

# Kerwin Du

Computer Science Major, *University of British Columbia*

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## TECHNICAL SKILLS

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- Programming: Java, C/C++, Flutter&Dart, Python, SQL, TypeScript
- Tool/Environment: IntelliJ, PhpStorm, Visual Studio, Github, Andriod Studio
- Testing: GDB, JUnit, Black/Glass Box
- Web: HTML5, CSS, JavaScript, CSS
- Others: AWS, Docker, Git, Generic Cabling, CAN Bus, CISCO Devices, Bitbucket

## TECHNICAL WORK EXPERIENCE

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**ACELPower, Head Office, Vancouver, Canada**

**Software Engineer Coop**

May-Sep 2024

**Main Responsibility:** Mobile Development for the central display on the electric boats and user's mobile devices.

### **Contribution:**

- Developed two versions of a cross-platform mobile app using Flutter. The first version was built utilizing the Android for Cars App Library and leveraged method channels for communication between Android and Flutter. Used Flutter's StreamController to monitor changes in data such as boat speed and battery, which were displayed on a UI designed with Google's Material Design. Implemented Bloc state management for cleaner separation of concerns and easier scalability. **This version was deployed in production for the company as part of the July 2024 release.**
- Version 2 is cloud-based, utilizing AWS IoT Core and Greengrass as the backend architecture to enable remote control of features like turning lights and cameras on/off. Implemented asynchronous programming and Flutter Isolates to enhance app performance. The MQTT broker is used for publishing and subscribing to messages formatted in a custom JSON structure.

## SCHOOL ACTIVITY

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- UBC CIC Generative AI and Sustainability Hackathon 2024
  - Position: **Technical Lead**
  - Rank: TOP 5
  - Project: Deployed a General AI using AWS bedrock to provide medical reports and integrated with flutter mobile app to get the response.



- UBC Computer Science Student Society
  - Position: Assist in planning, organizing, and executing CSSS social events, such as the Welcome Back BBQ, CS Gala, and any other community events

## TECHNICAL PROJECTS

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### CoreXOS:

Sep 2024

- Multi-Kernel, User-Space Operating System (C)
- Developed a bare-metal operating system for Toradix Colibri, using QEMU for simulation and deployment.
- Implemented key OS features including physical and virtual memory management, process spawning, multicore support, and inter-process/inter-core communication.
- Integrated FAT-32 filesystem, networking capabilities, distributed services, and a custom shell interface.

### InsightUBC:

Jan-May 2024

- Collaborated with two team members on a full-stack web development project aimed at fetching and presenting historical data about university sections and rooms. The front end, crafted using the D3 library, features dynamic, data-driven graphics that offer users direct and intuitive data visualization.
- The backend query undergoes a grammar check before keywords are extracted and processed in the database, ensuring that the correct data is retrieved using a range of filters.
- Allowed users to group the results from the database based on specific criteria or features, enhancing their ability to find the data they need more efficiently.

### Gamer's Grid:

Sep-Dec 2023

- Designed a database to manage game world information by using ER-Diagram.
- Modelled the relationships and attributes in the game world by creating relational schemas, minimizing redundancy using normalization techniques.
- Implemented the database by using SQL query, including tests that are written in PHP to capture potential user scenarios, ensuring appropriate responses were generated for user actions and presenting a modern frontend styled with HTML & CSS.

## EDUCATION

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**3rd Year Bachelor's Degree, Computer Science Major**  
- University of British Columbia, Vancouver, BC

Expected Graduation Fall 2026

**Associate of Computer Science**  
- Langara College, Vancouver

Jan 2021 – Aug 2022

