Amar Maksumic

New York, NY / Troy, NY

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Summary

Diligent, communicative second-year CS + CSE student. Experienced in use of open and closed loop control systems for applications in automotive and robotics fields. Knowledgeable in fields such as computer vision and embedded hardware. Seeking an automotive or robotics internship.

Education

Rensselaer Polytechnic Institute (GPA: 3.89) *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: Computer Architecture, Networks, and Operating Systems; Intro to Algorithms; Intro to AI; Embedded Control; Computer Components and Operations; Foundations of CS; Data Structures; Engineering Graphics and CAD

Experience

Rensselaer Motorsport (RM) Formula SAE Team *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
- Supporting chassis, cooling, and drivetrain subsystems to develop a high-performance car that meets competition regulations
- Developing open and closed loop control systems (Traction Control, Launch Control, Regen Braking)
- Integrating the Battery Management System for our custom accumulator using the Orion BMS 2 package

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

- Designed wireless telemetry and strain gauge systems
- Manufactured wiring harness for the rear section of the car (engine sensors, gearbox I/O, etc.)

RPI Robotics *Troy, NY*

Vice President *Dec. 2022 - Present*

- Leading robotic art installation for display at my university. Composed of 100 origami-based units that react to user input
- Develop control software using linear control theory for the array of origami units
- Managing project and meeting scheduling, along with material inventory for the club

Officer *Apr. 2022 - Dec. 2022*

- Implemented ROS for Laser Tag Robots (iRobot Create3 Roombas that play laser tag)
- Restarted RPI Robotics with fellow Officers after a 2+ year hiatus period

Rensselaer Polytechnic Institute *Troy, NY*

Undergraduate Research Assistant *Oct. 2022 - Present*

- Converting subproblem solutions to "Canonical Subproblems for Robot Inverse Kinematics" to C++ with PhD student
- Testing subproblem efficiency and efficacy with bench-marking and various robots on campus

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

Electrical and Software Engineering Mentor *Nov. 2021 - Dec 2022*

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

Honors & Awards

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

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

2020, 2021 Recognition in New York State Science Honor Society *New York, NY, USA*

Skills Extra

Programming Languages: C, C++, Python, JavaScript, Java

Libraries: NumPy, Panda, Matplotlib, TensorFlow, Eigen C++, OpenCV, Flask, Tkinter, Node.js

Software: VSCode, Docker, Git, Matlab, LTSpice, KiCAD, Onshape, SolidWorks, Siemens NX, Office Suite

Languages: English (fluent), Croatian (fluent), Bosnian (fluent), Spanish (reading and writing)

Citizneship: Dual Citizen of United States of America & Bosnia and Herzegovina

Portfolio

Swerve Drivetrain

- Developed a closed loop control system for both robot orientated and field orientated control of a swerve drivetrain

Aquila Heavy (Thrust Vectoring Control model rocket)

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