Rachit Jain

Roll No.:B20AI032
Artificial Intelligence and Data Science
Indian Institute Of Technology, Jodhpur

+91-9892967379
rachit.2@iitj.ac.in
rachitbitw@gmail.com
Github | LinkedIn

Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech. (AIDE)	Indian Institute of Technology, Jodhpur	7.19 (Current)	2020-Present
Senior Secondary	HSCE Board	76.15%	2019
Secondary	ICSE Board	91%	2017

Experience

- **Meytrix** *LoR | June 2023 - July 2023*
  Finance and Machine Learning Intern Mumbai
  - **Developed 7 advanced portfolio optimization tools** for stocks on Indian market listed at NSE & BSE.
  - Significantly expanded the company's capabilities by conducting rigorous testing and backtesting of these tools, **extending allocation coverage from 15 to 700 stocks.**
  - Engineered **customizable solutions**, empowering users to tailor portfolios based on their preferences and risk profiles, utilizing historical data, financial ratios, and scores for optimal stock selection. Used models such as Markowitz Theory, Black-Litterman, Relative Rotation Graphs, Clustering and more.
  - **Tools & technologies used**: Python, Balance Sheets, PyPortfolioOpt, yfinance, Postman API
- **Undergraduate Research** *Jan. 2023 - May 2023*
  Under Dr. Angshuman Paul - Removing Artifacts from Medical Image IIT Jodhpur
  - Developed a deep learning based **autoencoder** model on a **supercomputer**, training it on a dataset of over **15,000** images to eliminate artifacts from low-quality medical X-ray images. Achieved impressive **MSE of 0.078 (training) and 0.014 (testing)**, along with PSNR of 32 (training) and 31.8 (testing) after rigorous testing on 3,000 images.
  - Created a model to add targeted artifacts to disease-detected patches in medical images. The model was capable of **handling multiple patches** within a single image, also would **adjust number of artifacts** based on patch size for precise artifact generation.
  - **Tools & technologies used**: Python, PyTorch, Kubernetes, Linux

Projects

- **Adversarial Attacks and Detection** *Github | April 2023 - May 2023*
  - Conducted attacks on a custom CNN image classification model using techniques like **FGSM, PGD, and mask-based attacks**. Further developed a detection model to successfully identify these attacks. Fine-tuned it to recognize attacks on **deepfake** celebrity images generated using the Faceswap technique with personal photos.
  - **Tools & technologies used**: Python, Sklearn, Colaboratory
- **Weather Homepage** *Github | Mar. 2023 - April 2023*
  - Designed an **interactive** weather data visualization tool, featuring dynamic graphs such as floating bar charts, gauges, etc. Enabled users to **compare** weather information for different cities and time points.
  - **Tools & technologies used**: Python, Dash, Plotly
- **Flight Price Prediction** *Github | April 2022 - May 2022*
  - Developed flight price prediction models based on factors like destination and arrival time using regression techniques such as Random Forest, LGBM, etc. **Increased accuracy on average by 3%** introducing a "weekday" column derived from departure dates.
  - **Tools & technologies used**: Python, Sklearn, Colaboratory

Key Courses Taken

- Patter Recognition & Machine Learning, Data Structure & Algorithms, Introduction to Financial Engineering, Deep Learning, Dependable AI, Probability Statistics & Stochastic Process, DBMS, Foundations of Finance, OS

Technical Skills

- **Programming:** Python, C++, SQL
- **Tools & OS:** Google Colab, Windows, Remote SSH
- **Libraries/Frameworks:** Pandas, Numpy, scikit-learn, PyTorch, PyPortfolioOpt

Achievements & Positions of Responsibility

- **Gold Level**, at World Quant Challenge *Certificate | 2023*
- **Head at Kridansh** Interhostel Sports Competition, IIT Jodhpur *2023*
- **Secured 2nd Position** Billiards, Kridansh, Interhostel sports competition, IIT Jodhpur *2023*
- **JEE MAINS AIR : 1866** *2020*
- **JEE ADVANCED AIR: 3216** *2020*