

# Prachi

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## EDUCATION

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### Thapar Institute of Engineering and Technology

Patiala, India

*Bachelor of Engineering in Electronics and Communication Engineering; CGPA: 8.31/10.0 August 2023 – May 2027*

### Rose Mary Convent School

CBSE

*High School ; Percentage: 86.8%*

*April 2021 – March 2023*

## TECHNICAL SKILLS

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**Programming Languages:** Python, C, C++, HTML, CSS, JavaScript, SQL, LaTeX , sqlite3

**Libraries:** Pandas, NumPy, Scikit-learn, Surprise (scikit-surprise), Matplotlib, OpenCV, Seaborn , React

**Frameworks:** TailwindCSS, Flask , Streamlit

**CS Fundamentals:** Operating Systems, Object-Oriented Programming, Database Management Systems

**Data Science:**Data Cleaning, Feature Engineering, Exploratory Data Analysis(EDA),Statistical Analysis, Data Visualization,Hypothesis Testing,Model Evaluation

**Machine Learning:** Regression, Classification, Clustering, Reinforcement Learning, Neural Networks

## PROJECTS

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### Cloak of Invisibility - Computer Vision Application

GitHub

- Developed a real-time invisibility cloak simulation using Python and OpenCV, maintaining 25 FPS and sub-50ms latency. Achieved 88% segmentation accuracy for blue cloak detection and reduced noise artifacts by 35% using improved morphological operations
- Implemented advanced color segmentation algorithms, masking techniques, and morphological operations to accurately isolate target regions, achieving over 90% detection accuracy under varied and challenging lighting conditions.
- Optimized real-time frame processing using morphological operations such as dilation and erosion, effectively reducing image noise and significantly enhancing edge detection quality and overall visual consistency

### Book Recommendation System

GitHub

- Engineered a personalized book recommendation engine in Python, leveraging TF-IDF Vectorization and cosine similarity to deliver high-relevance suggestions based on user preferences
- Applied collaborative filtering with Singular Value Decomposition (SVD) using Scikit-surprise, achieving an RMSE of 0.84 on the goodbooks-10k dataset
- Modeled complex user-item interactions using bipartite graphs with NetworkX and integrated the A\* search algorithm to efficiently compute and optimize recommendation paths, improving personalization and recommendation accuracy

## WORK EXPERIENCE

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### AI/ML Intern , OutriX

Remote

- \* Designed, implemented, and trained a custom Convolutional Neural Network (CNN) architecture using PyTorch to classify images into 10 distinct categories, achieving high model accuracy on the CIFAR-10 dataset
- \* Created custom dataset classes and upgraded data loaders to efficiently process the CIFAR-10 dataset
- \* Delivered weekly updates and compiled a detailed final report on both projects, including methodology, results, and future scope

## ACHIEVEMENTS

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- Selected as one of the Top 800 students from over 20,000 applicants for the AlgoUniversity Technology Fellowship
- Solved 500+ Data Structures and Algorithms problems across multiple competitive coding platforms
- Selected for McKinsey Forward Program 2025, a global learning initiative focused on leadership, problem-solving, and digital skills.

## Relevant Coursework

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Data Structures and Algorithms | C/C++ Programming | Artificial Intelligence | Machine Learning