Apostoli Karpouzis

amk367@pitt.edu | linkedin.com/in/apostolikarpouzis | apostolikarpouzis.com | github.com/apostoli-karpouzis | 717-333-6781

EDUCATION

University of Pittsburgh, School of Computing and Information **Pittsburgh, PA**

Bachelor of Science in Computer Science, Minor in Modern Greek August 2021 - December 2024

- **Courses:** Data Structures & Algorithms, Operating Systems, Web Development, Computer Organization and Assembly, System Design on Mobile Robot Platform, Cryptography and Network Security, Software Engineering

EXPERIENCE

Software Engineering Intern **York, PA**

Kassel Performance *September 2023 - Present*

- Developed CAN Bus translation software in C++ to display data from modern engine control units on to outdated platforms
- Designed a consumer product in Altium for engine swapped vehicles to drive analog gauges and dashboard lights, seamlessly integrating the CAN data from the modern ECU to an older platform
- Facilitated real-time data acquisition using a dynamometer, collaborating with professionals to deliver detailed performance analysis and actionable insights to customers
- Created software to optimize engine load management during air condition use, effectively solving idle errors in customer cars

Formula Society of Automotive Engineers **Pittsburgh, PA**

Data Acquisition & Live Telemetry for Panther Racing *May 2023 - Present*

- Enhanced a live telemetry system using Azure services, leveraging SQL Queries in Node.js and Node-RED to streamline crucial data collection for testing and competing
- Co-developed firmware in C for Panther Racing's first electric vehicle, contributing to a top 8 finish out of 77 teams at our first Formula SAE Electric Competition
- Debugged and optimized Python scripts for automating data input and manipulation in DBC (CAN database) files, guaranteeing reliable management of critical vehicle communication protocols

PROJECTS

Robot Goal-Scorer **Pittsburgh, PA**

Python, ROS *May 2024 - August 2024*

- Collaborated with a team to develop an autonomous soccer-playing system on a mobile robot platform using ROS, utilizing advanced trigonometry and CMVision to detect the ball and goal's position in space
- Created algorithms in Python to merge detected blobs for consistent representation of the objects in different light
- Integrated vision processing with our optimized tracking algorithm, enabling the robot to find and shoot the ball consistently towards the goal at precise angles

Secure File Sharing System **Pittsburgh, PA**

Java, Bouncy Castle *May 2024 - August 2024*

- Implemented Diffie-Hillman key exchange protocol to securely establish shared secrets between the servers and the user, ensuring confidentiality of data transmission
- Managed the distribution and version control of AES keys given to group members for encrypted file uploads
- Worked alongside a group of friends to create a group file sharing system that implements cybersecurity features to protect against proposed threat models

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, C, C++, HTML, CSS, SQL, Rust
Tools & Frameworks: ROS, Linux, Azure, Node.js, Node-RED, Arduino, React, Git, Jupyter, Junit, Bevy
Libraries: Bouncy Castle, pandas, OpenCV, Matplotlib