

PETER KIM

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EDUCATION

Wayne State University

Honors Bachelor of Science in Electrical and Computer Engineering
Minor in Computer Science and Mathematics

Graduation: June 2027

Detroit, MI

GPA: 4.00/4.00

EXPERIENCE

Engineering Capstone Project | [GitHub](#) | C++, AutoCAD, Computer Vision, Arduino

September 2023 – May 2024

Designer, Engineer, Programmer

Canton, MI

- Developed an automated snowplow model capable of navigating a 3ft x 3ft area by programming and wiring an Arduino and designing a 3D-printed chassis as a Highschool Engineering Project
- Achieved a significant improvement in data transmission speed by implementing MQTT over Wi-Fi, resulting in a rate of 6 MB/s which represents a 2457% increase in performance compared 250 KB/s obtained with 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 to store data on Microsoft Excel, 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

Autonomous RC Car | [GitHub](#) | C++, ROS, AutoCAD, Raspberry pi, Arduino, LiDAR

Present

- Developing a full-stack autonomous car system using LiDAR, Raspberry Pi, Arduino, and sensors, integrating C++ and ROS for real-time navigation and obstacle detection.
- Designing a custom chassis in AutoCAD, enabling end-to-end functionality from LiDAR data processing to autonomous control.

Hand Gesture Race Car Game | [GitHub](#) | PixiJS, Google MediaPipe, Express.js | Hack Dearborn 3

October 2024

- Developed a race car simulation with gesture-based control via webcam, demonstrating skills in sensor data processing and real-time control relevant to embedded systems and automation.
- Achieved over 90% accuracy in hand gesture recognition using Google MediaPipe, optimizing data handling for responsive, low-latency control suitable for hardware applications.

3D Math Rendering Software | [GitHub](#) | C++, SFML

April 2024

- Created a 3D rendering tool using SFML to visualize complex mathematical functions, handling up to 9 billion points for high-precision engineering applications.
- Implemented dynamic camera controls using linear transformations to enhance data visualization and interactivity in technical environments.

Missile Pathfinding Simulation | [GitHub](#) | C++, SFML

March 2024

- Developed a missile pathfinding simulation using ray marching and pursuit curve algorithms, achieving an 88% interception rate across 100 trials with obstacles.
- Implemented an efficient hit detection system with $O(nh)$ time complexity using the Jarvis March method for optimal performance in dynamic environments.

ORGANIZATIONS

TechTapes - Founder of Nonprofit for Technology Accessibility

January 2025 - Present

Wayne State Robotics

October 2024 - Present

Filipino Society at Wayne State University

September 2024 – Present

IEEE - Social Media Head at Wayne State University

September 2024 - Present

Irvin D. Reid Honors College at Wayne State University

August 2024 – Present

SKILLS & ASSETS

Programming Languages: Verilog, MATLAB, C & C++, Python, JavaScript, Java, HTML5/CSS3

Technical Skills: Digital Circuit Design, AutoCAD, Microprocessor and Microcontroller Architecture, ROS2,

Git/GitHub, Raspberry Pi, Arduino, Combinatorial Logic, Memory and Data Storage Systems