

# Aman Goel

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## Education

SRM Institute of Science and Technology

2022-2026

B.Tech. in Computer Science & Engineering — CGPA: 9.79/10

## Skills & Tools

**Programming:** Python, C++, Java, JavaScript

**Core CS:** Data Structures & Algorithms, Object-Oriented Design, Dynamic Programming, Graphs Algorithms, Trees, Greedy Techniques, Backtracking, Complexity Analysis

**Backend Software Engineering:** RESTful API Design (FastAPI), Asynchronous Programming, Modular Architecture, Algorithm Optimization, System Design (Foundational), Distributed Systems, SDLC, API Lifecycle Management

**Cloud & DevOps:** AWS (EC2, S3, RDS, Lambda, SageMaker), Docker, Jenkins (Exposure), Git, GitHub, Version Control, CI/CD, SQL & NoSQL Datastores

**Applied Machine Learning:** Machine Learning, Deep Learning, Neural Networks, NLP, Bayesian Estimation, Probabilistic Modeling, Statistical ML, PyTorch, Tensorflow, Keras, Numpy, Pandas

## Internship Experience

Research Intern — IISc Bangalore — Bangalore, India

June 2025 – July 2025

- Implemented **Bayesian inference algorithms** in Python, translating mathematical formulations into efficient, readable code
- Built modular experimentation pipelines for posterior estimation, sampling, and evaluation with emphasis on correctness and reproducibility
- Optimized numerical computations using vectorized operations, reducing runtime and improving scalability of experiments
- Worked with probabilistic models and iterative algorithms, strengthening foundations in algorithmic thinking and performance trade-offs

Industrial Trainee — Intel — Virtual

May 2024 – Jul 2024

- Built Python-based **ETL pipelines** to preprocess and transform large text datasets for LLM fine-tuning workflows
- Integrated LLaMA-based models using Intel Extension for Transformers, enabling efficient CPU-based inference
- Designed **end-to-end data → model → inference pipelines**, handling tokenization, batching, and output generation
- Debugged long-running training jobs and optimized execution by migrating workflows to more stable batch environments
- Collaborated in a structured SDLC environment, following documentation, version control, and reproducible workflows

Intern — Fox Trading/ Istop.ai — Virtual

Aug 2024 – Sept 2024

- Enhanced stock price prediction model accuracy from 93% to 97% by refining ML features and tuning hyperparameters, improving model robustness and prediction reliability

## Projects

*CERAS – Cognitive Efficiency & Reasoning Alignment System — FastAPI, Async Pipelines, ML Pipelines, Distributed LLM*

- Architected and deployed a full stack AI platform using FastAPI and React dashboard, implementing a custom-built Tree of Thoughts Data Structure from scratch with a multi stage planning, verification-based validation and greedy path selection. Built asynchronous backend pipelines with dynamic model routing capturing request latency, processing time and token usage. A CE score leveraged using the telemetry data evaluating user's cognitive ability enabling the reasoning engine to generate dynamic programming-based subtask decomposition for adaptive learning

*Cyclone Intensity Prediction Pipeline (IEEE) — Python, Scalable ML Pipelines, Feature Engineering*

- Implemented **scalable data processing and prediction pipeline** on **1M+ data points**, building multi-stage feature engineering and optimized learning workflows. Achieved 0.993  $R^2$  with reduced prediction error, outperforming baseline models.

*GenAI Chatbot (Intel Unnati) — Python, ETL Pipeline, LLM Inference, PEFT finetuning*

- Engineered an **end-to-end LLM inference pipeline** using LLaMA and Intel Extension for Transformers, implementing ETL, tokenization, batching, and CPU-optimized inference, improving performance through long running summarization tasks.

## Leadership & Achievements

- 2nd Place** – IIT BHU Vista Codefest 2024; **77th Place** – ICPC Asia Regional (Tehran) 2024; **27th Place** – Zindi AirQ Air Pollution Challenge 2024; **Top 200** - Amazon ML challenge 2025
- Solved **400+ Data Structures & Algorithms problems** across competitive programming platforms, demonstrating strong problem-solving and algorithmic thinking.
- Selected Research Intern** – IISc Bangalore (NPTEL Summer Internship), awarded to a small cohort based on academic excellence and technical merit.