Aaditya Sakhardande

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EDUCATION

Arizona State University, Tempe, AZ, USA ***Expected May 2026***
Masters in Robotics and Autonomous Systems (Electrical Engineering)
Mukesh Patel School of Technology Management and Engineering, Mumbai, India ***August 2024***
B.Tech. Major in Electronics and Telecommunication

WORK EXPERIENCE

Product Engineering Intern, *LeyLine Technologies, Washington, USA* ***June 2025, Ongoing***
• Tasked to design and document 3 AI model workflows that optimize product features in alignment with real-time robotics systems.
• Iterating 2 data-driven prototypes, leveraging Python and internal tools to improve model accuracy and pipeline clarity by 20%.
• Collaboration with cross-functional teams to integrate product requirements into modular design specs for robotics-adjacent use cases.

Prototyping Team Lead, ASU – Cartken Project, Tempe, USA ***May 2025 - August 2025, Ongoing***
• Working in collaboration with Cartken, a company specializing in autonomous delivery robots, to explore environmentally responsible approaches to robotics development using reclaimed electronic and mechanical components.
• Analyze robotic platforms' environmental impact and promote hardware design, sustainable manufacturing, and reuse strategies.
• Conduct in-person prototyping at ASU, including electronic troubleshooting, embedded programming, and subsystem development.

Full Stack Developer Intern, MaitriAI, Mumbai, IN ***December 2023 - May 2024***
• Trained CNN model reaching 98% accuracy for document identification. Enhanced Biometric OCR Software, extracting text with 94% precision from scanned documents. Implemented SQL database to store extracted documents and texts.
• Conceptualized enterprise architecture of LMS platform, enabling creation and management of training programs.
• Built and deployed 12 APIs employing Python libraries such as NumPy, PyTesseract, TensorFlow, and FlaskAPI.

PROJECTS

Drone Vision Navigation Framework *(Project)* ***January 2024 - May 2025***
• Engineered a real-time vision system for the Parrot Mambo drone using MATLAB/Simulink, achieving 92.3% landing accuracy across 50+ test flights via closed-loop feedback control.
• Used HSV color segmentation and centroid localization on a 640x480 video feed at 30 fps to extract spatial features in real-time.
• Designed control laws using normalized image-plane error, cutting lateral drift by over 83% and improving convergence speed through precise velocity commands.

Real-time Video Inpainting Software *(Project)* ***January 2024 - May 2025***
• Built an object removal pipeline using Mask R-CNN and OpenCV (96% mask accuracy, 30 fps), integrating GAN-based inpainting models (LaMa, Stable Diffusion) for texture-consistent restoration.
• Optimized for batch processing, achieving 1,000 frames per minute and supporting videos up to 1080p resolution with minimal artifacts.

Autonomous Maze Solver using MyCobot Pro 600 *(Project)* ***August 2024 - December 2024***
• Engineered and built digital twin to simulate forward and inverse kinematics, ensuring precise and efficient navigation.
• Programmed MyCobot Pro 600 to autonomously solve a 4x4 maze, optimizing path planning and obstacle detection.
• Automated and executed a maze-solving algorithm incorporating Python, MATLAB, and SOLIDWORKS, merging socket programming and image processing for real-time maze recognition.
• Achieved autonomous maze navigation, demonstrating automation, real-time decision-making, and robotics expertise.

Robotic Gait Trainer with Exoskeleton *(Research – To be Published)* ***August 2024, Ongoing***
• Led team research on a gait trainer for spinal cord injury patients, analyzing trends over 25 years with study of functional models.
• Reviewed trends in the development of different practices used in developing 6 optimal models.
• Research on proper brain-computer links to compensate for loss of neuron functions.

Online Canteen Ordering Management System *(Capstone Project)* ***August 2023 - November 2023***
• Headed formulation web-based application to streamline canteen operations, enabling users to place orders online, manage customizable menus, and track 300+ order statuses in real-time.
• Leveraged HTML, CSS, JavaScript, PHP, MySQL, and XAMPP server for system development, deployment, and maintenance.
• Coordinated UI, integrated payment gateway, and optimized SQL schema for transaction handling, and metadata storage.

TECHNICAL SKILLS

Programming: Python, C++, HTML**,** PHP, OOPs, JavaScript, Bash, Pandas, OpenCV, TensorFlow, PyTorch, SQL.
Software: MATLAB/Simulink, Anaconda, Git, ROS2, Linux, AutoCAD, Solidworks, Proteus, RepetierHost, Keil uVision, NerfStudio.
Other Skills: Project Management, NLP, GANs, Kalman Filter, Docker & REST APIs, Image Segmentation, CMake, PLCs, CV2, Visual Studio, PID and State Estimation, PyCharm, Jupyter Notebook.

ACTIVITIES

- **PlaceComm Head**, (MPSTME): Class representative for strategic planning and placement communication.
- **Implementation of 3D Holograms within 5G framework** *(Research).*
- Drafted and programmed a real-time hand gesture-based mouse control system using OpenCV, MediaPipe, and PyAutoGUI.
- Collaborated with Earth5R, a global environmental organization recognized by UNESCO.
- 100 Days of Code (Python) course completed at Udemy.
- Course on 3D Printing, printed multiple objects. Crafted using AutoCAD, Repetier Host, Solidworks.