Jae Gwan Park

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Education

University of Toronto **Toronto, Canada**
BASc in Engineering Science **Sep. 2021 – Apr 2026**

Experience

Sunnybrook Research Institute **Toronto, Canada**
Research Assistant **August 2021 – Present**

- Continue pre-clinical summer research project under Dr. Ryan Jones, as a part-time research assistant.

Research Intern **July 2021 – August 2021**

- Worked as a Programming Intern under Dr. Ryan Jones and Principal Investigator Dr. Kullervo Hynynen.
- Investigated a novel transcranial phase correction method for high frequency phased array focused ultrasound (FUS) systems.
- Designed and programmed an automated image processing pipeline to clean artifacts and segment bone tissue from Micro CT scans of rat skull caps.
- Devised algorithms to both extract inner/outer skull meshes for use in ray acoustic simulation models, and to co-register skulls spatially with a FUS transducer to replicate prior measurements.
- Screened scientific literature proficiently, and presented project's research findings to laboratory.
- Technologies Used: *MATLAB, ImageJ*

Incendium Academy **Toronto, Canada**
Co-founder, Software Developer **October 2020 – June 2021**

- Co-founded a grant-funded non-profit education platform that aims to level the playing field for high school students who cannot afford STEM contest preparation.
- Led a team of 15 people coordinating front-end software development, product design, content creation, and marketing.
- Worked with international contest winners (AIME, CMO, CCO, IOI) to develop a potent STEM contest-based curriculum.
- Technologies Used: *HTML, CSS, Jekyll, YAML, liquid, LaTeX, JavaScript, Git*

Projects

Defeat the Heat | *Java* **May 2019**

- Developed an educational computer game using Java to teach users about fire safety.
- Created a GUI using hand drawn graphics and Java awt/swing libraries, that allows the player to navigate game menus and save/pause game progress.
- Utilized object oriented programming practices such as inheritance to structure player navigation and in-game mechanics.

Home Security System | *Arduino, C/C++, TinkerCAD* **May 2021**

- Created an Arduino system to simulate a smart home security system.
- Processed live signal feeds from Arduino components (IR, LDR, numpad, and button sensors) using back-end C/C++ code to control the home alarm.
- Designed, debugged, and optimized a functioning prototype on TinkerCAD software.

Technical Skills

Languages: Java, MATLAB, C/C++, HTML, CSS, SASS, Turing, 8085 Assembly
Technologies/Frameworks: Git, ImageJ, LaTeX, Jekyll, VEXcode, TinkerCAD, SketchUp, Arduino

Leadership / Extracurricular

Mackenzie Science Club **Sept 2017 – Jun 2021**
Event Designer **William Lyon Mackenzie CI**

- Lead the chemistry branch of Mackenzie Science and Engineering Olympics (MSEO) for 300+ middle school students.
- Designed and supervised 30+ year-long weekly events for over 150 active club members.
- Implemented the "Verify" Discord verification bot to help facilitate online club security.