

PRABHJOT SINGH

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CAREER OBJECTIVE

Computer Science student specializing in AI/ML with hands-on experience in full-stack web development and MLOps. Passionate about building user-friendly applications and production-grade ML systems, and contributing to open-source projects. Seeking an internship or entry-level role in software development.

EDUCATION

Bachelor of Engineering – CSE (AI/ML Specialization)

Chandigarh University

2025 – 2029

PROJECTS

Project-D · *Node.js, Express.js, PostgreSQL, Redis, BullMQ, WebSockets, JWT*

- Architected and deployed a production-grade multi-tenant SaaS document platform with self-rolled JWT authentication and RBAC enforced via a memberships join table.
- Built a raw PostgreSQL data layer with manually managed transactions, Redis caching, and BullMQ-driven background job processing for asynchronous workloads.
- Implemented real-time updates via WebSockets, audit logging, and API rate limiting; documented endpoints with Swagger and covered logic with Jest tests.
- Set up CI/CD with GitHub Actions and migrated the production database from Render's free tier to Neon with zero downtime.

MLOps Pipeline — Spam Classifier · *Python, scikit-learn, FastAPI, Docker, GitHub Actions*

- Built an end-to-end MLOps pipeline for a TF-IDF + Logistic Regression spam classifier, covering reproducible training, a served inference API, containerization, CI/CD, versioned releases, and observability.
- Designed a model registry with numbered version tracking (v1, v2, ...); exposed `/retrain` to train new candidate versions and `/promote` to explicitly push a version to production.
- Implemented A/B traffic routing to compare a candidate model against production before full promotion, plus a live monitoring dashboard with prediction history and confidence histograms.
- Automated testing and Docker image builds via GitHub Actions CI/CD, with the image build gated on the test suite passing; added structured JSON logging for containerized log aggregation.

RAG-Powered Document Q&A · *FastAPI, PostgreSQL, pgvector, React, JWT*

- Built a full-stack Retrieval-Augmented Generation (RAG) system letting users upload PDFs and query them in natural language, with answers grounded strictly in document content to prevent hallucination.
- Engineered a semantic search pipeline with pgvector for cosine-similarity retrieval over LLM-generated embeddings, including PDF chunking and multi-turn conversational memory.
- Deployed a production stack across Render, Vercel, and Supabase with per-user rate limiting and Row-Level Security hardening.

To-Do List Application · *Node.js, Express.js, PostgreSQL, HTML/CSS/JS*

- Built a full-stack task management app with a PostgreSQL database for persistent data storage.
- Implemented full CRUD operations, allowing users to add, edit, complete, and delete tasks seamlessly.

Personal Portfolio Website · *HTML, CSS, JavaScript*

- Designed and developed a fully responsive portfolio to showcase projects, skills, and contact information.
- Implemented a clean, mobile-friendly layout with smooth navigation and well-organized project sections.

TECHNICAL SKILLS

Languages: C, C++, Python, JavaScript, SQL, HTML, CSS

Frameworks: Node.js, Express.js, React, FastAPI, scikit-learn, jQuery

Databases: PostgreSQL, MySQL, MongoDB, Redis

Tools & DevOps: Git, GitHub, Docker, GitHub Actions (CI/CD), Swagger/OpenAPI, Jest, pytest

Concepts: REST API Design, JWT Authentication & RBAC, WebSockets, Message Queues (BullMQ), Multi-tenant Architecture, MLOps (model versioning, CI/CD, A/B testing, monitoring), Data Structures & Algorithms, AI/ML Fundamentals