

# Vinay Kumar

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## SUMMARY

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Python Developer with hands-on experience building backend systems, REST APIs, and data-driven applications using Python, FastAPI, and object-oriented design principles. Proficient in API development, database integration, caching, containerization, and version-controlled collaborative workflows. Experienced in writing clean, modular, testable Python code and integrating third-party APIs. Looking for a Python Development internship/role to contribute to scalable backend and application development.

## EDUCATION

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2024 – 2026 **Master of Computer Applications (MCA)**, Central University of Himachal Pradesh  
2021 – 2024 **Bachelor of Science in Computer Science (BSc CS)**, Govt. College Una (Himachal Pradesh University)

## TECHNICAL SKILLS

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<b>Languages</b>	Python, SQL, C, C++
<b>Python Fundamentals</b>	Object-Oriented Programming (OOP), Data Structures & Algorithms, Functions, Exception Handling, File Handling, Modular Code Design, Scripting & Automation
<b>Package/Env Mgmt</b>	pip, venv, Virtual Environments, Dependency Management
<b>Web Frameworks</b>	FastAPI; familiar with Django, Flask
<b>APIs</b>	REST API Design & Development, API Integration, JSON, Rate Limiting
<b>Libraries</b>	NumPy, Pandas, Requests, PyTorch, scikit-learn
<b>Databases</b>	SQL, Vector Databases (FAISS), Database Integration
<b>Testing &amp; Quality</b>	Unit Testing, Debugging, Performance & Latency Benchmarking
<b>Version Control</b>	Git, GitHub, Code Reviews, Collaborative/Agile Workflows
<b>Deployment &amp; DevOps</b>	Docker, Model/Artifact Export & Deployment, VS Code, Jupyter Notebook

## PROJECTS

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### [Cortex – Document QA Backend | Python, FastAPI, FAISS](#)

- Designed and built an end-to-end Python backend service for document question-answering, exposing REST API endpoints for retrieval and response generation.
- Wrote modular Python code to parse PDF/TXT/MD documents and generate embeddings, keeping ingestion, retrieval, and response logic as independent components.
- Integrated a third-party LLM API with configurable, prompt-controlled request handling and structured response parsing.
- Containerized the application with Docker and deployed the FastAPI backend with configurable runtime parameters.
- [🔗 Source Code](#)

### [Search Ranking API Service | Python, FastAPI, XGBoost](#)

- Built a self-contained Python API service that computes ranked results from 20+ engineered text features, improving result relevance by 30%+ over a baseline.
- Implemented rate limiting, API-key authentication, and fallback logic in Python to keep the service resilient under failure conditions.
- Wrote reproducible model export/import routines and benchmarked API latency and throughput for production readiness.
- [🔗 Source Code](#)

### [Agniveer – Detection & Reasoning API | Python, FastAPI, REST APIs](#)

- Built a Python service that runs model inference and preprocesses image tensors behind a clean, testable API layer.
- Integrated multiple external REST APIs (geolocation, weather, responder data) into a single Python request pipeline with structured error handling.
- Designed structured, reusable prompt/request templates in Python to combine multiple data sources into a single downstream API call.
- [🔗 Source Code](#)

## HACKATHONS

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- **Winner – Hack-O-Fest 2025** (HIET College): Built a Python-based application (TrailSafe) integrating multiple external REST APIs for real-time risk scoring and route optimization.
- **Organizer – CUHP-CTF** (Central University of HP): Part of the organizing team for 11 Capture The Flag (CTF) cybersecurity events, assisting with challenge development, participant coordination, and live leaderboard management.