

Title of the Project: Arabic Sign Language Translator: An AI-Powered Solution for Bridging Communication Barriers

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Abstract:

This research project aims to develop an AI-powered application for translating Arabic Sign Language into text, addressing the communication challenges faced by the deaf community. The project focuses on creating a tool that can recognize and translate static sign language gestures accurately into Arabic text which will help bridge the communication barriers. The methodology involves collecting a dataset of Arabic sign language images and implementing hand detection and gesture recognition to finally translate these into text. The project aims to achieve high accuracy in sign recognition while maintaining real-time processing capabilities. This research specifically addresses the unique challenges of Arabic sign language recognition.

Introduction

- Background and motivation

The deaf community faces significant communication barriers in their daily interactions with hearing individuals. This tool will help the deaf community so that they don't have to rely on sign language interpreters to assist with communication which presents substantial challenges like the availability of sign language interpreters and the lack of automated translation tools. This project addresses this critical gap by using artificial intelligence and computer vision technologies to create an accessible and efficient translation system. The goal is to help deaf people communicate better and feel included while also improving AI for Arabic language and sign language recognition.

- Problem statement

The current lack of Arabic Sign Language and automated translation tools creates significant barriers for deaf individuals trying to communicate with hearing people. The challenge lies in developing a system that can accurately recognize and translate a wide range of Arabic signs while being accessible, user-friendly, and practical for everyday use.

- Research objectives

1. Develop an AI-powered system for accurate Arabic Sign Language recognition and translation
2. Create a dataset of Arabic Sign Language gestures.
3. Design and develop a user-friendly interface
5. Achieve high accuracy in sign recognition while maintaining real-time processing capabilities