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Multimodal Interaction in Virtual Reality

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This contribution reports work carried out in Bielefeld in the context of interacting with virtual reality environments. Three things are important in our work toward incorporating gestures as a useful tool in virtual reality:

- measuring gestures as articulated hand and body movements in the context of speech

- interpreting them by way of classifying features and transducing them to application commands via a symbolic notation inherited from sign language

- timing gestures in the context of speech in order to establish correspondence between accented behaviors in both speech and gesture channels

The things we have learned from investigating these issues help us to advance natural interaction with 3D stereographic scenes in a scenario of virtual construction. In the first place we have dealt with pointing and turning, etc. often classified as deictic and mimetic gestures. In the DEIKON project, we have now started to investigate more sophisticated forms of deictics in construction dialogues that include features indicating shape or orientation, which leads us into iconic gesture. Another issue in our work is the synthesis of lifelike gesture from symbolic descriptions for an articulated virtual figure where natural motion and timing are central aspects.