Nakul Dharan Computer Engineering Student

nakulgd@gmail.com | github.com/NakulGD | linkedin.com/in/nakuldharan

TECHNICAL SKILLS

Programming Languages / Developer Tools: Java, C/C++, ARMx64 Assembly, SystemVerilog, Git, SQL, Python, Twitter API, Google API, Node.js, HTML/CSS

Electrical: FPGA, Circuit analysis, Microcontroller

Software: Quartus, ModelSim, SolidWorks, Visual Studio/Visual Studio Code, IntelliJ

Relevant Courses: Algorithms and Data Structures, Algorithm Design and Analysis, Operating Systems, Software Systems, Computing Hardware I/II, Human Computer Interfaces in Engineering Design, Circuit Analysis

EDUCATION

University of British Columbia **Expected Graduation: May 2026**

Bachelor of Applied Science - Computer Engineering (Third Year)

PROJECTS

Clash Course Website - *https://github.com/NakulGD/worklist_helper.git* **July 2023 - August 2023**

- Spearheaded development of a web-based tool with a small team to assist university students with course planning.
- Acquired comprehensive hands-on experience in front-end development, focusing on the practical application and integration of HTML, CSS, and JavaScript to create a responsive and intuitive user interface.
- Conducted extensive debugging and performance optimization exercises, employing various testing methodologies to enhance user experience and ensure the platform's reliability and efficiency.

“CRASH” Operating System Implementation **March 2023**

- Demonstrated proficiency in C programming and Linux internals by developing a simple operating system, “CRASH”, capable of managing multiple jobs, handling signals, and executing shell commands.
- Gained hands-on experience in managing concurrent processes, resource allocation, and signal management, ensuring seamless multitasking and robust error handling within the operating system.
- Employed strong analytical skills to troubleshoot and resolve complex issues related to process management resulting in a stable and functional operating system.

Predictive-Text Search Engine - *https://github.com/NakulGD/Search-Engine.git* **October 2022**

- Led the development of a sophisticated search engine written in Java, leveraging n-gram sorting and autocompletion functionalities.
- Implemented algorithms including Naive Bayesian Analysis and Laplacian Smoothing, to enhance the accuracy and reliability of search results.
- Created a test suite to conduct rigorous debugging and optimization, ensuring the platform's robustness and efficiency.

Turing-Complete RISC Machine **December 2022**

- Developed a 16-bit Turing-complete RISC machine encompassing a Datapath, an FSM controller, RAM, and register modules, utilizing System Verilog on an FPGA board.
- Employed Quartus and ModelSim for the design synthesis and meticulous testing, ensuring robust functionality.
- Enhanced the machine's capabilities by incorporating a segment of the ARMx64 Assembly instruction set, enabling the execution of scripts in real-time.

Multi-User Twitter Content Management System **December 2022**

- Led the development of a social media curation service, focusing on content interaction and management with Twitter.
- Integrated Twitter API for content access and porting, enhancing the platform's capability for real-time social media interaction.
- Incorporated basic cryptographic schemes, including AES and Blowfish ciphers, to ensure data security and privacy.
- Utilized Java for backend development, emphasizing robust and scalable code design.

ENGINEERING TEAMS

UBC Supermileage **September 2021 – March 2023**

Vehicle Mechanics

- Collaborated with a small team to devise, model, construct and implement steering alignment system for a competitive design team vehicle.
- Implemented a data logging and analysis system using MATLAB, enabling precise measurements with 0.01 cm accuracy and providing real-time feedback, crucial for minimizing unwanted toe angle before competitions.
- Utilized software tools for system simulation and data analysis, contributing to the optimization of the vehicle's mechanical performance from a computer engineering perspective.
- Honed communication skills by delivering technical presentations on project milestones and advancements.