Milan Singhal

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Education

UPES **Aug 2022 – Present**
Bachelor of Science in Computer Science *Dehradun, Uttrakhand*

Projects

Stock Anomaly Detector | Python, YFinance, Facebook Prophet **Apr 2025 – May 2025**

- Made an app that uses Upstox API, YFinance and Prophet for stock forecasting and provides an interactive graphical user interface. Tkinter allows for Dynamic Plotting, as well as the ability to Pan and Zoom, while also showing Forecast Graphics.
- By using inclusive Z-Score analysis, we could correctly spot 95% of significant differences in historical prices, while maintaining a false positive rate of less than 2% and achieving a mean absolute percentage error of under 5%.

Sign Language Recognition | Python, YOLOv8, Mediapipe, OpenPose **Jan 2025 – Apr 2025**

- Engineered a Python-based tool using YOLOv8, Mediapipe, and OpenPose, enabling it to quickly recognize signs by people with disabilities in real time with processing latency under 1 sec and built a smooth UI using Tkinter that allows users to switch directly between the "Sign to Text" and "Text to Sign" panes in just under 0.3 sec.
- Mediapipe extracted the locations of hand joints with a precision of 98% and YOLOv8 used this information to turn each sign into meaningful letters, yielding a 92% successful classification rate for 50 separate signs.

Algo Mate | Python, Decision Tree, Random Forest **Sep 2024 – Dec 2024**

- Crafted a smart system that suggests best data structures and algorithms, and the system's recommendations get it right 90% of the time for 100+ common programming problems.
- Collected more than 450 descriptions of problems and labeled them with a 95% accuracy to use as training and validation data for several algorithms by applying Decision Trees and Random Forest approach.

Experience

PwC Launchpad **Feb 2025 – Jun 2025**
Data Science Intern

- Also improved algorithmic thinking through practice with more than 15 logic-related concepts: flowcharts, pseudocode, selection statements, looping and arrays during the foundational programming training.
- I learned about several software methodologies from modules on Agile, SDLC, and layered architecture which increased both my understanding of software development lifecycles and my ability to plan projects.
- I made back-end programming better by using file handling techniques together with software architecture, focusing on data storage, retrieval and organizing workflows in more than five-use cases.

Quality AI – Startup **Jan 2025 – Mar 2025**
Machine Learning Intern *Dehradun, Uttarakhand*

- Led the team in accomplishing task like annotating input images, which were roughly around 15000 in number.
- Analyzed and interpreted complex datasets (around 20000 images) to extract actionable insights, supporting data-driven decision-making across various project domains.

Cosmofleet **Jun 2024 – Jul 2024**
Robotics Intern

- Researched on robotic arms, exploring over 20 distinct applications and use cases.
- Produced comprehensive documentation and delivered 5+ presentations, effectively articulating technical concepts to diverse audiences, including both technical and non-technical stakeholders.
- Authored a research paper titled "Mars Colonization," analyzing key factors in space exploration, and facilitated the integration of AI-driven enhancements, achieving a 30 percent increase in the efficiency and performance of robotic operations.

Technical Skills

Languages: Python, Java, C, HTML/CSS, SQL
Tools and Software: VS Code, Figma, Adobe Photoshop, Adobe Illustrator, DaVinchi Resolve
Technologies/Frameworks: Linux, Git, GitHub

Research and Recognitions

Publications

- **Sign Language Recognition using YOLOv8** – Published in the International Research Journal of Engineering and Technology (IRJET). Developed a real-time system to convert American Sign Language (ASL) into alphabets and numbers using object detection and deep learning techniques.
- **Recognising Words in American Sign Language: A YOLOv11 Based Approach** – Published in the International Research Journal of Engineering and Technology (IRJET). Developed a real-time system to convert American Sign Language (ASL) into words using object detection and deep learning techniques.
- **Challenges and Solutions in Mars Colonization** – Conducted in-depth research on addressing radiation exposure, habitat construction, water extraction, and sustainable agriculture to support long-term human settlement on Mars.