

SANJAY MOHAN KUMAR

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EDUCATION

George Mason University

Fairfax, VA

Pursuing Bachelor of Science in Computer Science

Exp. Graduation: Dec 2025

Relevant Coursework: Data Structures, Low-Level & Systems Programming

Awards/Certifications: Dean's List, Microsoft Office Specialist Expert

SKILLS

Programming Java, Kotlin, Python, C/C++, Linux/Unix, R, OOP, Optimization, Signal Processing

Technology Git, vSLAM, OpenCV, TensorFlow, Valgrind & GDB, JIRA

CAD Onshape, Fusion360, 3D Printing, Rendering, Surface Modeling

Hardware Microcontrollers, Embedded Systems, PCB Design, IoT

Robotics Control Systems, Asynchronous FSMs, Motion Planning, Kinematics, Localization

EXPERIENCE & LEADERSHIP

FIRST Alumni Association, Vice President

Oct 2022 - Present

- Led STEM-focused club as Vice President role, organizing FIRST robotics events and community outreach to drive interest in robotics and STEM related fields.
- Helped lead "Spring into STEM" community event at GMU which promoted STEM to students K-12th in the DMV area, with roughly 300-500 participants.

GMU Undergraduate Teaching Assistant

Aug 2023 - Present

- Supported roughly 200+ students each week in topics of Low-Level C Programming and Unix fundamentals.
- Supported GTAs and Instructors during weekly labs and Lecture classes, Code reviewed and provided intuitive constructive feedback for Labs and Programming Assignments.

PROJECTS

Smart Signal: C/C++ | Microcontrollers

Aug 2017 - Dec 2017

Developed an intelligent traffic intersection prototype that utilized ultrasonic sensors to optimize green light allocation, resulting in reduced traffic congestion and improved system efficiency. Recognized for successfully integrating hardware and software solutions to solve real-world problems with innovative technology.

Asynchronous Finite State Machines Builder: Logical Control Flow

Jan 2022 - Apr 2023

An extremely robust software library, I created and rigorously tested, to make creating and modeling Finite State Machines easy. Its potential to be embedded into any software system is made possible by a unique plug-and-play style interface. This system efficiently transitions between program states while preserving context variables.

Dynamic Sensor Localization: Signal Processing | Sensor Fusion | Localization

May 2022 - Jun 2023

Intuitive software algorithm I created, that polls ultrasonic pulses to fixed objects to derive a relative real-time 2d vector position. The algorithm efficiently polls sensors on an "as needed" basis, which significantly increases system responsiveness. Additionally, any outliers in data that is polled are intelligently filtered out.

Environmental Safety Navigation: Computer Vision | AI | Neural Networks | vSLAM

Oct 2023 - Present

Developed real-time AI technology for visually impaired individuals, combining computer vision with haptic feedback for seamless navigation in various environments. Implemented a custom object detection system with a rolling window noise dampening filter, ensuring accurate tracking of nearby objects. All processing is on-device for enhanced privacy and compatibility with smartphones and cameras.