

SAQUIB HUSSAIN

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SKILLS

- **Programming Languages:** Python, R, C, C++, DSA (C++), MySQL, HTML
- **Libraries and Frameworks:** Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn, OpenCV (Image Processing).
- **Data Science:** Machine Learning Algorithms, Reinforcement Learning, NLP, Deep Learning, Machine Learning Statistics, Data Science pipeline (data cleansing, visualization, modeling, interpretation).
- **Other Skills:** Hypothesis Testing, OOP, Excel, Git, GitHub, Streamlit.

WORK EXPERIENCE

Research Intern (Reinforcement Learning and Deep Learning) – IIT Jammu

Feb 2024 – Jul 2024

- Researched and developed a Reinforcement Learning-Based Intrusion Response System (RL-IRS) by integrating the Bellman equation and hyperbolic tangent reward function into a custom RL model.
- Implemented the VarDetect framework, generated attacker/non-attacker datasets (Fashion MNIST, CIFAR-10), and calculated Maximum Mean Discrepancy (MMD) and Mahalanobis distances for threshold analysis.
- Created adversarial samples using FGSM attack with ResNet50, extracted embeddings using VAE, and visualized datasets in 3D via PCA and evaluated the model's performance with a confusion matrix (TP=974, FN=26, FP=387, TN=613).

Machine Learning Intern – iHUB at IIT Roorkee

Jul 2023 - Sep 2023

- Implemented Python libraries (e.g., Matplotlib, NumPy, Pandas) and Machine Learning Algorithms (e.g., SVM, KNN, Naïve Bayes, Decision Tree, Random Forest, Linear and Logistic Regression and Apriori Algorithms).
- Completed a project that "Explore different datasets with classifiers".
- During the internship phase, I pushed all code to GitHub to secure my learning and project works in [GitHub Repository](#).

ACHIEVEMENTS

- 2x Kaggle Expert (Datasets, Notebooks)
- Total 1000+ Contributions and 30+ Repositories on GitHub
- Completed over 800 coding challenges on various platforms
- Hackathon: Finalist (Awards Round) in Dark Patterns Buster Hackathon (DPBH) – IIT BHU 2023

[Link](#)

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PROJECTS

[Link](#) Object detection and tracking algorithm implementation for real-time video streams and static images

- Designed and implemented an object detection and tracking system using YOLOv8 and Streamlit.
- Supported real-time video streams (RTSP, Webcam, YouTube) and static images/videos.
- Added features for task selection (detection/segmentation), adjustable confidence thresholds (25 – 100), and CSV export for detection results. Also, integrated ByteTrack and BoT-SORT algorithms for advanced object tracking and segmentation.

[Link](#) MasterChef: Transformer-Based Recipe Generation

- Developed a deep learning-powered application utilizing ResNet101 as an encoder and a Transformer-based decoder (8 layers, 16 head attention) to generate personalized recipes from food image.
- Supports learned (1024 positions) or sinusoidal positional encoding, with a linear and softmax final layer.

EDUCATION

Degree and Board	Institute	CGPA/Percentage	Year
B.Tech. (H) CSE (Data Science)	University Teaching Department (UTD), CSVТУ, Bhilai, C.G.	8.07	2021-2025
Senior Secondary School / CBSE	Sun Valley Public School, Varanasi, U.P.	65.60%	2021
Secondary School / CBSE	J.N.V. Bhadohi, U.P.	79.80%	2019