Jay Singh

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EDUCATION

IIT Kharagpur   **2021-2025**
B.Tech Metallurgical and Materials Engineering (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**.

Affine   **April 2024 – June 2024**
Machine Learning Intern   *Bangalore, Karnataka*
- Formulated a T5 220M model using FP16 checkpointing, reducing GPU usage by **55%**, efficient A100 training.
- Fine-tuned with LoRA, adding 2% trainable params, boosting BLEU/ROUGE-L by 1.7, reducing GPU usage.
- Launched an auto-scaling Kubeflow–MLflow–Triton pipeline, driving **10x** user growth, **30%** lower cloud usage.

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

Medium Article Search and Summarizing Agent   **Jan 2024**
- Architected a Medium summarizer delivering concise outputs with **5s** latency, reducing research time by **70%**.
- Leveraged LangChain**, Anthropic, Hugging Face's** model **Flan T5 XL** and other LLMs for response parsing.
- Deployed over Render; the low-latency **Streamlit** UI provides a seamless user experience, and efficient caching.

Music Popularity Estimation   **Jan 2024**
- Programmed a Music Popularity Estimation model with an MSE of **3.2**, R^2 score-**0.85**, over metadata features.
- Executed PCA on 2.2K-song metadata, reducing features by **35%** while preserving **90%** variance and R^2 of 0.85.
- Trained and optimized Random Forest, Gradient Boosting models, for boosting accuracy by **15%** over baseline.

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.