Jaehah Shin

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EDUCATION

University of Toronto **Sep. 2022 – May. 2027**
Bachelor of Applied Science in Engineering Science + PEY Co-op *Toronto, Ontario, Canada*
Major: Robotics Engineering (Class Rep), **Minor:** Computer Science
Certificate: J.E.D.I (Justice, Equity, Diversity, and Inclusion)
Relative Courses: Microprocessors & Embedded Microcontrollers, System Software, Digital and Computer Systems, Electronics for Robotics, Data Structures and Analysis

SKILLS

- **Embedded System:** Zephyr RTOS, NRF Connect, UART, I2C, SPI
- **Hardware Design:** SuperSpice, Eagle (PCB), FPGA, Oscilloscope, Micro-soldering
- **Programming Language**: C, Python, Assembly, LaTeX, MATLAB
- **Framework & Software:** ROS, LabVIEW, Autodesk Fusion 360, Git

WORK EXPERIENCE

Ted Rogers Centre for Heart Research – https://franklinresearch.ca/ **May. 2023 – Present**
Undergraduate Researcher *Toronto, Ontario, Canada*
Project 1: Flexible PCB (fPCB) Design with Maxim Components for Wearable Heat Regulation in Hyperemia Research.

- Tuning PID controller to maintain specific temperature (42°C) for certain duration to induce condition for the cutaneous hyperemia.
- Succeeded in developing a fPCB for heater integration with PID temperature controller.

Project 2 (On-Going): Working individually on optimizing System in Package (SiP) / System on Chip (SoC)

- Select and evaluate SiP and SoC through datasheets for integration with accelerometers and optical sensors.
- Assess and develop firmware and software tools for usability within the Zephyr RTOS to communicate and configure data through SPI from the Maxim Integrated device with nRF52833 chip.
- Quantify and optimize battery consumption using power profiling kits.
- Design a prototype board in Eagle to integrate the best SiP/SoC into a compact wearable platform, ensuring fPCB compatibility with various circuit components for Franklin Research Lab.

EXTRACURRICULARS

UofT Wearable (University of Toronto Wearable) **Jun. 2024 – Present**
Co-Founder, Co-President *Toronto, Ontario, Canada*

- Co-founded and led the UofT Wearable design team, focusing on innovative wearable technology.
- Managed sub teams in Embedded Electronics, Companion Software, and Form and Function.
- Led training sessions for approximately 35 students on Zephyr RTOS, Bluetooth Low Energy, and communication protocols (UART, SPI, I2C), enhancing their technical proficiency and understanding.

PROJECTS

Smart Bin (PlastiSorter Bin) **Jan. 2024 – Apr. 2024**

- Led subsystems and team meetings for a smart bin project sorting plastics into seven categories.
- Aimed to improve plastic waste management in urban Ghana with automation and rewards.
- Used C, Python, and Arduino in development.

Hug Bot **Jan. 2024 – Jan. 2024**

- Co-developed HugBot with 4 people, a robot that uses facial emotion recognition to offer comfort.
- Contributed to structural design and Arduino
- The robot mirrors expressions through LCD, and hugs during sadness or anger.