Ayush Agarwal

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Education

IIT BHU Varanasi - BTech in Electronics Engineering (ECE) (CGPA = 9.04)   2020 – 2024

Honours and achievements

- **SPECIAL MENTION - GYMKHANA AWARD:** Among **top 20 students across IIT BHU** in technical proficiency
- **6th POSITION IN IDEEAVOLT ,IIT ROORKEE :** Idea Pitching Competition.(Made Innovative Electronic Door) (Link)
- **2ND POSITION IN RECOGNIZANCE PRASTUTI IIT BHU :** Machine Learning Event. (Made U-Nets)
- **3rd POSITION IN CASSANDRA UDYAM IIT BHU :** Data Science Event (Invoice payment duration prediction model)
- **Hobbies :** Guitar, Photography, Dance, Reading, Travelling

Project - STARBUCKS CUSTOMER SEGMENTATION -

- **Exposure:** PCA, K-means, t-SNE, cluster analysis, **market segmentation**, Unsupervised learning (Link)
- Processed 3 datasets containing over 300,000 entries, ensuring **data cleanliness** and merging wherever necessary. Performed EDA, feature engineering, and applied PCA to reduce data dimensionality.
- Employed K-Means Clustering to cluster 17,000 customers, selecting the optimal number of clusters based on Silhouette score and Inertia/Sum of Squared errors value. **Inferred the primary demographic traits** of each cluster based on characteristics.
- Utilized t-SNE to perform **cluster analysis** and determine the most effective approach for delivering promotional offers to customers.

Position of Responsibility (POR) - Digisim Coordinator - Udyam 22 (ECE Dept Fest)

- **Skills Demonstrated:** Time Management, Communication Skills, Mentorship, Innovation, Leadership.
- **Spearheaded** the Digisim event, overseeing end-to-end execution, including workshops and problem statements. Conducted hands-on sessions for **50+ juniors**, mentoring them in PCB design and fostering a culture of backend VLSI.
- Designed **innovative** real-life digital electronics problems and organized a final challenge and **ensured seamless event execution** through strong **leadership and mentorship**.

Experience

DATA SCIENTIST AT INFO EDGE (NAUKRI) -   May 2024 – Jan 2025

- **Reels Notification pipeline** - Constructed **ETL Pipelines** for **Data Engineering** to deliver notifications to **6,00,000+ users** achieving **5x DAU** (Daily avg Users) on Naukri reels. Integrated data from multiple AWS and Mongo DBs, translating complex business logic into code computing dynamically computed user pool.
- **News Recommender System** - Developed **Real Time Recommender System** for Naukri Techminis, a news platform similar to Inshorts, delivering personalized content to **40,000+ users** with response time **<150ms**, using Approximate Nearest Neighbors (**ANN**) based techniques like **HNSW**.
- **Notification Generation using GenAI** - Used **Prompt Engineering** over **Llama** (8B) to automate notification content generation, leveraging video data (title, transcription(using Whisper AI)). Designed **guardrails**(profanity checks, length check etc) to ensure quality content, processing 400+ videos with zero manual effort.
- **Other Projects -** Metrics Mailer and Dashboard, Meme Scrapper, Sallie (Sales Intelligence AI), Reels Recommender System

ASIC DESIGN (HARDWARE ENGINEERING) INTERN AT NVIDIA -   May 2023 – July 2023

- **Tools:** Perforce (Version Control System), Unix, gVim, Verdi (ASIC File Management), JasperGold, System Verilog
- **SFV SLCG deployment - Deployed, Executed and Documented** "SLCG SFV" workflow over **3** submodules in USB IP to root out clock gating bugs. Discovered and **debugged 1** critical RTL **bug** in the chip.
- **Netlist Linting over USB IP -** Performed **Rule Based Data Analytics** over 8000 Netlist Linter outputs thus assuring **best quality practices** in Netlist. Using this Data analytics, **optimized Design** via RTL Coding to enhance Clock Tree structure.

Skills and Technologies

Skills: Recommender Systems (Information Extraction), Data engineering, Generative AI (GenAI), Prompt Engineering, Data Science, Machine Learning (Deep Learning, Computer Vision), Electronics, Robotics, Software (SDE), Product Management

Technologies: Python, Mongo DB, Kafka, Aerospike, Flask APIs, SQL, Cron, Git, Confluence, Kubernetes, Jenkins, Postman, Gunicorn, Requests, BeautifulSoup, C++, Tensorflow, Pandas, Numpy, Scikit Learn, Matplotlib, Seaborn, Excel, Power BI