

Sudhir Gunaseelan

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SUMMARY

- An aspiring software developer with hands-on experience in programming and problem-solving. Showcased my skills through projects like developing navigation algorithms for Cozmo Robot using Python and OpenCV, and implementing Checkers and Sokoban games in C++ using SFML. Currently pursuing my Master's degree in Computer Science at the University of Massachusetts Lowell. Eager to leverage my skills and knowledge in a challenging environment that offers growth and learning opportunities.

EDUCATION

- **Master of Science in Computer Science (Cybersecurity concentration)** September 2024 - Present
University of Massachusetts Lowell, Lowell, MA
Coursework: Algorithms, Data Communications, Database I, Natural Language Processing, Computer & Network Security I, Malware Analysis, Artificial Intelligence, Fundamentals of Robotics, Computer Architecture and Design, Issues in Computer Crime and Cyber Security.
- **Bachelor of Science in Computer Science** September 2021 - August 2024
University of Massachusetts Lowell, Lowell, MA
 - GPA: 3.41 Honors: Cum Laude, Dean's List
 - Relevant Coursework:* Computing IV (Advanced C++ Programming), Object Oriented Programming, Machine Learning, Mobile Robotics, Data Structures, Analysis of Algorithms, Data Communications, Graphical User Interface Programming, Computer Architecture, Compiler Construction, Operating Systems, Organization of Programming Languages, Foundations of Computer Science, Assembly Language Programming, Discrete Structures, Calculus II, Probability & Statistics.

SKILLS

- **Programming Languages:** Python, C, C++, HTML/CSS, and JavaScript.
- **Frameworks/Libraries:** SFML, jQuery UI, React, Bootstrap, OpenCV, TensorFlow, scikit-learn, numpy, and Pandas.
- **Software/Tools:** Visual Studio Code, GitHub, Git, Linux, Ubuntu, Putty, Jupyter, Wireshark, WPS Office, MS Word, and PowerPoint.
- **Soft Skills:** Time-management, Active Listening, Problem-Solving, Teamwork, and Communication.
- **Languages Spoken:** English & Tamil

PROJECTS

- **Cozmo Robot Programming (Python, Mobile Robotics, Sensor Fusion):** Developed advanced navigation algorithms for the Cozmo Robot, improving pathfinding accuracy through sensor fusion and environmental representation. Leveraged OpenCV to detect colored cubes and utilized the Rapidly-exploring Random Tree (RRT) algorithm for optimal pathfinding. Implemented a finite state machine for task execution based on AR markers, enhancing precision in target detection. Applied Monte Carlo localization using particle filters, significantly improving the robot's navigation and task completion efficiency. Tech: Python, OpenCV, RRT algorithm, Monte Carlo localization (January 2024 - April 2024)
- **Checkers Game (C++, Game Development, Object-Oriented Programming):** Built a fully functional Checkers game using C++ and the SFML library, with complete game logic including move validation, piece elimination, and promotion to kings. Focused on object-oriented programming to ensure smooth gameplay with a visually appealing SFML-based interface. Tech: C++, SFML, OOP (March 2023 - April 2023)
- **Sokoban Game (C++, Game Development, Puzzle Design):** Created a warehouse-themed Sokoban puzzle game where players push boxes to specific locations. Developed efficient game mechanics, including player movement, box interaction, and collision detection, using C++. The graphical interface was rendered using SFML to create an engaging and functional gameplay experience. Tech: C++, SFML, Puzzle Logic (January 2023 - February 2023)

HOBBIES/INTERESTS

- Solving a 3 x 3 Rubik's cube.
- Playing Badminton.
- Coding.