AYUSH AGARWAL

ACADEMIC PROFILE

Degree/Certificate	Institution	Percentage/CGPA	Year
B-Tech	Electronic Engineering IIT (BHU), Varanasi	9.10	2024
CBSE (XII)	K.R.Manglam World School	97.20	2020
CBSE (X)	K.R.Manglam World School	95.00	2018

SKILLS

Skills: Data Science, Machine Learning (Deep Learning, Computer Vision), Mechatronics, Digital Electronics, Robotics
Programming Languages : C++, Python, SQL

INTERNSHIP/TRAINING

ASIC Design Intern Nvidia - SFV SLCG deployment + Netlist Linting over USB IP

- **Tools**: Perforce (Version Control System), Unix, gVim, Verdi (ASIC File Management), JasperGold, System Verilog
- **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.
- 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.

PROJECTS

STARBUCKS CUSTOMER SEGMENTATION

- **Exposure** : PCA, K-means, t-SNE, cluster analysis, market segmentation, Unsupervised learning
- 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 of each member.
- Utilized **t-SNE** to perform **cluster analysis** and determine the most effective approach for delivering promotional offers to customers. GitHub Link

CREDIT CARD FRAUD DETECTION

- **Exposure**: Logistic Regression, SVM, KNN, Financial Data Analysis, Data Science
- Conducted Exploratory Data Analytics **(EDA)**, Univariate and Bivariate Analysis, **Data Visualization** and processing over **highly imbalanced dataset**.
- Utilized Machine Learning algorithms such as **K-Nearest Neighbours, Logistic Regression and Support Vector Machines**. Performed **Hyperparameter Optimization** using **Grid Search** thus achieving classification recall - **94%**.
- Evaluated and compared model performances on the basis of **F1 Scores, Confusion Matrix and ROC Curve**. Link

POSITION OF RESPONSIBILITY

Digisim Coordinator - Udyam 22 (Digital Electronics Competition, ECE Department Fest)

- **Skills Demonstrated** : Time Management, Communication Skills, Mentorship, Innovation
- **Taught 50+ juniors** on how to make their own first **PCB's** (Printed Circuit Boards), thus introducing culture of Backend VLSI. Guided juniors on how to **design innovative** electronic **solutions emphasizing customer needs**.
- Designed multiple real life based digital electronics **practice problems** biweekly (Q collection now converted to Book freely available on LinkedIn. **Made** the final **PS**- EVM on PCB, Model **Blockchain** digital electronics etc.

HONOURS AND ACHIEVEMENTS

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)
6TH POSITION IN INTER IIT BOSCH CHALLENGE : Participated in Inter IIT Tech Meet (in team of 7), Bosch Age and Gender Prediction Midprep Challange (Machine Learning).
6th POSITION IN IDEEAVOLT ,IIT ROORKEE : Idea Pitching Competition.(Made Innovative Electronic Door) Link
COMPLETED MLWare TECHNEX'22 : Computer Vision event (Made Stained Cell Counter) Link

EXTRA-CURRICULAR ACTIVITIES

2nd POSITION in Sanlayan Bandish , KASHIYATRA , solo instrumental competition (GUITAR) .
Hobbies : Guitar, Photography, Dance

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