Digital tools for sign language research: towards recognition and comparison of lexical signs
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Digital Tools for Sign Language Research

Towards Recognition and Comparison of Lexical Signs

Contrary to common belief, sign languages are not universal but are unique to specific communities and cultures. They develop organically through interactions among deaf individuals and are not derivatives of spoken languages. Each sign language boasts its own distinct grammar, lexicon, and cultural nuances. Variations and dialects of sign languages can even be observed within a single country, reflecting the rich and diverse modes of communication within the deaf community.

Despite this linguistic richness, deaf individuals often face pressure to adopt spoken language methods, such as lipreading or text-based communication. This bias toward spoken languages is further reinforced by the noticeable absence of signed languages in current linguistic technologies, underscoring the need for greater inclusion and recognition in language research and technological development.

Acknowledging the structural and cultural significance of sign languages, this dissertation seeks to bridge the technological gap by leveraging machine and deep learning methodologies to enhance sign language processing and recognition. Spanning six chapters, it introduces various innovative approaches: methods for annotating sign sequences from videos, search systems for sign language dictionaries that operate via webcam input, and systems designed to rank sign suggestions. Additionally, it delves into the development of tools for visualizing and comparing variations in sign languages, enriching the resources available for linguistic research.

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