# Sayed Hayat Ahmad

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## Education

**University of Waterloo** **Current**

*BASc in Computer Engineering* *Waterloo, ON*

- **Relevant Coursework:** Digital Circuits, Linear Circuits, Discrete Math, Calculus II

## Technical Skills

**Languages**: Python, C++, C, C#, VHDL, JavaScript, HTML, CSS, GDScript
**Developer Tools**: Altium Designer, KiCad, Intel Quartus Prime, Solid Works, AutoCAD, Git, Blender, Linux
**Framework & Technologies**: React.js, Three.js, Node.js, RESTful API, CircuitPython, MicroPython

## Experience

**Machine Learning and Data Collection Intern** **July 2024 – Aug 2024**

*Uplift AI*

- Developed a document-trained chatbot capable of answering queries with more than **85%** accuracy by implementing TF-IDF, SVM, and k-NN algorithms using **Python**
- Contributed to speech recognition improvement by collecting **5,000+** high-quality voice samples through strategic data collection methods for Project 540
- Optimized chatbot's speech synthesis and accent adaptation, lowering mispronunciation errors by **30%** through model retraining with diverse voice samples

**Software Engineering Intern** **June 2023 – Aug 2023**

*National University of Science and Technology*

- Designed and implemented key frontend features using **React**, improving research opportunity discovery and increasing successful student-professor connections by **20%**
- Utilized **RESTful APIs** to integrate real-time data, allowing students to view up-to-date research postings instantly, reducing outdated listings and improving navigation efficiency
- Implemented responsive design by applying **CSS** media queries, flexible grid layouts, and adaptive image scaling to optimize profile pages across devices, boosting user engagement by **30%**

**Technical Team Intern** **Aug 2023 – Nov 2023**

*Tetra Pak Ltd.*

- Achieved incident resolutions in under **30 minutes** by diagnosing sensor, motor, and control system issues on over **50** packaging machines, resulting in reduced repair time and improved production uptime
- Achieved a **15%** reduction in unscheduled downtime by implementing a comprehensive preventive maintenance and calibration program for over 50 packaging machines, resulting in improved production efficiency
- Achieved a **10%** increase in overall performance by collaborating with cross-functional teams to implement targeted efficiency upgrades, resulting in enhanced production throughput

## Projects

**Desktop Spotify Assistant** | *ESP32* | *C++* | *Python* | *ArduinoIDE* | *RESTful API* | *SPI/I2C*

- Engineered an IoT device using **ESP32** and **C++** for real-time Spotify track visualization, integrating **RESTful APIs** and **SPI/I2C** protocols
- Implemented direct music control (play/pause) functionality without accessing the Spotify app by developing **HTTP** request handlers for rotary encoder inputs
- Architected secure authentication system using **OAuth 2.0**, ensuring persistent access through automated **token refresh** and secure **API** communication

**Custom Macropad PCB** | *Raspberry Pi Pico* | *CircuitPython* | *Altium Designer* | *AutoCAD*

- Designed a custom 3x3 matrix **PCB** optimized for signal integrity and EMI reduction using **Altium Designer** and **KiCad**
- Improved user productivity by **40%** through customizable macro functionality by programming **CircuitPython** scripts
- Enhanced system responsiveness for efficient workflow control by integrating dual-function rotary encoders with **HID protocol** and implementing interrupt-driven input handling

**Portfolio Website** | *HTML* | *CSS* | *React.js* | *Javascript* | *Three.js* | *JSON*

- Developed a maintainable and scalable **portfolio website** with modular architecture utilizing **React.js**, **CSS** modules, and component-based design
- Engineered reusable **React** components to dynamically render content from **JSON** sources, reducing code redundancy
- Leveraged Google's **Model Viewer Web Component** to render glTF/GLB **3D models**, resulting in cross-browser compatibility without requiring extensive WebGL boilerplate code