Amar Maksumić

New York, NY

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Summary

Diligent, communicative second-year CS+CSE student. Experienced in methodical development of embedded control systems and software using Machine Learning, Computer Vision, and Control Systems concepts. Seeking an automotive, robotics, or embedded systems related internship.

Education

Rensselaer Polytechnic Institute (GPA: 3.95) *Troy, NY*

B.S. in Computer Science and Computer Systems Engineering *Aug. 2021 - Dec. 2024*

- Minor in Literature and Creative Writing
- Inducted into the Archimedean Program; a program for Rensselaer Polytechnic Institute's highest achieving students.
- Relevant Coursework: Foundations of Computer Science, Data Structures, Intro to Electrical, Computer, & Systems Engineering, and CAD

Experience

Rensselaer Polytechnic Institute *Troy, NY*

Undergraduate Research Assistant *Oct. 2022 - Present*

- Working with Professor John Wen and PhD student Alex Elias to implement subproblem solutions in Elias' research paper "Canonical Subproblems for Robot Inverse Kinematics" in C++
- Implementing various subproblems with the Hello Robot Stretch RE1 to test algorithm efficiency and efficacy

Rensselaer Motorsport *Troy, NY*

Powertrain Lead *Jul. 2022 - Present*

- Leading development of RM's first electric powertrain: EMRAX 228 motor with a Cascadia RMS PM100DX motor controller
- Developing control systems (Traction Control, Launch Control, Regen Braking) for the powertrain
- Integrating the Battery Management System for our custom accumulator using the Orion BMS 2 package
- Working alongside chassis, cooling, and drivetrain subsystems to develop a high-performing car that meets competition regulations

Full Time Member / Electrical Software Engineering *Mar. 2022 - Jul. 2022*

- Focused on research for wireless telemetry and strain gauge systems; Worked on wiring harness manufacturing

RPI Robotics *Troy, NY*

Officer *Apr. 2022 - Present*

- Working on Laser Tag Robots (iRobot Create 3's that play laser tag using an infrared targeting system)
- Restarting RPI Robotics with fellow Officers after a 2+ year hiatus period

FIRST Robotics Competition Team 2601: the Steel Hawks *Flushing, NY*

Electrical and Software Engineering Mentor *Nov. 2021 - Present*

- Mentoring a subsystem of 30+ students on how to develop and implement computer vision algorithms and autonomous routines

Vice President of Fabrication and Software Engineering *Jul. 2020 - Jun.2021*

- Lead several subteams and managed multiple team-wide projects: ML-CV, Command based Autonomous System, Power Take-Off Gearbox

Honors & Awards

Fall 2021, Spring 2022 RPI Dean's Honor List *Troy, NY, USA*

2020, 2021 Recognition in Mu Alpha Theta National Math Honor Society *New York, NY, USA*

Skills

Languages: C, C++, Python, JavaScript, TypeScript

Libraries: NumPy, Panda, Matplotlib, TensorFlow, OpenCV, Tornado, Tkinter, Node.js

Software: VSCode, Docker, Git, Matlab, LTSpice, Fritzing, Onshape, SolidWorks, Siemens NX

Portfolio

ML-CV (Machine Learning based Computer Vision)

- A hybrid between OpenCV and TensorFlow Lite. Allowed for accurate, precise detection of objects with minimal compute resource usage
- Used a TF Lite MobileNet model to detect valid objects, followed by an OpenCV algorithm to compute the precise location of detected objects

Aquila Heavy (Thrust Vectoring Control model rocket)

- Worked on embedded systems, telemetry, and PID control loops for TVC module on Aquila Heavy: my engineering final-project in high school