# Jaspreet Singh Nahal

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## Summary

Computer Science Engineering student specializing in AI and Machine Learning, with hands-on experience in full-stack development, cloud tools, and scalable software systems. Built AI chatbots, trading platforms, and automation tools using Python, React.js, Flask, and modern APIs. Participated in multiple hackathons and agile projects focused on performance and clean architecture. Actively improving problem-solving skills through LeetCode, on track to complete 200+ problems by September 2025. Open to software and AI engineering roles.

## Technical Skills

**Programming Languages**: Java, Python, C++, JavaScript
**Frontend Technologies**: React.js, Axios, JWT
**Backend Technologies**: Node.js, Flask, FastAPI, Express.js
**Cloud & DevOps**: CI/CD, Docker
**AI/ML & NLP Frameworks**: TensorFlow, PyTorch, Scikit-learn, Hugging Face Transformers, LangChain, Pandas, NumPy
**Databases & Vector Stores**: SQL, PostgreSQL, MongoDB, FAISS, MySQL
**APIs & Integration**: REST APIs, OAuth, JSON, LangChain Chains, Retrieval-Augmented Generation (RAG)
**Tools & Platforms**: LeetCode (targeting 200+ problems by September), Streamlit

## Experience

**Machine Learning Intern – Legal Chatbot with RAG** August 2025 – Present
*Expedien eSolutions* *Noida, India*

- Working with a team to build a domain-specific RAG-based chatbot using LangChain, Hugging Face Transformers, and FAISS.
- Preprocessing legal documents, chunking with LangChain, and generating embeddings with sentence-transformer models.
- Implemented a modular retrieval-to-generation pipeline using RetrievalQA for accurate legal question answering.
- Developed a demo UI in Streamlit and evaluated chatbot on accuracy, relevance, and latency.

**Algorithmic Trading Developer** November 2024 – December 2024
*Project Experience/Freelance* *Noida, India*

- Enforced an automated trading system implementing the SMA (Simple Moving Average) crossover strategy
- Designed an intuitive dashboard to monitor trade signals and visual market trends, enabling better user decision-making
- Enhanced backend performance using Flask and PostgreSQL, resulting in a 30% reduction in trade latency
- Scaled the system to handle increased trading volume with optimized data handling and async processes

## Projects

**Neural Network GPT from Scratch** | *Python, NumPy, Deep Learning, NLP* Ongoing

- Developing a GPT-style language model from first principles using only NumPy and custom-built neural network components.
- Implemented tokenization, self-attention, and transformer blocks without relying on high-level libraries.
- Leading a collaborative project focused on reproducibility, clean architecture, and a deep understanding of transformer internals.
- Building training, inference, and evaluation pipelines to simulate real-world language modeling tasks.

**Resume Skill Extractor** | *Python, REST-API Development, NLP, PDF Parsing, React* June 2025

- Engineered an AI-powered skill extraction tool leveraging NLP pipelines (spaCy, regex, TF-IDF) for entity recognition from resumes.
- Built REST APIs with FastAPI, extracting resume skills with 85%+ accuracy and processing each file in under 2 seconds.
- Created a named entity mapping model to identify tech vs non-tech keywords from unstructured text.
- Deployed the backend model and UI on a containerized dev environment using GitHub Actions.

**SMA Crossover Trading System** | *Python, Flask, PostgreSQL, Data Visualization* December 2024

- Developed an automated trading pipeline using SMA crossover and moving average convergence strategies.
- Used Python and scikit-learn to analyze historical data patterns and validate signal consistency.
- Engineered a backtesting environment to simulate real-world trades and improve model reliability.
- Connected the strategy to live data via REST APIs and optimized latency-sensitive Flask endpoints.

**AI Document Reader and Invoice Matching System** | *Python, Flask, AI Models* October 2024

- Built an AI-powered document parser using OCR and NLP to classify and match invoices based on text similarity.
- Applied cosine similarity and keyword extraction for accurate field-to-field invoice matching.
- Achieved 85% match precision across 200+ invoice pairs using sentence embeddings and pattern matching.
- Developed a Flask-based REST API to automate document ingestion and classification workflows.

**AI Chatbot** | *React.js, Python, Flask, RESTful API* September 2024

- Built an NLP chatbot with 92% intent recognition accuracy and ¡1s response time, handling 1,000+ user sessions.
- Integrated Named Entity Recognition (NER) and intent classification for personalized response generation.
- Achieved 92% intent recognition accuracy using custom-trained models and real-time Flask API deployment.
- Used MongoDB for dynamic session storage and conversation history handling.

## Education

**Dr. A.P.J. Abdul Kalam Technical University** Uttar Pradesh

*Bachelor of Technology in Computer Science Engineering (Artificial Intelligence)* *Sept 2023 - June 2027*

**CGPA: 8/10**

## Certifications Achievements

**Google**: Prompt Design in Vertex AI, Responsible AI: Applying AI Principles with Google Cloud
**IBM**: Accelerating Deep Learning with GPUs
**GUVI**: GUVI Hackathon - GUVI Geek Networks, IITM Research Park
**BCG X (via Forage)**: GenAI Job Simulation – AI-powered Financial Chatbot Development

## Hackathons

**AI & Automation Unpacked Hackathon – IBM** July 2025

- Built an AI-driven proof-of-concept solution using IBM Granite to demonstrate innovative business applications of AI
- Gained hands-on experience with foundational AI concepts and automation techniques to promote economic growth and decent work

**NationBuilding Hackathon – Unstop** April 2025

- Architected an AI-based Restaurant Manager chatbot to automate bookings, staff queries, and feedback loops using Flask and MongoDB

**Google Solutions Challenge – Google** March 2025

- Collaborated on a real-world solution addressing local issues using Google technologies. Focused on scalable architecture and user-centric design

**GUVI Hackathon – IITM Research Park** February 2025

- Implemented an NLP-based Resume Skill Extractor to identify key candidate strengths from resumes for recruiters