ARNAV NEHRA

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SUMMARY

Computer Science undergraduate with experience in Python development, DevOps, Cloud Infrastructure, AI/ML, and deployment automation. Skilled in building backend applications and REST APIs using Python, FastAPI, and Flask, along with developing AI/ML and reinforcement learning solutions using PyTorch and Scikit-learn. Experienced in implementing CI/CD pipelines, containerized deployments, and infrastructure monitoring, with hands-on expertise in Docker, Kubernetes, AWS, Terraform, GitHub Actions, Jenkins, Prometheus, and Grafana.

EDUCATION

Jaypee University of Information Technology — Solan, Himachal Pradesh *July 2023 – June 2027*

Bachelor of Technology in Computer Science

Relevant Coursework: Data Structures, Algorithms, Operating Systems, Database Systems, Object-Oriented Programming, Cloud Computing

EXPERIENCE

DevOps Intern — E Software Solutions, *Yamuna Nagar, Haryana* *June 2026 – July 2026*

- Built CI/CD pipelines to automate application build, testing, and deployment workflows.
- Implemented server monitoring using Prometheus and Grafana to track system health and performance.
- Worked with AWS services, including Amazon S3, for cloud-based storage and application infrastructure.

DevOps Trainee — Ducat Institute *June 2025 – February 2026*

- Containerized applications using Docker and Kubernetes and automated deployments with GitHub Actions and Jenkins.
- Provisioned AWS infrastructure using Terraform and implemented GitOps workflows with Argo CD.
- Configured Linux servers, NGINX reverse proxies, and monitoring tools for application deployments.

PROJECTS

AI Image Upscaler — DevOps + MLOps Platform (*GitHub Repo*)

Technologies: *Python, Flask, Docker, Kubernetes, Helm, GitHub Actions, Argo CD*

- Developed an AI-based image upscaling platform capable of processing 100+ images per request, improving image resolution by 2–4× using ML inference models.
- Built a microservices architecture with 3 containerized services for scalable image processing.
- Containerized services with Docker and deployed the platform on Kubernetes with autoscaling, supporting 50+ concurrent processing tasks.
- Implemented CI/CD and GitOps pipelines, reducing deployment time by ~40%.
- Optimized Docker images using multi-stage builds, reducing container size by ~35%.

AI-Based Deadline-Aware OS Scheduler — Reinforcement Learning & Python (*GitHub Repo*)

Technologies: *Python, PyTorch, MaskablePPO, Gymnasium, Pandas, GitHub Actions*

- Developed a Python-based reinforcement learning scheduler using MaskablePPO and a custom Gymnasium environment for deadline-aware cloud task allocation.
- Built a data preprocessing, training, and evaluation pipeline using real-world cloud workload traces, achieving a 3.3% deadline miss ratio and 97.8% task assignment rate under stress testing.
- Implemented a PyTorch cross-attention feature extractor, action masking, automated testing, and CI workflows using GitHub Actions.

ACOS — Multi-Agent AI & DevOps Platform (*GitHub Repo*)

Technologies: *Python, FastAPI, LangGraph, PostgreSQL, Docker, Kubernetes, GitHub Actions, Prometheus, Grafana*

- Developed a Python-based multi-agent AI platform with 12 specialized agents using LangGraph and a FastAPI backend for intelligent routing, RAG, reasoning, and real-time responses.
- Built production-oriented backend features including REST APIs, authentication, PostgreSQL persistence, ChromaDB-based retrieval, and health and metrics endpoints.

- Containerized and deployed services using Docker and Kubernetes, with GitHub Actions CI/CD and observability through Prometheus and Grafana.

SKILLS

Languages: C, C++, Python

Python Development: FastAPI, Flask, REST APIs

Machine Learning: Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch, NLP

Cloud: AWS (EC2, S3, IAM, VPC, CloudWatch), Azure

Databases: MongoDB, MySQL, Redis

DevOps: Docker, Kubernetes, GitHub Actions, Jenkins, Terraform, Argo CD, Linux (Ubuntu, Red Hat), Grafana, Prometheus, Loki, Redis, Helm, Ansible, Ingress, CloudWatch

ACHIEVEMENTS

IEEE CICN-2025 Research Paper Presentation

- Presented and published a research paper titled "Enhancing Cloud Security: An In-Depth Analysis of Modern Threats and Mitigation Strategies" at the IEEE CICN-2025 conference at NIT Goa.

GATE 2025 (Computer Science) — Qualified

- Demonstrated strong understanding of core computer science subjects including Data Structures, Algorithms, OS, DBMS, and Computer Networks.

Smart India Hackathon 2025

- Successfully cleared the internal selection round of Smart India Hackathon (SIH) 2025.

CERTIFICATIONS

- AWS Academy Graduate – Cloud Foundations (2025)
- Artificial Intelligence and Machine Learning Fundamentals – Infosys Springboard (2024)
- Cyber Security – Teachnook, IIT Roorkee Cognizance (2024)
- Google Cloud Computing Foundations: Cloud Computing Fundamentals – Google Cloud (2026)

CLUBS & ACTIVITIES

Disciplinary Committee — Coordinator | JUIT *2023 – 2026*

- Coordinated student discipline activities and communication between faculty and students during campus events.

Sports Club — Member | JUIT *2023 – 2025*

- Represented the university in inter-college tournaments and secured a Silver Medal.