PETER KIM

734-259-9935 | pkim50115@gmail.com | pjk1m.com | github.com/PJ1229 | linkedin.com/in/peter-kim-34719126b

EDUCATION

Wayne State University **Graduation: December 2026**
Honors Bachelor of Science in Electrical and Computer Engineering *Detroit, MI*
Minor in Computer Science and Mathematics *GPA: 4.00/4.00*
Relevant Coursework: Digital Logic Design, Computer Architecture & Organization, Discrete Mathematics, MATLAB

EXPERIENCE

Engineering Capstone Project | GitHub | *Arduino, 3D Printing, Computer Vision* **September 2024 – May 2024**
Designer, Engineer, Programmer *Canton, MI*
- Developed an automated snowplow model capable of navigating a 3ft x 3ft area using Arduino and a 3D-printed chassis.
- Achieved a data transmission speed of 6 MB/s via MQTT over Wi-Fi, a **2457%** increase from 250 KB/s using an NRF module.
- Detected April Tags with an **85%** detection rate during optimal runs using a Raspberry Pi and camera.

Plymouth District Library **August 2023 – August 2024**
Internship *Plymouth, MI*
- Managed lab equipment, including 3D printers, while assisting patrons with software such as Fusion 360.
- Developed a Problem Bank website, leveraging **JavaScript** and **HTML/CSS**, which streamlined the process for users to access and solve programming problems, resulting in improved user engagement and satisfaction.
- Contributed to the successful execution of library programs for the lab, enhancing community engagement.

PROJECTS

Hand Gesture Race Car Game | GitHub | *PixiJS, Google MediaPipe, Express.js* | Hack Dearborn 3 **October 2024**
- Developed a top-down race car video web game that utilizes a webcam and hand gestures for control, significantly reducing the need for expensive racing wheels and other peripherals.
- Implemented hand gesture recognition using Google MediaPipe, achieving an accuracy of over **90%** for real-time hand detection and gesture recognition.

Decimal to IEEE 754 Converter | GitHub | *Flask, Gunicorn, Heroku* **September 2024**
- Developed a **Flask** web app that converts decimal numbers into IEEE 754 floating-point format with up to **256-bit** precision allowing high precision calculations and resulted improved accuracy for large computations beyond the typical 64-bit format.
- Implemented user authentication and a clean UI for an enhanced user experience, allowing users to save and manage their conversion history seamlessly.

3D Math Rendering Software | GitHub | *C++, SFML* **April 2024**
- Developed a 3D rendering software for math functions capable of plotting **9 billion points** simultaneously using the SFML library.
- Implemented a dynamic camera in the software from linear transformations to enhance visual representation and user interaction.

Missile Pathfinding Simulation | GitHub | *C++, SFML* **March 2024**
- Developed a missile pathfinding simulation that successfully intercepts moving targets **88%** of the time across **100 trials** with various obstacles, utilizing a combination of ray marching and pursuit curve algorithms.
- Developed a hit detection system with **O(nh)** time complexity using the Jarvis March method due to simplicity.

ORGANIZATIONS

Society of Computer Developers - Computer Science Club at Wayne State University *September 2024 - Present*
Institute of Electrical and Electronics Engineers - ECE Club at Wayne State University *September 2024 - Present*
Filipino Society at Wayne State University *September 2024 - Present*
Irvin D. Reid Honors College at Wayne State University *August 2024 – Present*

SKILLS & ASSETS

Languages: C++, Python, JavaScript, Java, HTML5/CSS3, MATLAB
Software/Hardware: Node.js, Express.js, Git/GitHub, Xcode, React, Flask, Arduino, 3D Printing