

# Hirdyansh Mahajan

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## EDUCATION

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### 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

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### Stock Prediction | Python, Flask, Pandas, Prophet

October 2023 – January 2024

- Implemented a stock prediction website using **Flask** and **TSAI models** 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 **yFinance**, 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

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**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

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