Rea Ahuja

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Education

University of Toronto Toronto, Ontario
Bachelor of Applied Science in Computer Engineering *Sep. 2022 – May 2027*

Experience

Undergraduate Researcher May 2023 – Present
University of Toronto *Toronto, Ontario*

- Spearheaded the development of a Visual Studio Code Extension for the first-year engineering programming course (APS105), under the guidance of Professor Salma Emara.
- Employed advanced technologies such as Typescript, REST APIs, MongoDB, Azure, and Git in the extension's development process.
- Conducting extensive research to assess the educational impact of the extension and actively exploring innovative approaches for project enhancement.

PCB Designer June. 2023 – Present
University of Toronto Aerospace Team *Toronto, Ontario*

- Responsible for the designing and testing of PCBs using Altium for the FINCH satellite, as a member of UTAT's Space Systems Electrical Team.
- Engaging in collaborative troubleshooting to identify and resolve design issues before the manufacturing stage.
- Providing mentorship and technical guidance to new team members, facilitating their proficiency in Altium and project development.

Projects

Music Box | *C++, Arduino* June 2023

- Engineered an innovative music box, integrating C++, an Arduino Uno Board, a custom-designed PCB, and 3D CAD modeling techniques.
- Awarded Bronze in the National SSCS Competition for creating a unique musical instrument, showcasing engineering creativity and skill.

Mathrix Mornings | *Verilog, DE1-SoC Board* December 2023

- Designed an interactive math-based alarm clock, aiding users in timely waking with engaging math challenges.
- Developed versatile input capabilities, accepting data from an external PS2 keyboard and the board's switches and keys.
- Enabled the clock to solve linear and quadratic equations, as well as calculations involving 2x3 matrices.
- Utilized a VGA display, hex display, and LEDs for dynamic and user-friendly output presentation.

Self-Orienting Rover January 2023

- Crafted a mechanical simulation Mars rover for UTEK's Junior Design Competition, securing 1st place and advancing to the provincial competition.
- Constructed the rover with a spring system, multiple shock absorption mechanisms, and a wheel system using primarily cardboard, balloons, Popsicle sticks, and wooden wheels.

Technical Skills

Languages: C, C++, Javascript, Java, Python, Verilog, Assembly, SQL, HTML5, CSS3, BootStrap, MATLAB
Frameworks: React, Node.js
Databases: MongoDB
Developer Tools: Git, Azure, Google Cloud Platform, VS Code, Visual Studio, Visual Studio Code Extension API, ModelSim, Quartus, PyCharm, IntelliJ, Eclipse, Prettier
Hardware Platforms: Nios II Processor, DE1-SoC Board, Arduino, Raspberry Pi

Awards

First Year Summer Research Fellowship 2023
Dean's Honour Roll (2) 2023
Schneider Electric Canada Scholarship (2) 2023