



# Gesture-Based 3D Painting Using HCI

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# Introduction

- Overview:
- This project explores the intersection of art, technology, and human-computer interaction.
- Purpose:
- To enable users to paint in 3D space using gesture recognition technology, providing freedom akin to traditional art.

# Features

- - Intuitive hand-gesture controls for painting.
- - Real-time 3D canvas interaction.
- - Freedom from physical input devices.
- - User-friendly interface.
- - Supports artistic techniques like layering and depth.

# Technology Used

- - Gesture Recognition: AI-based tracking algorithms.
- - 3D Rendering: OpenGL/Unity.
- - Programming Languages: Python/C#.
- - Devices: Leap Motion or camera-based gesture detection.
- - Frameworks: TensorFlow/Keras for AI.

# System Flowchart

- 1. Input (Hand Gestures).
- 2. Gesture Recognition (AI Processing).
- 3. Translation to Commands.
- 4. 3D Rendering on Canvas.

# Applications & Future Scope

- Applications:
  - - Digital art and animation.
  - - Virtual reality (VR) environments.
  - - Therapeutic tools for rehabilitation.
- Future Scope:
  - - Enhancing VR/AR integration.
  - - Extending to sculpting or music creation.
  - - Advanced multi-user collaboration in 3D spaces.

# Project Output



**Thank You !!**