Hirdyansh Mahajan

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# Education

**Thapar Institute of Engineering and Technology** Patiala, PB

*B.E. in Computer Engineering with current CGPA of 9.21/10 Aug. 2022 – Present* ***Relevant Coursework****: Computer Programming, Object Oriented Programming, Data Structures, Design and Analysis of Algorithms, Operating System, Database Management System, Artificial Intelligence*

**Gurdaspur Public School** Gurdaspur, PB

*passed 12th standard with 94.6% May 2021*

# Projects

**Stock Prediction** *| Python, Flask, Pandas, Prophet* October 2023 – January 2024

* Implemented a stock prediction website using **Flask** and **TSAI model**s to forecast stock prices accurately.
* Engineered an interactive web interface using Flask to enable users to input stock symbols, select prediction horizons, and visualize forecasted stock price.
* Integrated data scraping techniques to fetch historical stock market data from various financial APIs like

**yFinanace**, ensuring a consistent and reliable data source for analysis.

* Achieved an **accuracy of 90%** with a maximum threshold of 1.0.

**Sign Language Interpretation** *| Python, OpenCV, NumPy* July 2023 – August 2023

* Developed a real-time Computer Vision system to recognize and interpret sign language using **OpenCV** and

**NumPY**.

* Utilized **contour detection** and **convex hull algorithms** to extract hand regions from video frames, enabling precise gesture recognition and classification.
* Conducted extensive testing and validation using diverse sign language datasets, achieving an **overall accuracy over 94%** for gesture recognition and an average frame processing rate of **30 frames per second**.

**Centrality Analysis** *| C++* September 2023 – October 2023

* Designed a centrality analysis tool in **C++** to analyze the structural importance of nodes in complex networks.
* Achieving an average computation time of 1 second for networks with up to 3,000 nodes.
* Implemented **Graph Theory** concepts and utilized graph data structures and algorithms to represent network topology and efficiently compute centrality metrics.
* **Refined** and **developed** my own graph library for specialized operations.

# Technical Skills

**Languages**: C/C++, Python, SQL

**Developer Tools**: Git, VS Code, Anaconda, MySQLWorkbench, Docker

**Libraries**: Pandas, NumPy, Matplotlib, Scikit-learn, Flask, OpenCV, Spacy, NLTK, GenSim

# Acheivements

Awarded with **Merit-3** scholarship for Academic performance.