KSHITIJ BHARDWAJ

COMPUTER ENGINEER

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EDUCATION

University Of Toronto - Sept. 2019 to June 2024
Bachelor of Applied Science (B.A.Sc.) in Computer Engineering Program
Artificial Intelligence Certificate, Business Certificate, Dean's Honor List Winter 2020

SKILLS

Software Skills: C/C++, Python, PostgreSQL, MySQL, Flask, REST APIs, Android Development, Java, SQLAlchemy, MongoDB, Django, MATLAB, Git/GitHub, Scripting, Automation.

Hardware Skills: ARM assembly, Quartus, LTSpice, ModelSim, Verilog (HDL), Sentaurus.

Tools: Docker, Jenkins, Github workflows/actions, Jira, Confluence, ClickUp, Agile Methodologies, MS Project.

Soft Skills: Critical thinking, Leadership, Problem Solving, Communication.

Key Courses: Data structures & Algorithms, Operating Systems (OS), Artificial Intelligence Fundamentals, Computer Architecture, Engineering Communication and Design, Software Engineering, Databases.

WORK EXPERIENCE

Software Engineering Intern at BTN (Baran Telecom Networks) Ltd. (June 2023 – August 2023, Nairobi, Kenya)

- Served as the **Lead Software Developer** for a prominent **Android application**, responsible for overseeing the development and contributing to approximately **80%** of its feature set.
- Successfully integrated multiple **Java SDKs** for various Biometric devices, primarily fingerprint scanners, into the application. This included seamless connectivity through both **USB** and **Bluetooth interfaces**.
- Collaborated closely with a **multidisciplinary** team, including **backend** developers, to ensure **data synchronization** and **integrity** between the **application** and the **backend server**.

Software Engineering Intern at AMD (Advanced Micro Devices), Inc. (May 2022 – April 2023, Markham, CA)

- Member of the NTI **Display** team working on cutting edge technologies and protocols such as **Display** and **USB4.**
- Was a part of the weekly **certification** testing and monthly **Logo process** on latest AMD products before they were officially released.
- Participated in maintaining the latest **AMD GPU SW** stacks as well as being a part of **debugging** and fixing internally filed JIRA **defects** and **bugs** on weekly basis.
- Developed and added the ability to certify Monitors for **AMD FreeSync** with **HDR10/PQ Gamma** using **C++**.
- Helped in the development of **50% USB4** protocol compliance **automation** test suite using **Python**.
- Involved in dev work of **embedded systems** used to facilitate **100%** of the **internal testing** and **certification** procedures within AMD such as **Light sensors** and **Arduinos MCUs**.
- Developed (using **C++**) **protype** and obtained **proof of concept** for upcoming **Smart Access Graphics** features.
- Obtained and analyzed system **power measurements** for upcoming **AMD APUs**.

Operations Engineer at aUToronto (August 2021 – April 2023, Toronto, CA)

- Part of the **Operations** Engineering team for aUToronto, a club that aims to work towards a **level 5 autonomous vehicle** (by using a **Chevrolet Bolt EV**).
- Worked on **Mobility Innovation Challenge** (SAE Autodrive challenge) to propose out-of-the-box, feasible ideas about **autonomous vehicles** in the real-world.
- Carried out **Project Management** tasks by **communicating** with other sub-teams at the **organization** and working with them to ensure goals and objectives are met timely by using **MS Project**.

Consultant Engineering Project (CEP) Associate at UTESCA For Kiwanis International (September 2021 – May 2022, Toronto, CA)

- Provided **technical consultation** advice on **designing** an **interactive** and **dynamic application** in the following ways:
    - **Researched** existing methodologies and platforms to provide a robust and scalable application solution, provided **framework designs** for the application.
    - **Analyzed** the tradeoffs between efficiency and operating cost for a long-term **sustainable solution**.
    - Engaged in **constructive conversations** with the **client** to understand their requirements and weigh the **solutions** to best suit their needs.

PROJECTS

UofT EventHub (Event Management Web Application) http://www.uofteventhub.ninja/

I served as a pivotal **full-stack developer** in the creation of a user-centric event management platform for the University of Toronto as part of coursework. Employing **Flask** as the framework, **SQLAlchemy** as the ORM, and **SQLite** as the DBMS, I contributed to crafting a robust and efficient solution. Leveraging my expertise in **DevOps** tools such as **Docker** and **GitHub workflows**, we streamlined the development process. The platform was successfully deployed on an **EC2** instance, ensuring seamless accessibility for students, faculty, and staff. **GitHub** was employed as our central project management tool, facilitating collaboration, and enhancing overall project efficiency.

Team Lead for EasyMap GIS

Researched, designed, and programmed (using **C++**) a **Geographical Information System (GIS),** named EasyMap, with complex algorithms (**A*, Dijkstra's, greedy** and **heuristic algorithms**) and an intuitive UI. Managed task allocation, internal deadlines, and presentations.

Plant Disease detection Model (Deep Learning Project)

Developed a **Convolutional Neural Network (CNN)** model, by using **python,** which can be used to detect plant diseases via image detection of plant leaves.

ARM-based Obstacle Game https://github.com/kb21032001/ECE-Hustler

Designed and created an **obstacle game** using **C** based on **ARM** involving **interrupt management** to design jumping and collision **mechanics**.

Project Manager in Engineering Strategies and Practices Project

Developed and **documented** an **engineering design** to help in mitigating floods in order to reduce effects of flooding on the Toronto islands for our client (the Toronto Islands Community). Designed **Gantt charts** and status reports to **manage team workflow**.