# Nakul Dharan Computer Engineering Student

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## TECHNICAL SKILLS

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

**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

**Personal Portfolio Website** - *nakuldharan.com*                                                    **November 2023**
- Developed a comprehensive personal portfolio website using React, showcasing professional, academic, and personal projects. Integrated dynamic animations to enhance engagement and aesthetic appeal.
- Implemented responsive design principles, ensuring optimal viewing and interaction across a wide range of devices, including desktops, tablets, and mobile phones.

**OS161 Operating System**                                                              **October 2023 - November 2023**
- Implemented advanced synchronization mechanisms such as locks, condition variables, and semaphores. Developed crucial system calls (fork, execv, waitpid, getpid, and _exit) to manage user processes effectively.
- Redesigned the virtual memory system by implementing a software-managed Translation Lookaside Buffer (TLB) and efficient paging mechanism. This significantly improved memory management, allowing for more robust and efficient process execution.
- Employed strong analytical skills to troubleshoot and resolve complex issues related to process management resulting in a stable and functional operating system.

**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.

**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.

**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.

## 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.