

## **Gesture-Controlled Interface Using Computer Vision and Python**

**Authors :** Vedant Vardhan Rathour, Anant Agrawal

**Abstract :** The project aims to provide a touchless, intuitive interface for human-computer interaction, enabling users to control their computer using hand gestures and voice commands. The system leverages advanced computer vision techniques using the MediaPipe framework and OpenCV to detect and interpret real time hand gestures, transforming them into mouse actions such as clicking, dragging, and scrolling. Additionally, the integration of a voice assistant powered by the Speech Recognition library allows for seamless execution of tasks like web searches, location navigation and gesture control on the system through voice commands.

**Keywords :** gesture recognition, hand tracking, machine learning, convolutional neural networks

**Conference Title :** ICTSP 2025 : International Conference on Telecommunications and Signal Processing

**Conference Location :** Bengaluru, India

**Conference Dates :** January 30-31, 2025