

UDAY SHARMA

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EDUCATION

University of Delhi

Bachelor of Science (Honours) in Computer Science

Nov 2022 – Jun 2026

Delhi, India

EXPERIENCE

CERN | Full Stack Developer

Mar'26 – Present | Geneva, Switzerland

- Managed development and large-scale CMS infra migration of CERN's core website and 1,200+ affiliated project sites.
- Engineered a Python automated tool to migrate 1k+ sites and 50k+ pages to WordPress, cutting time to <1 min/site.
- Developed a custom WordPress theme and web components using React, TypeScript, and PHP to standardize design.
- Wrote Python scripts to monitor health and uptime for 1,200+ sites, and enforcing global design standards.
- Contributed code to the open-source Gutenberg project on GitHub, improving block editor capabilities.

CERN | Full Stack Developer @ Summer Student

Jun 2025 – Sep 2025 | Geneva, Switzerland

- Implementation of NeutrinoReview, a full-stack AI platform (Python & React) to automate systematic reviews.
- Designed high throughput and low latency data pipelines, integrated research databases like ArXiv & PubMed.
- Improved database architecture, XML data parsing and normalization from concurrent data streams.
- Designed an end-to-end DevOps workflow with Docker, GitLab CI/CD, and deployment to CERN's OKD.
- Implemented a calibration screening approach using LLMs to enhance review automation and accuracy.

SimpPPL | Research Engineer Intern

Aug 2024 – May 2025 | Delhi, India

- Led the end-to-end development of Arbiter, a flagship SaaS social listening tool supervising a team of 3 developers.
- Developed system architecture and a full-stack AI platform (Python & React) for automating workflows.
- Engineered scalable data pipelines (1B+ points) and semantic search infrastructure using PostgreSQL and pgvector.
- Developed and integrated scalable NLP pipelines and a RAG-based AI Assistant for Agentic AI analysis.
- Achieved 30x speedup in data query latency via caching and concurrency improvements along with efficient MLOps.
- Managed all DevOps; deployed the containerized (Docker, Nginx) application on AWS & GCP; Model Inference Pipelines.

PROJECTS

Lite Computer 3 VM | C, GOTO

- Virtual machine emulating LC-3 architecture from scratch. Implemented full 16-bit instruction set, trap routines, and fetch-execute cycle to run assembly binaries – deep dive into low-level memory and CPU behavior.

Micrograd | Python, NumPy Machine Learning, Autograd

- Built an autograd engine and backpropagation over dynamic computational graphs. Trained a multi-layer perceptron for binary classification without ML libraries – core deep learning concepts from first principles.

NanoGPT | Python, Transformers, LLM, GPT

- Lightweight GPT trained on Shakespeare. Implemented multi-head self-attention, positional encoding, and character-level tokenization – generated coherent text using only 0.5M parameters.

GGG Social | Django, TailwindCSS, PostgreSQL ORM

- Full-stack social media platform with user auth, posts, comments, and real-time feed. Deployed for college students to test engagement features, demonstrating Django ORM, session management, and frontend integration.

ACHIEVEMENTS

- **Summer@CERN 2025:** Selected from 10,000+ applicants (0.1% acceptance rate from India).
- **TSP@CERN 2025:** Selected from 2,500+ applicants (0.5% acceptance rate from India) for a full-time role.
- **Published 3 peer-reviewed papers** during undergraduate studies, including a paper submitted to Springer Nature IJSA.
- Received highest possible grade (O i.e. Outstanding) for my Bachelor Dissertation.

TECHNICAL SKILLS

Languages: Python, JavaScript, TypeScript, C, C++, SQL, PHP, HTML/CSS, Bash

Web Development: React, TypeScript, Next.js, FastAPI, Django, Flask, Node.js, WordPress, REST APIs

Data & Databases: PostgreSQL, MySQL, MongoDB, pgvector (semantic search), Qdrant, Milvus

Infrastructure & DevOps: Docker, GitLab CI/CD, Kubernetes (OKD), Nginx, AWS, Google Cloud, Linux

ML / AI: PyTorch, TensorFlow, Keras, NLP Pipelines, RAG, LLM integration

Practices: Open-Source Contribution, Code Review, Maintenance & Support