

# MRINAL BHAN

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## Education

### International Institute of Information Technology, Raipur

8.55/10

B.Tech in Data Science and Artificial Intelligence

Dec. 2021 – May 2025

### Delhi Public School, Jammu

90.2%

CBSE Class XII

June. 2020 – July 2021

## Experience

### Eaglytics Co.

Dubai, UAE

Data Science & AI Intern

May 2023 – Sept. 2023

- Directed the seamless incorporation of ETL pipelines with AI models **PaLM 2**, **Claude V1** on Google Cloud's BigQuery platform, boosting data insights by 50% via advanced NLP and data engineering solutions
- Developed a **GPT-4 & Claude API** powered chat-bot that streamlines data access (40% increase) and integration (70% boost), enabling autonomous data interpretation within Slack.

**Skills:** LLMs, LangChain, Data Engg.(Fast API, Selenium, SQL, Apache Airflow), Google Cloud Console

## Projects

### LLMs See Further: Computing Approaches to Extend Context Window in LLMs | LLMs, NLP

- Aim to push the boundaries of LLM's capabilities by enabling them to handle tasks requiring broader context due to their limited context window size (**2k-16k tokens**)
- Comparing and Implementing different approaches (**HMT, FLASHBACK, Grouped Attention etc.**) to extend the context window in LLMs, enabling them to better capture long-range dependencies

### Neural Style Transfer - Using Deep Learning to Generate Real-Time Art | PyTorch, OpenCV

- Implemented **MSG-Net**, **AdaIN** for live video streams, achieving a processing speed of 20-25 milliseconds for resolutions up to 1920x1080 at 10 FPS to enable dynamic artistic transforms and adaptive style transfer.
- Delivered exceptional style-transfer accuracy to **90.44%** outperforming VGG19 (**85%**), VGG16 (**78%**), supported by low content preservation (*MSE*) values (**0.001-0.005**) & high perceptual similarity (*PSNR*) scores (**40-45 dB**)

### Neural LOLgorithm - Deep Learning for Multi-Modal Comedy Data | PyTorch, NLP, API Dev.

- Proposed a humor quotient score to **annotate humor** on a 10-point scale using a formula derived from the pitch & intensity measures of cumulative laughter employing Deep Learning & Feature Engineering techniques
- Curated a dataset of video features from OTT streaming platforms using **OpenPose**, **OpenFace**, and **OpenSmile**
- Optimized performance by caching responses, minimizing API calls for repetitive queries, achieving Quadratic Weighted Kappa (QWK) scores (**0.691-0.813**)

### ETL Pipeline Using Airflow & Reddit API | Python, AWS, Apache Airflow

- Developed a custom ETL pipeline using Airflow and Reddit API to transform raw data and perform analysis.
- Configured AWS EC2 instance to Airflow, and created a DAG with a task to schedule the ETL script to run.
- Extracted data from Reddit API, transformed it, and loaded it into an AWS S3 bucket.

## Skills

**Languages:** Python, C/C++, PostgreSQL, HTML/CSS, GraphQL, R

**Frameworks/Libraries:** Keras, Tensorflow, Transformers, OpenCV, PyTorch, Django, Hadoop, Apache Spark/Airflow

**Developer Tools:** Linux, Git/GitHub, Visual Studio, Microsoft Azure, Google Cloud, Hugging Face, Power-BI, AWS

**Soft Skills:** Articulate, Strategic Resolutions, Analytical Thinker, Great Communication & Collaborative skills

**Areas of Interest:** Data Analytics, ML - Ops, AI & Back-End Development

## Achievements

- Runner-Up** : Hack-a-Sol Hackathon among 50+ Teams
- Microsoft Certified:** Azure AI Engineer Associate
- Certifications:** Coursera (*Machine Learning Specialisation & Google Analytics*), Great Learning (*Data Pre-Processing*), The Construct (*ROS*), NPTEL (*Natural Language Processing*)
- Vice-Head:** Capriccio - Music Society, **Captain:** Basketball Team, **Core Member:** AI/ML Club