# SAKSHAM JAIN

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## EDUCATION

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| B.Tech. | 2027 | Delhi Technological University, New Delhi | 8.72 |
| CBSE (Class XII) | 2023 | Sachdeva Public School, Delhi | 87% |
| CBSE (Class X) | 2021 | Sachdeva Public School, Delhi | 95.2% |

## WORK EXPERIENCE

**AI Research Intern** | Massachusetts Institute of Technology (MIT CSAIL) Jun 2025 - Present

- Stress-tested LLM-based **Knowledge Graph pipeline** using **100-parallel semaphore async calls**, extracting **3,000+ subject–relation–object triplets** across scientific textual datasets with **90%+ extraction accuracy**.
- Generated **node and edge embeddings** using **Node2Vec** (3 variants), **RotatE**, and **GraphSAGE** on **~2,500 processed entities** to benchmark clustering coherence and perform high-fidelity link prediction.
- Pruned **500+ hallucinated triples** via canonical entity aggregation (MinHash + LSH + Union-Find), boosting KG precision and improving curation throughput by **25%**; enhanced React frontend with UMAP clustering, and cluster density control.

**AI Software Intern** | AmberFlux EdgeAI Pvt. Ltd. Nov 2024 - Jan 2025

- Engineered a Retrieval-Augmented Generation (RAG) system on Azure, fine-tuning LLaMA with LoRA, and using LlamaIndex, LangChain, and vector databases for customer feedback analysis; **reduced model deployment time by 15%.**
- Achieved a classification score of **0.82** using a custom metric combining F1-score and distance-based evaluation, leveraging **few-shot prompting** for improved contextual accuracy.

## PUBLICATIONS

- **IllumiCurveNet**: Low-Light Image Enhancement of Lunar Permanently Shadowed Regions Using a Self-Guided Loss Framework | **International Joint Conference on Neural Networks (IJCNN) 2025** | Rome, Italy **| First Author**
- **DECA-DiaXEL**: An Explainable Ensemble Learning Framework for Early Diabetes Detection in ICU Settings Using a Dimensional Expansion–Contraction Architecture | International Conference on Computing, Communication and Learning (CoCoLe 2025)

## ACADEMIC PROJECTS

**Real-Time Bidding Optimisation Engine |** Pytorch, NumPy.

- Processed RTB bid logs and crafted an ensemble model with Outer Product-based Neural Network and XGBoost, achieving AUC scores of **0.9094** (CTR) and **0.8889** (CVR) by making 2 different approaches based on advertiser_weight.
- Engineered a bidding algorithm using CTR/CVR predictions and value-adjusted formulas, executing under **3ms** and **200MB** to maximize the target score (clicks + N * conversions).

**Lunar PSR Image Enhancement |** Deep Learning, Pytorch, Image Enhancement.

- **Architected IllumiCurveNet**, an unsupervised deep learning model for enhancing extreme low-light images of lunar PSR, integrating dilated convolutions, spatial attention, adaptive gamma correction with an **Encoder-Decoder** network.
- Created a **Self-Guided Loss Framework** with **2 novel loss functions**, boosting texture and contrast in PSR images, outperforming existing methods in **no-reference image quality metrics** (PIQE, NIQE, BRISQUE) by **~29%**.

**LyriSense**: **Sentiment-Driven Song Recommender |** Sentiment Analysis, Cosine Similarity, Vector DB.

- Built a **song recommendation system** - Performed sentiment analysis, topic modeling, and generated **embeddings** on lyrics for **25k** songs using LaBSE, **DistilBERT-**base and Facebook/hubert-large-ls960 models from Hugging Face.
- Implemented a custom weighted similarity function, optimized through hyperparameter tuning and achieved an accuracy of **95%** with a threshold of **0.8 similarity score** for a dataset of **3k users**.

## ACHIEVEMENTS

- **Winner** at **Adobe Devcraft** for creating a Real Time Bidding Optimisation Engine.
- **Winner** at **Microsoft Code Crunch ML** Challenge for building a real time Facial Expression Recognition System.
- **National Finalist** at **Smart India Hackathon** 2024 for creating an operational management system for Indo-Tibetan Border Police.
- **Winner** at Silicon Chip Smackdown at (APOGEE 2023, BITS Pilani) for making an **AI Poker Bot** for No-Limit Texas Hold'em.

## TECHNICAL SKILLS

- **Programming Languages**: Python, C/C++
- **Frameworks and Technologies**: Tensorflow, PyTorch, OpenCV, Transformers, HTML/CSS, FastAPI, LangChain, Git and GitHub
- **Cloud Platforms**: Google Cloud Platform, Amazon Web Services, Microsoft Azure

## POSITIONS OF RESPONSIBILITY

- **Research Head** at **AI and ML Society (AIMS - DTU)**: Spearheaded society events, including "VisionAI" and "CryptAI" at Invictus 2025, and managed cross functional team in organizing "brAInwave," India's largest student-led hackathon.