

Jay Singh

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EDUCATION

IIT Kharagpur

2021-2026

Dual Degree (B.Tech+M.Tech) IIT Kharagpur (Minor in AI)

Kharagpur, West Bengal

- **Relevant Coursework:** Probability and Statistics, Machine Learning Foundations, Applied Mathematics, LDA.

WORK EXPERIENCE

Innovaccer

June 2024 – Aug 2024

Data Science Intern

Noida, UP

- Amplified the natural language semantics of "Sara", a med-**AI model**, as part of NLP R&D, with accuracy **85%**.
- Harnessed **LangChain** for **COT, ZSL, few-shot RAG**; outperformed prior methods, cutting latency by **73%**.
- Developed a multi-chain asynchronous architecture for diverse use case segmentation using **GPT-4o** and **SLMs**.

Cambridge Judge Business School

May 2023 – Sep 2023

Research Apprenticeship

Remote

- Innovated an AI Startup Portal via **Groq API**, halving manual research time and generating **100+** business ideas.
- Engineered **NLP** parsers for extracting and transferring insights, generating SWOT analysis, boosting efficiency.
- Implemented scalable **RESTful** endpoints with CORS, handling over **200** requests per day, with **99.9%** uptime.

PROJECTS

Attention Based Federated Learning Approach to IDS | CSE IIT Kharagpur

May 2025

- Achieved zero-shot detection to **80%** with a 4-layer transformer classifier head with residual MLP, LayerNorm.
- Optimised NSL-KDD data with metadata-rich LLaMA output for 60k entries, with contextualized 768D labels.
- Devised **FedProx+FedAdam** reducing client drifts, stabilizing convergence and improved attack generalization.

ConvoHire AI | AI Powered Recruitment Model

Feb 2025

- Orchestrated a **multi-agentic AI recruiter** for technical interviews driven by skill, experience with <2s latency.
- Implemented precise multi-pager (10+) resume/JD parsing, vector skill matching using regex, and GeminiFlash.
- Scaled real-time interviews with OpenAI API with >90% question accuracy, and context aware follow-up loop.

Agentic AI Based Restaurant Reservation System

Jan 2025

- Crafted a conversational **AI** for restaurant reservation, with above >87% real-time intent classification accuracy.
- Built microservice based seat allocation, email confirmations, and rule-based loss prevention to reduce booking.
- Integrated geo-location APIs to deliver personalized table suggestions, margin optimized reservation decisions.

CERTIFICATIONS & SKILLS

- **Certifications:** PyTorch for Deep learning, Career Essentials on Gen AI, Advanced Learning Algorithms
- **Technologies/Frameworks:** AWS(EC2, Sagemaker), Snowflake, Flask, FastAPI, Django, Docker, SQL, RAG, Kubernetes, Kubeflow, MLflow, ReAct, Git, GitHub, Hugging Face, TensorRT, Plotly, Streamlit, GPT, BERT
- **Skills:** Python, TensorFlow, PyTorch, Scikit-learn, Transformers, CNN, NLP, NLU, GANs, Federated Learning, Text Generation, Tf-IDF, Summarization, Recommender Systems, Topic Modeling, MLOps, Transfer Learning

COMPETITIONS & HACKATHONS

Amex Decision Science Track (Global Pre-Finalist, top 0.5% of 6,000+ teams)

June 2024 – July 2024

- Ran ensemble models (XGBoost, LightGBM, CatBoost) on **100K+** T20 match records, achieving **92%** accuracy.
- Reduced prediction error by **15%** via **GridSearchCV** and **10-fold CV**, outperforming baseline methods by **20%**.

Impetus 5.0 Case Study (National Semi-Finalist)

Nov 2023 – Dec 2023

- Crafted a data-driven business model, GTM strategy to drive investment and a **20%** increase in user acquisition.
 - Performed K-means clustering on **5,000** customer survey responses, informing Finvest Pro's targeted marketing.
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