

JAY SINGH | 21MT10023

METALL. & MATERIALS ENGG.(B.Tech 4Y) | MICRO. Centre of Excellence in AI

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EDUCATION

Year	Degree	Institute	CGPA/Grade
2025	B.TECH	IIT Kharagpur	8.41 / 10
2020	12th Board Exam	Gyan Bharti Global School	91.2%
2018	10th Board Exam	Nazareth Academy	92%

INTERNSHIPS

Innovaccer | Data Science Intern

June'24-Aug'24

- Enhanced the natural language semantics of "Sara", a med-Al model, as part of the NLP R&D team, with better result accuracy above 85%
- Utilized open-source models like GTR-T5 base, Flan-T5 XL, others, fine-tuned models on custom dataset, evaluating over distinct metrics
- Leveraged Langchain, for Chain of Thought, Few-shot prompting, with a RAG pipeline with Milvus, multi vector embedding (COLBERT)
- Developed a multi-chain model for diverse use case segmentation using asynchronous programming with GPT-4o, and other SLM models

Affine | Machine Learning Intern

April'24-June'24

- Closely collaborating with the Data Science team to drive cutting-edge innovations and providing robust strategic solutions utilizing LLMs
- Successfully implemented instruct tuning of the Meta-Llama-3-8B model to handle complex data queries, enhance contextual-awareness
- Engineered a 16 attention head, 500M parameters model, using mixed-precision for a 35% reduction in memory, 20% faster convergence
- Implemented precision Instruct fine-tuning to handle complex queries and improve context-awareness, a resource-efficient optimization

Cambridge Judge Business School | Research Apprenticeship

- Developed an Al-driven Startup Portal using Groq API, delivering personalized strategies, business ideas, and enhanced user engagement
- Engineered NLP techniques for extracting key insights from inputs, generating SWOT analyses, boosting decision-making efficiency by 40%
- Integrated prompt engineering, enabling context-aware output, addressing marketing strategies, financial planning, resource optimization
- Built scalable RESTful endpoints with robust data parsing and CORS enabling seamless and real-time interactions across multiple platforms

PROJECTS

Medium Article Search and Summarizing Agent

Jan'24-Feb'24

- Developed a Medium search and summarization tool, enabling real-time retrieval of articles from internet with concise summary of article
- Used langchain, integrated Anthropic and Hugging Face models like Flan T5 X Large, other models for filtering and generating responses
- Designed a multi-model architecture that reduced data processing latency by 40% and delivered results in under 5 seconds for each query
- Built an interactive UI with Streamlit, deployed over Render, with minimal latency, for a seamless user experience, with efficient caching

Music Popularity Estimation

- Developed a Music Popularity Prediction model using regression with an MSE of 3.2 and an R-squared score of 0.85, over audio/metadata
- Analyzed a dataset of 227, reducing dimensionality by 35% retaining over 90% of predictive accuracy over features like energy, loudness
- Trained Random Forest and Gradient Boosting regression models, with hyperparameter tuning for boosting accuracy by 15% over others
- Playlist optimization through feature analysis, revealing that higher energy/danceability increase popularity likelihood by more than 25%

COMPETITION/CONFERENCE

Amex Decision Science Track | Global Pre-Final Round

June'24-July'24

- Led a team of 4 to pre-final round of ML challenge, ranked in top 0.5% out of 6000+ teams, driving a 30% faster decision making process
- Achieved 92% accuracy in T20 cricket match score outcomes using XGBoost, LightGBM, CatBoost, analysing over 100,000 data records
- Reduced prediction error by 15% using grid search, 10-fold cross-validation, outperforming traditional methods by 20% in T20 predictions

Impetus 5.0 Case Study | National Semi Final Round

- Formulated a compelling business model along with targeted marketing plan for FinBlend's new integrated finance platform Finvest Pro
- Strategized personalized offerings, data driven acquisition and partnerships to unlock FinInvest Pro's potential across consumer segments
- Developed a go-to-market and sustainability strategy to enable FinBlend's expansion into lending, investments, and insurance verticals

SKILLS AND EXPERTISE

Coursework Information: Probability and Statistics | Linear Algebra | Machine Learning Foundations | Programming and Data Structures Softwares / Languages: Python | SQL | AWS | Azure | Flask | Django | Athena | Streamlit | Snowflake | Google Colab | Github | FastAPI Libraries / Frameworks: TensorFlow | Pytorch | Spacy | Git | NLTK | Pandas | CherryPy | GPT | BERT | Pyterrier | LangChain | Transformers Certifications: Data Analytics Foundation | Career Essentials on Generative AI | Advanced Learning Algorithms | Pytorch for Deep learning

POSITIONS OF RESPONSIBILITY

Spring Fest | Publicity and Media Outreach Head

June'23-Jan'24

- Led a team of 31+55 to organize nationwide events in 16 locations, engaging 850+ colleges, leading to 10,000 participants from pan India
- Increased remote participation from Delhi, Maharashtra, 12 more cities by 150 percent, leading to a total of above 15,000 participants
- Enhanced Spring Fest's online presence and engagement by 60%, through big content creators delivering high-quality content strategies
 Led 'Prabal: Fighting Stronger on cell at a time' cancer awareness initiative, with Yuva India, DKMS-BMST Foundation for impactful results

Spring Fest | Core Team Member

Aug'22-Jan'23

- Triumphant sponsorship drive in the Uttar Pradesh, collecting over INR 1 Lakh through alumni contributions with a remarkable 200% YOY
- Led a team of 4 to secure 26 media partnerships with major outlets like Punjab Kesari, Amar Ujala, and Lutopia Magazine for Spring Fest
 Executed 4-day star shows with co-members, featuring artists like King, Nucleya, and Sunidhi Chauhan, attracting a footfall of over 50,000

EXTRA CURRICULAR ACTIVITIES

- District-level Badminton Gold during high school from Nazareth Academy School, amongst more than 400 contestents of over 38 districts
- Spearheaded Gold winning team in Intra Hall Tug of War competition at Pandit Madan Mohan Malaviya Hall of Residence, IIT Kharagpur
- 1st runner-up at ILLUMINATION a major inter-hall competition/event at IIT Kharagpur, Pandit Madan Mohan Malaviya Hall of Residence