

ASHUTOSH ROY

Python Developer

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SUMMARY

Python Developer with hands-on experience building scalable backend services, REST APIs, and AI-powered applications. Shipped production systems at IIT Delhi and two software internships, with a focus on clean architecture, low-latency APIs, and ML integration. Comfortable across the full Python stack — FastAPI, Streamlit, LangChain, Docker — and experienced deploying systems that handle real user traffic.

EXPERIENCE

Research Intern

Jan 2025 – Jun 2025

Indian Institute of Technology (IIT) Delhi

New Delhi, India

- Built and deployed **scalable REST APIs** using **FastAPI** for search, retrieval, and LLM-based querying over archaeological document collections; integrated with frontend for real-time responses.
- Developed an OCR pipeline in Python integrating Tesseract, Marker, and Gemini OCR — processing diverse document types and structuring output for downstream vector indexing.
- Implemented hybrid search combining **FAISS/Pinecone** (dense) and **Apache Solr** (sparse) via a unified Python interface.

github.com/ashutoshroy02/TIE

Software Engineer Intern

Nov 2024 – Dec 2024

LeanTactics Solutions Pvt. Ltd.

Remote

- Engineered and deployed high-performance backend services using **Python** and **FastAPI**, enabling scalable AI-driven applications with consistent low-latency responses.
- Integrated machine learning inference pipelines into production systems, bridging model outputs with application layers for seamless real-time performance.
- Profiled API bottlenecks and optimized request handling, achieving **25–35% reduction in response latency** — measured under production load.

AI/ML Engineer Intern

Oct 2024 – Nov 2024

MitoVoid AI

Remote

- Built end-to-end Python ML pipelines: data ingestion → preprocessing → model inference → API deployment for real-time healthcare applications.
- Deployed AI-powered chatbot backend using FastAPI; improved patient query resolution time by **~40%** through optimized intent handling.

PROJECTS

Exam-Helper RAG System | Python, LLaMA 3, LangChain, FAISS, Pinecone, Streamlit

Dec 2024 – Apr 2025

- Designed end-to-end Python pipeline: document ingestion → chunking → vector indexing → retrieval → LLM response; deployed via Streamlit for student-facing use.
- Multimodal ingestion supports PDFs, images, and YouTube transcripts; integrated Groq API for fast LLM inference.

BulkyMail | Python, Streamlit, SMTP, Jinja2

Dec 2024

- Built a Streamlit-based bulk email automation app with dynamic Jinja2 templating — enabling personalized campaigns to large recipient lists (name, role, company fields) without code changes.
- Integrated SMTP/email APIs for reliable large-scale delivery; enabled 100+ personalized emails per run, improving cold outreach response rates for multiple users.

Music Identification App | Python, ACRCLOUD API, Streamlit, NumPy

Sep 2024 – Dec 2024

- Built a real-time audio recognition pipeline: audio capture → feature extraction → ACRCLOUD API fingerprinting → metadata retrieval, served via a clean Streamlit UI.

Medical Chatbot Pipeline | Python, Mistral 7B, QLoRA, Tesseract, FastAPI, Streamlit

Mar 2024 – Apr 2024

- Built a full Python stack: Tesseract OCR → text structuring → QLoRA fine-tuned Mistral 7B inference → Streamlit UI; supported both text and voice input modes.

Python Statistical Applications | Python, Streamlit, NumPy, Matplotlib

Feb 2024 – Mar 2024

- Developed interactive Binomial and Poisson distribution calculators with real-time visualization; deployed publicly at mathify.streamlit.app.

TECHNICAL SKILLS

Languages: Python (primary), C++, SQL

Backend & APIs: FastAPI, REST API design, SMTP integration, Docker, Linux

Data & ML: Pandas, NumPy, Scikit-learn, PyTorch, LangChain, Hugging Face, FAISS, Pinecone

Frontend / UI: Streamlit, PyQt5

Databases: MySQL, Apache Solr, FAISS, Pinecone

Tools: Git, GitHub, VS Code, Jupyter Notebook, Google Colab, Docker

EDUCATION

Chhattisgarh Swami Vivekananda Technical University (CSVTU)

2022 – 2026

B.Tech (Hons) in Computer Science and Engineering (Artificial Intelligence)

Bhilai, Chhattisgarh

St. Columbus School

2020 – 2021

Higher Secondary (Class XII - Science PCMB) - 87%

Faridabad, Haryana