

# Uday Daroch

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## EDUCATION

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### University of Canterbury

*Bachelor of Software Engineering with Honours (4th year)*

Christchurch, NZ

*Feb. 2022 – Nov 2025*

## EXPERIENCE

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### 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* In process
- 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

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**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

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**Morgan English(Uni senior tutor):** [morgan.english@canterbury.ac.nz](mailto:morgan.english@canterbury.ac.nz)

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