Jae Gwan Park

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Education

University of Toronto Sep 2021 – Apr 2026

B.A.Sc. Engineering Science *Toronto, ON*

- University of Toronto Scholar ($7500), Lo Family Scholarship ($5000), Elliott M Wilson Scholarship ($2175), Jim Balsillie Scholarship ($325)

William Lyon Mackenzie Collegiate Institute Sep 2017 – Jun 2021

OSSD. Math and Computer Science (MaCS) Program. Average: 99% *Toronto, ON*

- Pythagoras Award: awarded to the student who demonstrated the most aptitude and dedication towards mathematics.

Experience

Sunnybrook Research Institute | Research Assistant Aug 2021 – Present

Focused Ultrasound Group

- Independently researched a novel transcranial phase correction method used in high frequency focused ultrasound (HIFU) systems under Dr. Ryan Jones and Dr. Kullervo Hynynen, working towards publishing a paper.
- Created **MATLAB** processing scripts to extract and analyze over 500 MRI images from open-source databases.
- **Automated** and optimized CT segmentation pipelines, **decreasing processing times by over 100%**.

Sunnybrook Research Institute | Software Developer Intern Jul 2021 – Aug 2021

Focused Ultrasound Group

- Designed and implemented a **MATLAB image processing pipeline** that segmented bone tissue from Micro CT scans of rat skulls in under 1 minute.
- Created MATLAB scripts to co-register 21 skulls with a FUS transducer to replicate prior benchtop measurements.
- Developed algorithms to extract inner/outer triangulated skull meshes, that were used in ray acoustic simulation models.

Incendium Academy (startup) | Software Engineer Oct 2020 – June 2021

Developer Team

- Co-founded a $1000 RisingYouth grant-funded non-profit education platform that aims to level the playing field of high school STEM contests.
- Led a team of 15 people to create a front-end using Jekyll, Firebase, HTML, and SASS in 2 months that reached over 500 unique visitors within the first month of release.
- Conducted regular code reviews for junior developers, providing feedback and overseeing bug-free deployments.

Projects

Defeat the Heat | Java May 2019

- Developed a full-stack computer video game to teach users about fire safety.
- Created a GUI using 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 mechanic.

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

- Designed an Arduino system to simulate a smart home security system.
- Processed using parallelization over 5 live signal feeds from Arduino components (IR, LDR, numpad, button sensors, etc) using C/C++ to control the home alarm.
- Proposed, debugged, and optimized a functioning prototype on TinkerCAD software.

Portfolio Website | HTML, SCSS, Jekyll Sept 2021

- Personal site built with the Jekyll framework optimized for desktop and mobile use.
- Incorporates responsive, modern project pane design with hover animations.

Technical Skills

Languages: Python, MATLAB, HTML, CSS, Java, C, C++, Turing, Assembly
Technologies/Frameworks: Git, Arduino, TinkerCAD, LaTeX, Jekyll, VEXcode, SketchUp, Stradview, ImageJ
Libraries/Toolboxes: NumPy, Image Processing Toolbox, Computer Vision Toolbox