Rachel Heo

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SKILLS

Technical Skills: C, C++, Python, JavaScript/TypeScript, HTML, CSS, Bash/Zsh, Solidity
Frameworks/Tools: ReactJS, NodeJS, ExpressJS, EthersJS, Pandas, Tkinter, Hardhat, Git, Arduino

EDUCATION

UNIVERSITY OF WATERLOO | Bachelor of Software Engineering   Waterloo, ON | Sept 2022 - Expected 2027
Relevant Coursework: CS137 Programming Principles (**C**), CS138 Data Abstraction and Implementation (**C++**), ECE140 Linear Circuits, ECE124 Digital Circuits (**VHDL**), CS241 Foundations of Sequential Programs (**C/C++**), ECE222 Digital Computers (**Assembly**)

PROJECTS

WEATHER BOX
- Designed and implemented **embedded code** from **Arduino** to a microcontroller using **C and C++** using the ArduinoIDE
- Simulated outdoor weather in a box using LED lights, fans, servo, and a laptop speaker
- Utilized **weather API, Network time protocol, microcontrollers, and electric circuits**

GIEV
- Developed a transparent and customizable charity system leveraging **blockchain technology**, with a focus on privacy
- Implemented **Zero-Knowledge (ZK) proofs** using **Polygon ID**
- Used **ReactJS** and **Chakra UI** for frontend development; implemented backend using **ExpressJS, NodeJS, JavaScript, and ngrok** for secure tunneling from localhost to the public; used **Infura API and EthersJS** to connect and interact with the Ethereum blockchain/network; developed smart contracts using **Solidity** and **Scaffold-eth** on the **Goerli test network**

EXPERIENCE

AUGMENTA AI | Computational Software Engineering   Toronto, ON | January 2024 - April 2024 (expected)
- Incoming Winter 2024

UW BLUEPRINT | Project Developer   Waterloo, ON | August 2023 - Present
- Developed user-friendly UI components using **React, TypeScript, and ChakraUI** for a volunteer management platform for charity Feeding Canadian Kids
- Shipped **GraphQL backend API endpoints** using **Python(Flask)** to support onboarding processes for users
- Implemented test coverage, adhering to Test-Driven Development principles and enhancing code quality

WATERLOO BLOCKCHAIN CLUB | Research and Development Team   Waterloo, ON | June 2023 - Present
- Curated a community of 500+ members involved in yield farming, on-chain analytics, and Web3 development
- **Hosted 20+ events** ranging from Q&A events, social mixers, and technical workshops with speakers including samczsun, Axelar, and Binance with 100+ attendees
- Led technical efforts in the development and governance of the **DAO**, building smart contracts using **Solidity**, and utilizing blockchain protocols

ONSEMI | Embedded Software Engineer   Waterloo, ON | May 2023 - August 2023
- Collaborated in **Agile** environment to design and implement firmware using **C/C++** for the **digital multi-rail, multi-phase power controller**, ensuring efficient power management and optimal performance for processors.
- Implemented **RTOS** to divide firmware functionality into separate tasks with assigned priorities, significantly enhancing firmware reliability and responsiveness, **reducing critical task execution time by 30%**
- Conducted **unit testing** in **C/C++ and Verilog** (on **UVM** testbench) and achieved **100% code coverage** of firmware code and perform **RTL simulation and verification** to ensure compliance with project requirements and specifications while also validating hardware functionality for ensuring proper and seamless integration with the firmware
- Utilized **Python** and **Pandas** for scripting task automations, reducing testing procedure time from 3 weeks to days, and facilitating data analysis with improved data accuracy during the firmware development process

AWARDS

- EthGlobal Waterloo - Best use of Polygon ID (out of 168 teams)
- VEX Robotics Surrey District Competition 2020 - 2nd place (out of 24 teams)