

# PRAGATI JAIN

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## Education

<b>Zakir Husain College of Engineering &amp; Technology, AMU</b> <i>Bachelor of Technology in Computer Engineering</i>	<b>2023 – 2027</b> 8.797/10 CGPA
<b>Three Dots Sewamarg Public School, Aligarh (CBSE)</b> <i>Intermediate</i>	<b>2021 – 2022</b> 93.4/100
<b>Three Dots Sewamarg Public School, Aligarh (CBSE)</b> <i>High School</i>	<b>2019 – 2020</b> 92.6/100

## Technical Skills

**Languages:** C/C++, Python, HTML, SQL  
**Frameworks & Libraries:** TensorFlow/Keras, OpenCV, NumPy, Matplotlib, Pandas  
**Tools:** Git, Visual Studio, Jupyter Notebook, Excel

## Projects

### Real-Time Hand Tracking and Finger Counting using OpenCV & MediaPipe

- **Skills:** OpenCV, MediaPipe, FPS Optimization
- Developed a system to detect hands, distinguish left/right hands, count extended fingers, and dynamically adjust brightness/contrast. Integrated FPS counter for performance monitoring.

### Invisible Cloak Effect using OpenCV & NumPy

- **Skills:** Background Subtraction, Color Range Detection, GPU Acceleration
- Created an invisibility illusion by replacing a specific color range with a static background in real-time. Enhanced with edge detection and GPU optimizations.

### Camera Calibration using OpenCV & Checkerboard Detection

- **Skills:** Intrinsic Parameters Estimation, Distortion Correction
- Implemented checkerboard corner detection to calibrate cameras, estimate distortion coefficients, and correct lens aberrations for improved image accuracy.

### Gate Pose Estimation with Gesture-Based Corner Selection

- **Skills:** MediaPipe Hands, Pinch Gesture Recognition, Pose Estimation
- Built a system for real-time gate pose estimation using hand gestures to select corners, enhancing robustness in dynamic environments.

### AI-Powered Snake Game with Adaptive Difficulty

- **Skills:** Pygame, Pathfinding Algorithms, Dynamic Difficulty Adjustment
- Developed a Snake game with AI opponents, adaptive difficulty levels, and interactive UI elements like level selection and sound effects.

## Certifications

**Machine Learning with Python : E & ICT Academy, IIT Kanpur**  
Winter Training Program 2024-25 — ML algorithms, model deployment, developed practical projects using scikit-learn and TensorFlow

**Data Structures in C++ : Udemy**  
Gained comprehensive understanding of fundamental data structures and algorithms

## Extra-Curricular Activities

<b>MTS Autonomous Underwater Vehicle Club - ZHCET</b> <i>Computer Team Member</i>	<b>August 2024 – Present</b> Aligarh, India
• Learning computer vision algorithms and control systems for AUVs, focusing on PnP object detection methods	