Harshitha Pydimalla

Junior Python Engineer

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Professional Summary

Master's graduate in Artificial Intelligence with strong foundations in Python programming, backend development, and SQL databases. Skilled in developing APIs, microservices, and deploying solutions with AWS and Docker, with additional experience in Pydantic and Alembic. Hands-on with Python, MySQL, Git/GitHub, and cloud-based workflows, complemented by knowledge of machine learning and data analytics. Eager to contribute to PetLabCo's backend engineering team by building reliable, scalable services while continuously learning and growing in a fast-paced, innovative environment.

Skills

Programming Languages & Tools: Python, C++, Java, Matlab, MySQL/SQL, NumPy, Pandas, Jupyter Notebook, TensorFlow, PyTorch, Git, GitHub, C#, JavaScript, HTML, CSS
Backend Development & Deployment: API Development, REST APIs, Microservices, API/JSON Integration, Object-Oriented Programming, Data Structures & Algorithms, Pydantic, Alembic
Cloud & Infrastructure: AWS (Lambda, API Gateway, S3), Terraform, Docker
Machine Learning & AI (Complementary): Machine Learning, Deep Learning, Natural Language Processing, Computer Vision & Image Processing (OpenCV, LBPH)
Statistical & Time Series Analysis: Statistical Analysis, ARIMA, SARIMA, Load Forecasting
Data Visualization: Matplotlib, Seaborn
Soft Skills: Problem-Solving, Analytical Thinking, Team Collaboration, Communication, Adaptability, Attention to Detail, Time Management, Multitasking, Ownership Mindset, Enthusiasm to Learn

Projects

Web Traffic Time Series Forecasting 02/2025 – 05/2025

- Developed time series forecasting models to predict future pageviews of Wikipedia articles across multilingual languages.
- Used SARIMA model with log-transformation and seasonal differencing to capture weekly and yearly patterns.
- Applied chronological train/validation/test split to ensure robust evaluation and prevent data leakage.

Tools: Python, Pandas, Statistical Models (SARIMA), Matplotlib, NumPy, seaborn, scikit-learn

Analysis of Physical and Mental Health Issues due to excessive screen time in youngsters 01/2023 – 04/2023

- This project analyzes the effects of excessive screen time on the physical and mental health of individuals aged 16-2 using survey data from 685 students.
- After cleaning and encoding the data, statistical tests identified significant links between screen time and health issues. A Random Forest model was developed to predict the negative impact of screen time over four hours, achieving 100% accuracy.

- Findings reveal that extended screen use is associated with headaches, sleep problems, back pain, and decreased physical activity, highlighting the need for balanced digital habits to support better health.

Tools: Survey & Data Analysis, Random Forest, CHI-Square test, Feature Correlation Analysis, Feature Engineering.

Face Recognition using LBPH Algorithm 02/2022 – 03/2022

- Developed a face recognition system using the Local Binary Patterns Histograms (LBPH) algorithm to identify and verify individuals from images.
- The project involved preprocessing face images, extracting facial features with LBPH, and training a classifier for accurate recognition.
- The model demonstrated robustness to variations in lighting and facial expressions, making it suitable for real-time applications like access control or attendance systems.

Tools: Python, Machine Learning, OpenCV, Image processing, Numpy, scikit-learn, Jupyter Notebook

Al-Powered Web Support for Formal Verification and Proof Assistants 04/2025 – 09/2025

- Developed *AxiomAI*, a web-based platform combining Large Language Models, Retrieval-Augmented Generation (RAG), and a Proof API to support learning and experimentation with proof assistants (Coq, Isabelle, Z3).
- The system enables users to ask natural language queries via a chatbot in two modes (LLM-only, LLM+RAG) and generate proof snippets, with live execution supported in Z3. Designed modular backend services (FastAPI, Flask) and a lightweight frontend with metrics logging for latency, accuracy, hallucination rate, and proof success rate.
- Evaluations showed RAG significantly improved factual grounding and reduced hallucinations compared to LLM-only baselines. The project demonstrates how AI can lower the entry barrier to formal verification while providing an extensible research and educational tool.
- **Tools:** Python, FastAPI, Flask, HuggingFace Transformers, FAISS, BM25, Hybrid retrieval, Z3, Coq, Isabelle, JavaScript, HTML/CSS, KaTeX, Prism.js, Stanage HPC, GitHub

Education

Karunya Institute of Technology and Sciences 06/2019 – 07/2023
Bachelor of Technology in Computer Science and Engineering Coimbatore, Tamil Nadu

- Secured an overall percentage of 70.11%

The University of Sheffield 09/2024 – 09/2025
Masters in Artificial Intelligence Sheffield, United Kingdom

Extracurricular Activities

Member of National Service Scheme 07/2019 – 04/2023

Member of Nature Club 01/2022 – 04/2023

Interests

Reading | Theological Reasearch | Singing | Travelling

Languages

English	●●●●●	Telugu	●●●●●
Hindi	●●●●○	Tamil	●●○○○