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Posters

A gaze-contingent paradigm as a basis for interactive training of the phonetic contrasts discrimination: a pilot study

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A discovery that one's own actions induce interesting responses of the environment may encourage exploratory behavior, curiosity, and increase motivation. Furthermore, it has been found that social interaction with another person affects speech learning in infants (Kuhl 2004). It is not clear, however, whether an interaction without a social component (e.g. with a toy or a movie) also improves such process.
The goal of the present study was to design and test an interactive movie for 8-10-month-old infants. The movie was developed as a part of ongoing research project on language learning in infants and young children. We expect that training of the phonetic contrasts discrimination in active way will be more effective than passive listening of speech sounds. Six healthy infants aged between 7 and 10 months watched an interactive movie. The eye tracking technology was applied. A newly-developed gaze-contingent paradigm (Wang et al. 2012) as a basis for interactive movie construction was introduced to allow infants to control their environment and induce rewarding responses of the movie's characters.
The interactive movie may be served as an experimental condition with minimal degree of social interaction. It might be a new approach for training clinical populations, e.g. children with autism.

SMOOVS: A smooth-pursuit based text entry system

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Several concepts have been developed to exploit smooth-pursuit eye movements in gaze interaction at public displays. Participants usually select one of 6-12 moving elements by following it with their gaze. The approach has proved successful, but it is unclear if it can be transferred to a more complex scenario, as e.g. in the implementation of a speller that displays the entire alphabet plus a number of special characters. To test this concept, the so-called Hex-O-Spell, originally used with EEG, was adapted to the context of pursuit-based gaze selection. Letters and characters were grouped in chunks of six which moved away from the center of the screen. To select a particular letter, its chunk is followed with the eyes. After the initial movement, the letters of the selected chunk move away from one another, following the letter of choice leads to its selection. To gain insight into an optimal speed of movement, a user study with 24 participants tested four different speed levels. At 300 px/sec the quickest and overall least error-prone interaction was realized. 300px/sec was also perceived to be most comfortable. Usability features, such as feedback, visual and interaction design will be discussed with the postersession's audience.