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Enhancing Real-Time Recognition of Marathi Sign Language Using MobileNetV2

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Abstract: *Sign language recognition plays a vital role in aiding communication for the deaf and mute community. This study presents a Marathi Sign Language Recognition model using MobileNetV2, trained on 45 sign classes with 1,500 images per class, achieving 98-99% accuracy in testing. However, real-time recognition identifies 45 out of 45 letters. We employ image preprocessing techniques and transfer learning to enhance recognition efficiency. Comparative analysis with other architectures confirms MobileNetV2's superiority in accuracy and speed. Performance is evaluated using confusion matrices and accuracy curves. To improve real-time detection, we discuss solutions such as gesture sequence modelling and dataset augmentation. The proposed system contributes to the development of an effective Marathi sign language translation tool, enhancing accessibility for the hearing-impaired.*

Keywords: Sign Language Recognition, MobileNetV2, Deep Learning, Real-Time Recognition, Marathi Sign Language, Computer Vision

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