Harsha P

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Education

Sri Venkateshwara College of Engineering — Bengaluru, Karnataka
B.E. in Computer Science and Engineering (VTU) — *2022 – Present*
CGPA: **8.94 / 10 (Current)**

Visvesvaraya Technological University — [Online]
Pursuing Minor Degree in Flight Mechanics (MOOC-Based) — *2024 – Present*
Platform: **online.vtu.ac.in**

REVA Independent PU College — Bengaluru, Karnataka
Pre-University - Science (PCMB) — *2020 – 2022*
Percentage: **91%**

Work Experience

GenAI Developer Intern — May 2025 – Sep 2025
Hidevs (Startup) — Remote

- Developed backend APIs and blog automation features using **FastAPI**, **LangChain**, and **Python**, enabling real-time AI content generation.
- Built and optimized in-house **AI agents** to automate marketing workflows, reducing manual effort and improving task throughput.
- Collaborated with frontend and product teams to deliver full-stack features, participating in agile sprints, code reviews, and iterative deployments for rapid product enhancement.

Technical Skills

Languages: Python, Java, JavaScript, C, SQL
Web Development: FastAPI, Flask, React, Node.js, REST APIs
AI/ML: LangChain, LangGraph, Transformers, LLMs, Prompt Engineering
Tools & Platforms: Git, GitHub, Docker, GitHub Actions, Redis, Postman, VS Code, AWS (Basics)

Projects

Bharat AI Chatbot Platform | ***Full-Stack AI Chat*** — *https://bhaai.org.in*

- Developed and deployed a multilingual **AI chatbot platform** enabling real-time conversational support using **Flask**, **MongoDB**, **SSE** and **WebSockets**.
- Built **AI agents** for document summarization, keyword extraction, and calendar automation using **LLMs** and **vector embeddings**.
- Implemented **JWT Authentication** with **Role-Based Access Control (RBAC)** to ensure secure and permission-controlled user access.
- Optimized **MongoDB schema design** and integrated **Redis caching**, reducing query latency and improving backend performance.

Satellite Change Detection System — *https://github.com/Harsha2318/Satellite-Change-Detection-System*

- Developed a fully automated **AI-based change detection system** for large-scale satellite imagery (up to 18K × 18K pixels) using **Siamese U-Net**.
- Implemented a **tile-based inference pipeline** with windowed I/O, enabling processing while preserving full geospatial accuracy.
- Generated **GeoTIFF change masks** and **Shapefile vector polygons** with morphological filtering and polygonization for high-quality outputs.
- Optimized the end-to-end pipeline using Rasterio, GDAL, PyTorch, and GeoPandas, achieving **12–15 min inference** on 17K × 18K imagery.

Quantum-XAI | ***Research Project, Library Maintainer*** — *https://pypi.org/project/quantum-xai*

- Developed and published open-source **Quantum Machine Learning (QML)** library with **explainability** support for VQC models.
- Implemented **SHAP**, **LIME**, and perturbation-based interpretability for transparency and trust in quantum workflows.
- Designed visualization modules and benchmarked hybrid quantum–classical models on real-world datasets.

Research Publications

- **Accepted & Presented Paper** at the **National Conference on System Engineering in Automation (SEA-2025)**: "**Astro-Autonomy: Computationally Efficient Self-Reconfiguration for Survivable Long-Duration Space Missions**". Shortlisted for submission to **Springer – ISSS Journal of Micro and Smart Systems** (post-conference peer-reviewed publication).
- **Accepted Paper** at **Supercomputing India (SCI-2025)**: "**LSTM-Guided Memory Access Optimization for Scientific Computing Workloads**."
- **Published Paper**: "**A Paperless Scholarship Disbursement System Development for PMSSS using AI and Cloud Technologies**" in **IJIRCCE**, Volume 12, Issue 12, December 2024 (Impact Factor: 8.625).

Awards & Participation

- **1st Prize** – Sai Intelliverse 2.0 (Best Paper): **Explainable AI (XAI)** framework for **Alzheimer's Detection**.
- **2nd Prize** – Project Expo: "**Self-Organizing Quantum States**" (Research project – ongoing).
- Secured **2nd** and **3rd Prize** consecutively in Code Debugging competitions at **SVCE**.
- **ML Mastery Challenge 2024** (Unstop): Secured top performance among nationwide participants in a competitive Machine Learning challenge focused on end-to-end model development and evaluation.
- Active participant in multiple **national hackathons**, **technical symposiums**, and **AI/ML innovation challenges** focused on solving real-world problems.

Extracurriculars & Tech Talks

- Delivered tech talks on **"The Bridge: How Quantum Meets Space"** and **"Quantum Computing for Space Mission Design"** at SVCE Innovation Club Day 2025.
- Invited guest speaker fostering awareness on future technologies and interdisciplinary innovation.
- Regular participant in engineering conferences and student-led technical forums.

Coding Profiles

- **LeetCode:** Solved 100+ problems and earned badges including 100 Days of Coding, Problem Solver — *Profile*
- **GeeksforGeeks:** Solved 130+ problems, achieved **Rank 3** at institution level — *Profile*
- **GitHub:** 455+ total contributions, actively maintaining open-source projects — *Profile*

Certifications

- **Java Programming Masterclass – Beginner to Master** (Udemy, 2025)
- **Programming Data Structures and Algorithms in Python** (NPTEL)
- **An Introduction to Artificial Intelligence** (NPTEL)
- **Artificial Intelligence – Search Methods for Problem Solving** (NPTEL)
- **Networking and Web Technology** (Infosys Springboard, 2025)
- **Machine Learning Foundation Certification** (Infosys Springboard, 2025)

Volunteer Work

- Actively volunteered for **NSS (National Service Scheme)** community and social outreach initiatives.
- Supported event coordination and logistics management during technical fests, hackathons, and workshops.