ABSTRACT

Air-writing refers to writing of linguistic characters or words in a free space by hand or finger movements.Air-writing is especially useful for user interfaces that do not allow the user to type on a keyboard or write on a trackpad/touchscreen, or for text input for smart system control, among many applications.

Airwriting differs from conventional handwriting; the person who performs **air-writing can only use an imaginary coordinate** to guide the writing motion. The variability of motion data that represents a letter is thus considerably broader in air-writing than in paper writing.

The Air Writing Recognition project is a combination of **computer vision object tracking and handwriting recognition machine learning**. The air writing recognition system uses the **webcam of a computer to track character digits written in the air** by the user, then uses a convolutional neural network to classify the character digits into one of 62 classes: 10 digits, 26 uppercase letters, 26 lowercase digits. Many current systems use complex and expensive tracking setups to achieve gesture recognition, but we seek to create a system that can achieve the same with a much more affordable setup.

Our project aims to use a combination of **computer vision and handwriting recognition to create a system that acts as a virtual whiteboard**.

PROJECT DOMAIN

computer vision, machine learning, convolutional neural networks.

DELIVERABLES

- Our project aim is to create a system that needs only a computer and a built-in webcam to recognize different letters and digits written in the air.
- The motivation of our project is to achieve a virtual whiteboard system at a cost that is accessible to the average user. We want to introduce alternative interfaces for communication that have high affordability, usability, and accessibility.

BASE PAPER REFERENCE

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