SHREYAN SOOD
92092, La Jolla, California, USA
shreyansood@gmail.com | +1 8583196576 | Portfolio | GitHub | LinkedIn

SUMMARY

Data Science grad student with 2 years of hands-on experience in AI-driven solutions and a commitment to continuous learning. Proven track record of deploying innovative technologies in real-world applications and contributing to academic research.

EDUCATION

University of California San Diego **September 2022 – December 2024**
Master of Science, Data Science *GPA (3.98/4.0)*
Teaching Assistant for DSC-261: Data Ethics, DSC-291: Statistical Models

Delhi Technological University, New Delhi **August 2018 – June 2022**
Bachelor of Technology, Mathematics and Computing Engineering *CGPA (8.73/10)*

WORK EXPERIENCE

Analytical Scientist Intern **June 2023 – December 2023**
FICO, San Diego, California
- Devised and implemented **adaptive time-series algorithm** to monitor the latent features of a State-of-the-Art **fraud detection neural network** and **trigger real-time alerts** for significant shifts in distributions. Validated the algorithm for **15 major clients**.
- Developed an ETL pipeline to compute and visualize the distributions of terabyte-scale transaction datasets using PySpark.
- Conducted calibration experiments to simulate drastic shifts in customer behavior and cluster sophisticated fraud schemes.

Research Engineer **January 2022 – September 2022**
Collablens, Haryana, India | Funded by MIT Media Lab
- Developed and deployed an **AI station** for quality assurance drop testing of flour packets. Integrated dynamic **cloud-based** modules for Spillage Detection, Orientation Checks, Depth Sensors, and other real-time insights from **live video footage**.
- Helped secure a contract to deploy the system in **50 factories**. Helped raise over **$200,000** in investment offers.
- Prototyped a versatile **Computer Vision System** to detect various types of defects in laser-engraved wooden boards on a moving assembly line, flagging defective units and storing results on the cloud. Achieved mean inference time of 2.5 seconds per board.

Machine Learning Intern **May 2021 – December 2021**
Hypertechpreneurs, Haryana, India | Funded by Oriental Insurance
- Developed and productionized Vehicle Damage Detection Model utilizing Mask R-CNN for Instance Segmentation to automate vehicle inspections. Extrapolated it to a Severity and Cost Estimation pipeline. Helped raise over **$50,000** in funding.
- Developed systems for OCR and Object Detection in dynamic environments while maintaining a minimum accuracy of **90%**.

RESEARCH EXPERIENCE AND PUBLICATIONS

Lead Research Fellow under Prof. H.C. Taneja, Delhi Technological University **September 2021 – May 2022**
- Outperformed the Black-Scholes Model for option pricing using LSTM, MLP, XGBoost and SVM leveraging real market data.
- **Sood, S., Jain, T., Batra, N., Taneja, H.C. (2023). Black–Scholes Option Pricing Using Machine Learning. In: Proceedings of International Conference on Data Science and Applications. Lecture Notes in Networks and Systems, vol 551.**

Research Assistant under Prof. Anurag Goel, Delhi Technological University **February 2021 – August 2021**
- Integrated State-of-the-Art CNN based Object Detection Networks (CenterNet, Faster R-CNN) with self-devised algorithms for selective lossy image compression techniques to enhance the storage and processing efficiency in autonomous systems.
- **S. Sood and Y. Ahuja, "Selective Lossy Image Compression for Autonomous Systems," 2021 XXIII Symposium on Image, Signal Processing and Artificial Vision (STSIVA), 2021, pp. 1-5.**

PROJECTS

Rubik's Cube 3D visualizer and solver using MCTS **August 2024 – Present**
- Developed a 3D visualizer for the Rubik's Cube, with ongoing work on integrating Monte Carlo Tree Search (MCTS) and reinforcement learning to optimize the solving process without human input.

MediLoRA: LLM for medical Q&A with QLoRA **October 2023 – January 2024**
- Fine-tuned OpenHermes-2.5-Mistral-7B with Q-LoRA on 300M medical text tokens. Improved PubMedQA and MedQA accuracy by over 20% and matched State-of-The-Art 70B open models on MMLU-Medical with 0.05% of the data size.

TECHNICAL SKILLS

- **Programming** **:** Python, SQL, R, C++, MATLAB, JavaScript, HTML, CSS
- **Technologies** **:** Pandas, PyTorch, Keras, TensorFlow, OpenCV, AWS, PostgreSQL, Bash, PySpark, Docker, Hadoop
- **Skills** **:** Data Science, MLOps, Deep Learning, Computer Vision, Natural Language Processing, Cloud Computing