Sudhir Gunaseelan

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sudhir848.github.io/My-Personal-Portfolio/

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: Computer Science (Concentration: Cybersecurity)

University of Massachusetts, Lowell • Lowell, MA • September 2024 - December 2025

- 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: Computer Science

University of Massachusetts, Lowell • Lowell, MA • September 2021 - August 2024

- 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: C, C++, HTML/CSS, Python, 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

Programmed with Cozmo Robot in Python using OpenCV tools

University of Massachusetts, Lowell • January 2024 - April 2024

- Designed and implemented navigation algorithms based on sensor fusion and environment representation, improving the robot's pathfinding accuracy.
- Constructed and tested the operation of a robotic system to perform specified tasks, ensuring reliable task execution.
- Detected various colored blobs/cubes and found the shortest path to the goal (light cube) using the RRT algorithm and coordinate transforms, enhancing the robot's efficiency in task completion.
- Implemented a finite state machine to drive towards the specified cube marked with AR markers, increasing the robot's precision in target detection.
- Applied Monte Carlo localization using a particle filter to estimate the position and orientation of the robot as it moves and senses the environment, improving the robot's navigational accuracy. **GitHub**

Checkers Game

University of Massachusetts, Lowell • March 2023 - April 2023

- Implemented game logic using C++ and SFML libraries, enabling players to eliminate opponent pieces and block their movements, resulting in a functional and engaging game.
- Utilized object-oriented programming principles to manage game states, validate moves, and handle piece promotion to kings, resulting in a smooth and interactive user experience with an SFML-based graphical interface. **GitHub**

Sokoban Game

University of Massachusetts, Lowell • January 2023 - February 2023

- Implemented game logic for a warehouse-themed puzzle game where the player pushes boxes to designated storage locations, enhancing my problem-solving skills.
- Developed using C++, including player movements, box interactions, and collision detection, and utilized SFML for rendering graphics, resulting in a fully functional and visually appealing game. **GitHub**