KARAN KARKERA

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PROFESSIONAL SUMMARY

Highly motivated and dedicated Robotics and AI Engineer, with a passion for autonomous systems and AI implementation. Possesses strong communication, collaboration, and problem-solving skills, with a proven ability to work independently and as part of a team. Committed to excellence and eager to contribute meaningfully across diverse tech domains

CORE COMPETENCIES

- **Programming Languages:** Python, C++, Embedded C, C, Assembly, MATLAB, Arduino IDE
- **Design & Simulation Software:** Fusion 360, CATIA, Siemens FluidSIM, RoboAnalyze, SolidWorks, WPLSoft, CAMotics
- **Applied Knowledge in AIML:** AIML/NNDL, Image Processing
- **System Modeling & Hardware:** System modeling, simulation, sensor integration, real-time testing
- **Manufacturing Skills:** 3D printing, CNC machining, laser cutting
- **Web Development Basics:** HTML, CSS, JavaScript
- **Game Development:** Unity for simulation, visualization, and interface development.
- **Soft Skills:** Leadership, teamwork, project management, problem-solving, communication

WORK EXPERIENCE

Indian Institute of Science, Bangalore

Student Intern | June 2024 - July 2024

- Leveraged Machine Learning expertise in a research-intensive internship focused on the intersection of AI and Material Science
- Engineered and deployed Machine Learning models to analyze and optimize the methanol synthesis process for enhanced efficiency
- Successfully predicted optimal pressure and temperature parameters, directly contributing to the potential for increased methanol production efficiency
- Applied AI methodologies to efficiently identify critical factors influencing methanol synthesis

NMAM Institute of Technology, Nitte

Student Intern | December 2022- February 2023

- Developed a virtual maze-solving game using Python, demonstrating proficiency in game development principles
- Utilized Python libraries extensively to learn and implement core game development functionalities
- Designed and implemented the Game UI using the Python Tkinter library for efficient and effective user interaction
- Cultivated essential professional skills, including effective communication, teamwork, and leadership through the internship experience

RELEVANT PROJECTS

ISRO Robotics Challenge | 2025

Aviation Head | November 2024 - Current

- Contributed to the development of an autonomous drone capable of mapping a planetary surface and identifying safe landing zones without GPS dependency
- Engineered a stable drone flight control system utilizing a flight controller for reliable autonomous operation
- Designed and implemented a backup flight system employing an ESP32 microcontroller and MPU6500 sensor for enhanced reliability
- Played a key role in ensuring stable and controlled flight of the autonomous drone through the implementation of flight control algorithms

ISRO Robotics Challenge | 2024

Design and Modelling | September 2023 - May 2024

- Collaborated within an interdisciplinary team focused on creating an autonomous rover for lunar sample collection
- Conducted extensive research on various rover locomotion and mobility systems to inform the design for autonomous navigation across a challenging "moon" terrain with craters
- Developed design specifications for a rover capable of autonomously navigating and traversing cratered landscapes on a simulated lunar surface with ease

AIML and Neural Network Development

Model Developer | July 2024 - April 2025

- Developed and deployed Machine Learning models including Random Forest and Support Vector Machines (SVM) for classification task
- Engineered a Multilayer Perceptron (MLP) as well as Radial Basis Function (RBF) network models utilizing neural network principles for accurate sleep time prediction
- Developed a Convolutional Neural Network (CNN) model for automated classification of American Sign Language (ASL) gestures from images

EDUCATION

2022 - 2026 | NMAM Institute of Technology, Nitte
B.Tech Robotics and Artificial Intelligence
CGPA: 8.84/10 (Present)

EXTRA CURRICULAR

- Member of Robotics Club and Combat Robotics Team, 2-time participant in the ISRO Robotics Challenge
- Joint Treasurer of branch association; managed budgets and organized tech events
- Participated in a Hackathon, presenting a decentralized digital document locker solution leveraging blockchain technology
- Secured 2nd place in a 24-hour Robothon, a competitive robotic hackathon, by designing and building a line follower robot based on a specific problem statement
- Participated in and won multiple robotic race and soccer competitions, demonstrating expertise as a controller for manned wheeled mobile robots

LANGUAGE

English | Japanese (Basics) | Hindi