Adarsh Karan K P

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Where creativity meets technical expertise: I'm a Robotics problem-solver driven by impactful solutions. I'm particularly passionate about pushing the boundaries in areas like Autonomous Mobile Robots(AMRs) and intelligent Humanoid Robots. I'm eager to leverage my skills and enthusiasm in a team-focused environment where I can learn, grow, and contribute to developing solutions with lasting impact in the field of robotics.

EDUCATION

- **University of Manchester** — Manchester
  MSc Robotics; Distinction, CGPA: 71.6* (as of Semester 1) — *September 2023 - Present*
- **PSG College of Technology** — Coimbatore
  Bachelor of Engineering in Electronics and Communication Engineering(ECE) ; CGPA: 9.07 — *July 2019 - July 2023*

AREAS OF INTEREST

- **Robotics (ROS, Programming, Autonomous Mobile Robots- AMRs, Humanoid Robots, SLAM):** Passionate about developing intelligent and adaptable robots that can interact with the world.
- **Embedded Systems & IoT:** Driven by the potential to create smart and connected devices, leveraging both my programming skills and hardware knowledge to solve real-world problems.
- **Control Systems:** Captivated by the challenge of designing control systems that enable robots to perform complex tasks with precision. I'm particularly interested in applying control theory to path planning, navigation, and motion control for autonomous mobile robots (AMRs) and humanoid robots.

SKILLS SUMMARY

- **Languages**: Python, C#, C++, C, Java,
- **Platforms**: Linux, Windows
- **Tools & Frameworks**: ROS2 (Humble,Rolling), Gazebo, RViz, VS Code, Git, Unity, Blender, Arduino IDE, MATLAB, MySQL, MS-Office, Adobe Suite
- **Development Boards**: Arduino Uno, NodeMCU ESP8266, Raspberry Pi, ESP32
- **Libraries**: NumPy, SciPy, Matplotlib, PyTorch, Scikit-learn, OpenCV

WORK EXPERIENCE

- **Neobotix GmbH** — Manchester, United Kingdom
  Robotics Intern — *May 2024 - Present*
  - Refactored and reorganized launch files and package structures, enhancing modularity and maintainability.
  - Transformed mobile robot URDF files into modular Xacro files, improving scalability and readability.
  - Utilized Git for version control, facilitating efficient tracking of changes and team collaboration.
  - Produced user guides and tutorial videos for codebase updates.

- **Pricol Limited** — Coimbatore, India
  Electronics Engineering Intern — *Feb 2023 - May 2023*
  - Engaged in circuit design and programmed PIC microcontrollers, enhancing technical expertise.
  - Tested automotive components, including electric coolant pumps and fuel injection systems, and created detailed documentation.
  - Gained valuable exposure to embedded systems and product development cycles, crucial for robotics.

ENGINEERING PROJECTS

- **Autonomous Retrieval Robot** *Sept 2023- May 2024*

  Developed an Autonomous Mobile Robot using the Leo Rover kit to retrieve objects in unknown environments. Implemented ROS2 navigation and exploration in simulation and real-world deployment. [**Technical Stack:** *ROS2, Nav2 stack, Frontier Based Exploration, SLAMtoolbox, Intel NUC, RPLIDAR A2M12 360° Scanner, Intel RealSense D435 Depth Camera, RQT, RViz, Gazebo, Visual Studio Code*]

- **Teleoperated Extraterrestrial Rover** *Feb 2024*

  Built & programmed a remotely-controlled Teleoperated Extraterrestrial Rover in 24 hours at HackABot2024. Contributed to camera integration and control programming for seamless remote operation and collaborated on the overall design for diverse terrain navigation. [**Technical Stack:** *Arduino Uno,L293D Motor Driver Shield, ESP32-CAM,HC-05 Bluetooth Module, Analog Servo Motor, DC Motors*]

- **Grid-Based A* Pathfinding Algorithm** *April 2024*

  Developed and Implemented a custom A* algorithm for efficient robot navigation in grid environments, using a binary heap and Euclidean heuristic for prioritized exploration. Incorporated cardinal movements and obstacle avoidance.[**Technical Stack:** *Python, OOPs, Data Structures - Binary Trees, Heap, Visual Studio Code*]

- **Shopping Game for Psychiatric Patients** *Aug 2022- Dec 2022*

  Developed an Online Shopping Game using Unity to train patients in essential skills. Designed UI/UX, implemented OOP, and integrated Firebase for real-time data. [**Technical Stack:** *Unity, C# OOPs, Visual Studio, Google Firebase, Firestore*]

- **Magnetometer Based Smart parking System** *Dec 2022- April 2023*

  Led a 3-person team to develop a novel Smart Parking System using magnetometers for real-time parking availability. Programmed and calibrated magnetometers for accurate vehicle detection and implemented an in-app pathfinding algorithm.[**Technical Stack:** *QMC5883L GY-273 magnetometer, LoRa Ra- 02 SX1278 transceiver, NodeMCU ESP8266, Monopole Antennas, GNU Plot, Python, Android Studio and Google Firebase*]

HONORS AND ACHIEVEMENTS

- University of Manchester **"The Engineering the Future"** Scholarship recipient (strong academic record in Bachelor of Engineering in ECE).

- Served as the Class Representative of MSc Robotics, Batch 2023-2024, University of Manchester, United Kingdom.

- Served as the Class Representative of ECE G1, Batch 2019-2023 from NOVEMBER 2019 to MARCH 2020, PSG College of Technology, India.

- Secured the Yuvabharathi Public School Subject Topper Award for "PHYSICS" and "CHEMISTRY" in AISSCE 2019 Examination.