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Sinhala sign language to grammatically correct sentences using NLP

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ABSTRACT

As the number of people with hearing difficulties has grown, so has the use of Sign Language. There are many sign languages in the world, and the author chose Sinhala sign language to complete the project. The problem that the author has identified is the incorrect grammar outputs that is produced by translating Sinhala sign language in to a sentence.

The author intends to solve this problem with two models, one which consists of machine learning and the other NLP. The machine learning model will be used to detect and directly translate the sign language, whilst the NLP model will correct the grammar discrepancies in order to give a clear and grammatically correct sentence.

Based on the results obtained, it can be stated that both models performed as expected. In terms of accuracy and loss, the LSTM model provided an accuracy rate of 94%, whereas the NMT model produced an accuracy rate of 98%.

Keywords: LSTM, sign language, NLP, NMT, Deaf/Mute

Subject Keywords: Computing methodologies⟶ Artificial intelligence⟶ Natural ⟶ language processing ⟶ **Machine translation**