Nirmal Chaudhari

3rd Year Software Engineering | Seeking Winter/Summer 2024 Co-Op
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EDUCATION

McMaster University   Sep 2021 - May 2026
B.Eng. Software Engineering – Year 3 (GPA: 3.98)   Hamilton, ON
- Awards: NSERC USRA, McMaster Excellence Award, Dean's Honour List (2021-2023)

WORK EXPERIENCE

McSCert   Hamilton, ON
Software Research Intern   May 2023 – Aug 2023
- Developed a new merge tool using **Python** to improve source-code merging for Python & Java code.
- Designed an **Abstract Data Structure** that can be used to represent statically & dynamically typed languages.
- Frequently used **Git** to collaborate with other developers and integrated our tool with Git to merge code.
- Improved the semantic accuracy over existing solutions (jDime & Spork) by **19%** and **90%** respectively.
- Regularly **performed tests** to validate results by using the developer's desired version as the benchmark.

Software Research Assistant   Sep 2023 - Present
- Implementing an operational domain-specific language in **Java** called jPipe which extends the JD model.
- It will allow developers to attach expectations with justified components to improve long term viability.
- Developing code using various software design patterns including **Visitors Pattern** for compiling documents.
- Configuring a Language Server Protocol to support the jPipe framework using **Rust**.

PROJECTS

Open-Web-Library (OWL)   Jul 2023 - Present
Group Personal Project
- Working with 2 others to develop an online library where any author can publish their books.
- Used ReactJS framework to develop the Frontend and styled responsive pages using **Tailwind** CSS.
- Designed the relational database for authors, users and books using **PostgreSQL**.
- Using **GraphQL** to make API requests from the frontend to improve efficiency for a large database.

Terrain-Generation   Apr 2023
2AA4 Project
- Developed a terrain-generator in **Java** that resembles what famous games like Minecraft use for their maps.
- Structured the code to use software **design patterns** including **Decorator, Builder** and **Observer** patterns.
- Designed **Class & Sequence Diagrams** using **PlantUML** to plan the code before implementation.
- Regularly extended existing code to give users more variability in terrain generation, adding over **9 flags**.

InstaCal   Jan 2023
DeltaHacks IX Project
- Worked with a team for 24h to develop a website that processes images of food and returns its nutrients.
- Used ReactJS to develop the User-Interface where the user can upload the picture of the food.
- Trained a **yolov5** model to identify various foods and output results into a JSON format using **Google Collab**.
- Utilized **Flask** to create an API to which our backend will post data, and our frontend will retrieve the data.

Q-Arm Project   Nov 2021
1P13 Project
- Developed efficient Object-Oriented codes using Python to identify and place tools in various bins.
- Improved efficiency by **13%** by analyzing data from virtual simulations to predict the real-world behaviour.
- Uploaded programs to the physical arm by saving codes to a **Raspberry Pi** and connecting it to a Q-Arm.

SKILLS

Programming Languages: Python, Java, C, C++, Rust, Assembly, Bash, JavaScript, R, Verilog
Web Development: HTML, CSS, NodeJS, ReactJS, Gatsby Cloud
Tools: Git, Jupyter, Ubuntu, Docker, SQL, WSL, Quartus, Raspberry Pi