving skills.
- **Hands-on Learning** Developed interactive exercises and coding challenges to reinforce learning and build practical experience.
- **Assignment Support** Provided structured guidance on coursework, ensuring students understood requirements and best coding practices.
- **BootCamp** Assisted cosc121 bootcamp over the holidays for content recap.
- **Exam invigilation** Invigilated for several courses other than cosc121-131 during mid term tests.

Software Engineering Internship - Fleetpin

Nov 2024 - 1 Feb 2025

- **Batch Query Optimization** Optimized batch processing queries, improving application performance and reducing processing time for large datasets.
- **API Development and Integration** Designed and implemented robust APIs, ensuring seamless communication between frontend and backend services.
- **Service Worker Implementation** Developed service worker functionalities to enable offline capabilities for the application, enhancing user experience.
- **Bug Fixing and Frontend Design** Resolved critical bugs, enhanced UI/UX, and contributed to form design using Vue.js to improve usability and functionality.

Grocery Assistant - Pak'n Save

Dec 2020 - Aug 2021

- **Stocking and Rotation** Replenished and organized fresh produce displays, ensuring items were rotated to maintain quality and minimize waste.
- **Quality Assurance** Monitored and removed damaged or expired produce, maintaining high standards of freshness and presentation.
- **Customer Assistance** Helped customers locate specific produce items, answered inquiries, and provided recommendations based on preferences.
- **Inventory Management** Conducted stock counts, reported discrepancies, and updated inventory records to ensure accurate stock levels.
- **Team Collaboration** Worked closely with the produce team to manage deliveries, restocking, and cleaning tasks efficiently.

Kitchen Hand and Waiter staff - Saket Indian Restaurant

Feb 2018 - May 2020

- **Kitchen Hand Duties** Assisted chefs with food preparation, maintained a clean and organized kitchen, and ensured compliance with hygiene standards.
- **Waitstaff Responsibilities** Provided table service, took orders, delivered food and beverages, and managed customer inquiries.
- **Cleaning and Maintenance** Performed dishwashing, equipment cleaning, and end-of-day cleaning tasks to maintain a safe and sanitary environment.
- **Team Collaboration** Worked collaboratively with kitchen and floor staff to ensure smooth operations and excellent customer service.

Gardeners Grove Application (Uni Group Project 1) | *Spring Boot, Thymeleaf, SQL*

Nov 2024

- Developed a social platform for gardeners to manage and share their gardens.
- Used Spring Boot and Thymeleaf to build a robust backend and dynamic frontend.
- Implemented an SQL database to store garden and plant information, user profiles, and friendships.
- Enabled users to add information about their gardens, add plants, and share gardens with other users.
- Provided features to view public gardens, add or remove friends, and interact with the gardening community.

Scrumboard Management System | *React, Node.js, Express, Neon Database*

In process

- Inspired by the SENG302 course, developed a custom Scrumboard management system to improve team productivity.
- Implemented user roles, allowing admins to create and assign Scrumboard tasks for specific dates.
- Enabled team members to self-assign tasks, create sub-tasks, and track progress by ticking off completed items.
- Used React.js for the frontend and integrated drag-and-drop libraries for intuitive task management.
- Developed the backend with Node.js and Express, and used the Neon database for data storage.
- The server and client are visible on Vercel for public access (however they are currently in progress)

Cycleways (Uni Group Project 2) | *JavaFX, SQL, Gradle, Leaflet, GraphHopperAPI, OpenStreetMapAPI* Nov 2023

- Developed a cycling application utilizing raw crash data from Waka Kotahi (800k entries).
- Implemented advanced filtering and sorting for improved user experience.
- Integrated route crashes onto the map with optimized clustering and lazy loading.
- Utilized GraphHopper API for accessing bike route data stored as GeoJSON.
- Constructed a robust and user-friendly interface using JavaFX and SQLite.
- Employed MVC and Spiral models for development.
- Ensured high quality with rigorous testing using Cucumber and JUnit.

Petitions Web Application (Grade: 97/100) | *React, Node.js, Express, TypeScript, SQL, Postman, MUI, CSS* Jul 2024

- Developed a single-page application (SPA) with a robust backend API for a petitions website, enabling user registration, login, petition creation, support for petitions, viewing public petitions, and account updates.
- Designed and implemented backend APIs using Node.js, Express, and TypeScript, with SQL for efficient data storage and retrieval.
- Utilized React and Material-UI for a responsive, visually appealing frontend, leveraging React hooks, context API, and Zustand for state management.
- Implemented client-side routing for dynamic navigation and tested API functionalities using Postman for reliability.
- Followed the MCR (Model-Controller-Route) pattern for a maintainable codebase.

Image Denoising Autoencoder (Grade: 90/100) | *Python, TensorFlow, Keras, NumPy, Matplotlib* June 2025

- Developed an autoencoder for denoising images, leveraging deep learning techniques to enhance image quality.
- Utilized convolutional layers for feature extraction and transpose convolutional layers to reconstruct denoised images from latent space representations.
- Demonstrated in-depth knowledge of machine learning architectures to effectively process and clean noisy image data.
- Implemented and trained the model using TensorFlow and Keras, with NumPy and Matplotlib for data handling and visualization.
- Achieved high-quality denoising results through rigorous testing and hyperparameter tuning.

NFT Marketplace Contract | *Rust, Secret Network Test Network*

June 2025

- Developed a smart contract on the Secret Network Test Network (blockchain) for an NFT marketplace, enabling users to create, list, withdraw, purchase, and delete NFTs.
- Implemented private and public metadata, with private metadata visible only to the NFT owner, and restricted owners from purchasing their own NFTs.
- Utilized Rust for secure and efficient smart contract development, ensuring robust marketplace functionality.
- Enabled users to view NFT details, manage listings, and interact with the marketplace securely.
- Tested and validated contract functionality to ensure compliance with blockchain standards and user requirements.

TECHNICAL SKILLS

Languages: Java, Python, SQL, JavaScript, HTML/CSS, PHP, C, C#, C++, Rust

Frameworks: React, Vue, Flask, JUnit, CucumberTesting, Vite, Leaflet, Thymleaf, Springboot

Developer Tools: Git, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse,MySQL Workbench,Bootstrap, Google Cloud clustering service, Google colab, Vercel

Libraries: NumPy, Matplotlib, Dask,Panda, MaterialUI, apollo-client

REFERENCES

Morgan English(Uni senior tutor): morgan.english@canterbury.ac.nz

Andrew Bainbridge Smith (Senior Lecture): andrew.bainbridge-smith@canterbury.ac.nz