Recognition of Bengali Sign Language using Novel Deep Convolutional Neural Network

**Summary:**

This thesis paper discusses the use of computer vision-based solutions for recognizing hand gestures as a means of facilitating communication for speech and hearing-impaired people. The paper focuses on the Bangla Sign Language and proposes a deep convolutional neural network architecture to identify the language's alphabets with high accuracy. The research work resulted in a model with an overall precision of 99.86%, surpassing all previous works on Bengali sign alphabet recognition. The paper highlights the importance of automated sign language recognition to overcome communication difficulties for hearing-impaired individuals and presents a working methodology for developing the proposed model. The methodology includes data collection, preprocessing, and model training on the Keras framework. The results suggest that computer vision-based solutions have significant potential in facilitating communication for speech and hearing-impaired people.

**Advantages:**

1. The proposed deep learning-based solution offers an accurate and automated way to recognize Bengali sign language alphabets.
2. The research addresses a significant issue faced by speech and hearing-impaired individuals in Bangladesh.
3. The use of deep learning techniques can lead to improved performance and accuracy compared to traditional machine learning algorithms.

**Disadvantages:**

1. The study is limited to recognizing Bengali sign language alphabets only.
2. The dataset used for training and testing may not be representative of all variations in Bengali sign language gestures.
3. The paper does not discuss the feasibility of implementing the proposed solution in real-world scenarios, such as mobile applications or wearable devices.

