Many members of the Deaf Community prefer to receive information in the form of American Sign Language (ASL). In addition, standardized testing has revealed that many deaf adults in the U.S. have lower levels of English literacy; therefore, providing ASL on websites can make information and services more accessible. Unfortunately, video recordings of human signers are difficult to update when information changes, and there is no way to support just-in-time generation of website content from a user request. Software is needed that can automatically synthesize understandable animations of a virtual human performing ASL, based on an easy-to-update script as input. The challenge is for this software to select the details of such animations so that they are linguistically accurate, understandable, and acceptable to users.

This talk will discuss Huenerfauth's research at the intersection of the fields of computer accessibility, human computer interaction, and computational linguistics. His methodology includes: motion-capture data collection from signers to collect a corpus of ASL, linguistic annotation of this corpus, statistical modeling techniques, animation synthesis, and experimental evaluation studies with native ASL signers. In this way, his laboratory has found models that underlie the accurate and natural movements of virtual human characters performing ASL. In addition to motion-capture data collection, his laboratory utilizes eye-trackers during evaluation studies of ASL animations. In current work, he is investigating technologies for supporting students who are learning ASL by creating a tool based on the Microsoft Kinect that can provide feedback on students’ signing.