Andrew Xu

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EDUCATION

University of Waterloo   Waterloo, ON
Candidate for Bachelor of Software Engineering   2023 – 2028
- Awards: Dean's Honours List, President's Scholarship of Distinction
- GPA: **95.3/100** (4.0)

TECHNICAL SKILLS

Languages: Python, C/C++, JavaScript, TypeScript, SQL, HTML, CSS
Developer Tools: Git, MySQL, PostgreSQL, AWS (S3, EC2, RDS), Colab, Jupyter Notebook, Postman
Libraries/Frameworks: React, Node.js, Express.js, Tailwind, Django, NumPy, OpenCV

EXPERIENCE

Firmware Developer   Dec. 2023 – Present
University of Waterloo Formula Electric – Student Design Team   *Waterloo, ON*
- Configured ESP32-S2 board on a formula vehicle using **C** to enable receiving of **CAN** messages for HIL testing.
- Integrated board into firmware by registering read and process tasks to **FreeRTOS** and initializing CAN driver.
- Processed message signals using **CANdb++** to provide simulated inputs from **15+** GPIO pins to corresponding ECU sensor board.

Frontend Developer 🔗 🔗   Sep. 2023 – Nov. 2023
Calgary Science Spelling Challenge   *Calgary, AB*
- Developed mobile-responsive website using **React** to reduce site load time by **150%** and HTTP requests by **230%**.
- Engineered a responsive site interface by designing **20+** custom-built components using **Typescript**, **HTML**, and **CSS**, employing a modular and scalable design pattern for enhanced user experience.
- Established secure network status by acquiring **DKIM** and **SSL** certification and migrating web hosting to IONOS.

Operations Director   Aug. 2021 – Sep. 2023
Project Tech Careers   *Calgary, AB*
- Led and designed introductory **HTML**, **CSS** and **Python** workshops for **100+** high school students in Calgary.
- Collaborated with other regional branches using tools such as Slack, Zoom, and Notion to organize and promote hackathons and conferences across Canada.

PROJECTS

Emoticon Neural Network | 🔗 🔗
- Achieved **96%** accuracy by training a neural network to detect the sentiment of emoticons on **900+** data points.
- Implemented propagation and gradient descent algorithms from scratch using **NumPy** and **OpenCV**.
- Engineered a **full-stack** web interface using **React**, **Node.js** and **Express.js** allowing users to request predictions from the network, and hosted application by deploying frontend and backend on AWS **S3** and **EC2** instances.

Webnote Web Extension | 🔗
- Developed a web extension enabling users to record notes directly within their web browser, eliminating the need for a dedicated note-taking app.
- Engineered a markdown text editor with **React** and the **Remark** plugin to handle note input and employed the **Chrome tabs API** to associate notes with URLs.
- Leveraged the **Django** framework to develop a user authentication system and a RESTful API responsible for note persistence within a **PostgreSQL** database.

Uniforum Discussion Forum | 🔗 🔗
- Created a **full-stack** forum application utilizing **React**, **Node.js**, and **Express.js**, enabling users to post, comment, and upvote using unique profiles.
- Designed a RESTful API with **15+** endpoints to perform comprehensive CRUD operations on structured user and post data within an AWS **RDS** hosted **MySQL** database.
- Integrated **bcrypt** password hashing and **JSON Web Tokens** to enhance overall user and system security.