SANJAY MOHAN KUMAR

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EDUCATION

George Mason University — Fairfax, VA
Bachelor of Science in Computer Science — Aug 2022 - Dec 2024
Masters of Science in Computer Science (Accelerated Masters program) — May 2024 - Dec 2025
Coursework: Artificial Intelligence, Data Structures, Algorithms, Agile Software Engineering
Deans List: 2022 - 2024

EXPERIENCE

Undergraduate Teaching Assistant — Aug 2023 - May 2024

- Assisted Professors and GTAs in teaching Low-Level & Computer Systems programming, supporting over 400 students each semester and contributing to an increase in class participation and engagement.
- Conducted mid-semester and end-of-semester review sessions, helping students improve their grades and fostering a collaborative learning environment.

SELF-MOTIVATED PROJECTS

Naviguide AI: *Computer Vision* | *AI*

- Developed an AI for dynamic object detection and tracking, created autonomously calibrating vision parameters to minimize background noise and enhance environment.
- Designed a Neural Network for real-time user haptic feedback, enabling visually impaired individuals to perceive the direction and distance of nearby objects; ensured privacy by processing all data locally.
- Won 1^{st} place in the "Best use of Artificial Intelligence" track at PatriotHacks 2023 - 2024 Hackathon

AsyncFSM: *Data Structures* | *Algorithms*

- Designed and developed a robust data structure, enabling non-blocking management and concurrent processing without risk of data corruption, spontaneously acts as data structure while allowing state machine operations
- Achieved *O(1)* time complexity for data addition and *O(n)* for searches and executions
- Ideal for multi-process applications desiring minimal latency and maximum efficiency.

VIMU Process Monitor: *C* | *Linux/Unix*

- Developed the VIMU monitor using C, featuring an interactive command-line shell for executing, inspecting, and managing multiple tasks, with support for file redirection and inter-process communication.
- Implemented efficient logging, signal handling, and error reporting functions to ensure consistent output and successful concurrent process management in a Unix operating system.

BlockIdentity: *Blockchain* | *Data Structures* | *Smart Contracts*

- Developed a fast blockchain-based verification system using Zero-Knowledge Proofs and Smart Contracts to enhance security and privacy in personal/user identification technology.
- Utilized the Dock blockchain to issue and manage decentralized identifiers and digital credentials, ensuring data integrity and mitigating possibilities for identity fraud.
- Reduced login waiting times by 17% on average, compared to traditional two-factor authentication methods.

STRENGTHS

Languages	Java, Python, C/C++, Kotlin, x64/x86 Assembly, R, LaTeX
Frameworks	NumPy, Pandas, TensorFlow, Matplotlib, PyTorch, SciPy, JavaFX
Technologies	Git, Linux/Unix, Blockchain, ROS/ROS2, Quantum Algorithms
Soft Skills	Leadership, Critical Thinking, Communication, Problem Solving