Rushiraj Gadhvi

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🎓 Google Scholar

Skills

Programming Languages: Proficient with Python (PyTorch, scikit-learn, LangChain), C++, and Dart
Frameworks: Flutter, Django, Next.js, FastAPI
Other: Docker, Bash, Git, Linux, Scientific Writing, Electronics Prototyping, RaspberryPi, Arduino, PCB Design

Experience

Research Intern **@Robotics Lab, Plaksha University**   *Jun 2025 – Present*
- Working with Prof. Sandeep Manjanna on Khalasi Project to build system for Energy-Efficient Navigation for ASVs in Turbulent Vortical Fields

Founder **@Housify (Techsurf Solutions Pvt. Ltd.)**   *Jan – Jun 2025*
- Building a FinTech application to streamline and provide transparency to residential societies administration processes

Research Intern **@HTI Lab, Plaksha University**   *Jan 2024 – Feb 2025*
- Contributed and led PosePilot and AdaptAI projects under mentorship of Prof. Sidhharth
- Published *two papers* in *top conferences including CHI-2025*

Contributor **@Google Summer of Code 2024**   *Jun – Aug 2024*
- Contributed to *NUMFOCUS, QuTiP: Enhanced Quantum Circuit Diagrams* (project webpage ↗)
- Improved the visualization tools for quantum circuits in the open-source QuTiP library, widely used in quantum information research

Data Science Intern **@BlinkX by JM Financial, Mumbai**   *Jun – Aug 2024*
- Designed and developed an end-to-end pipeline for extracting application feature-based opinions from customer reviews to support strategic decision-making using LLMs and NLP-based clustering techniques
- Integrated LLMs and RAG techniques into existing bots, significantly improving their ability to handle complex queries and deliver more natural, human-like interactions

Research Intern **@Physical Research Laboratory (PRL), Ahmedabad**   *Jun – Jul 2023*
- Fine-tuned models for spectral data composition analysis using statistical techniques
- Designed and developed a Python-based spectrum visualization platform, reducing analysis time by streamlining data exploration and interpretation for large datasets

Education

Plaksha University   *Mohali, India*
B.Tech in Computer Science & Artificial Intelligence (CSAI)   *2021 – 2025*
Edunova High School   *Ahmedabad, India*
11th/12th (A-Stream: Math, Physics, Chemistry, Computer)   *2019 – 2021*

Projects

Khalasi ↗   *Nov 2024 – present*
Energy-Efficient Navigation for ASVs in Turbulent Vortical Fields
- Designed a custom environment for a variety of flow fields and implemented reinforcement learning (RL) models to optimize navigation for autonomous surface vehicles (ASVs) in turbulent aquatic conditions.
- The model enables ASVs to strategically exploit natural currents such as vortex patterns and minimize propulsion energy required to reach the target.
- Achieved a **30% reduction in energy consumption** with **95% target-reaching accuracy**.

[AdaptAI](#) ↗ *Nov 2024 – Feb 2025*

A Personalized Solution to Sense Your Stress, Fix Your Mess, and Boost Productivity

- AdaptAI is a multimodal AI system that integrates real-time data from egocentric vision, audio, and physiological signals to enhance productivity and well-being by tailoring interventions to individual needs.
- Designed a tone-adaptive conversational agent that dynamically adjusts its responses to be supportive and motivational under stress.
- Conducted a **15-participant pilot study**, demonstrating **significant gains in task throughput** and **user satisfaction**.

[PosePilot](#) ↗ *Aug 2023 – Feb 2024*

An Edge-AI Solution for Posture Correction in Physical Exercises

- Addressed the need for a real-time, personalized posture correction system with applications in sports, rehabilitation, and fitness training.
- Implemented a lightweight BiLSTM+Attention architecture for high-speed joint error detection, along with an innovative UI that delivers real-time corrective feedback.
- Achieved **97.5% pose recognition accuracy** and **0.00138 MSE** in correction feedback, **surpassing SOTA** for recognition and released a new, high-quality **yoga video dataset**.

Achievements

- Selected for **Google Summer of Code 2024 @NUMFOCUS** — One amongst 1,220 selected globally, out of 43k+ applicants
- **AWS AI & ML Scholar Advance 2024** — One amongst 500 selected globally
- **AWS AI & ML Scholar 2023** — One amongst 2,000 selected globally, out of 70,000+ applications
- **UN Millennium Fellowship 2022** — One amongst 3,000 selected globally, out of 31,000+ applications
- **1st rank** amongst 190+ teams at **IIT Bombay E-Cell BnB Event 2022**
- Selected by **Student Startup and Innovation Policy (SSIP) 2020, Gujarat** amongst 200+ projects

Publications

PosePilot: Edge-AI Solution for Posture Correction in Physical Exercises *May 2025*
Rushiraj Gadhvi, Priyansh Desai, Siddharth
arxiv.org/abs/2505.19186 ↗ (*IbPRIA 2025*)

AdaptAI: A Personalized Solution to Sense Your Stress, Fix Your Mess, and Boost Productivity *February 2025*
Rushiraj Gadhvi, Soham Petkar, Priyansh Desai, Siddharth
https://doi.org/10.1145/3706599.3720284 ↗ (*CHI 2025*)

QuTiP 5: The Quantum Toolbox in Python *December 2024*
Neill Lambert, Eric Giguère, Paul Menczel, ... **Rushiraj Gadhvi**, Franco Nori *et al.*
arxiv.org/abs/2412.04705 ↗ (*Submitted to Physics Report*)

khalasi: Energy-Efficient Navigation for ASVs in Turbulent Vortical Fields *(to be submitted)*
Rushiraj Gadhvi, Sandeep Manjanna

Certifications

- **Nanodegree in AWS Machine Learning Fundamentals** ([Certificate](#) ↗)
- **Nanodegree in AI Programming with Python** ([Certificate](#) ↗)

Responsibilities & Volunteering

- Organized **"Hack Plaksha"** hackathons as a **core committee member** in 2022 and 2023
- **Global Admission Committee** at the **United Nations Millennium Campus Network** in 2023
- Volunteered at the **Annual Astro-Night** event in Ahmedabad for three consecutive years (2017–2019)
- Contributed as a volunteer at the **Vikram Sarabhai Community Science Centre** during 2016 and 2017