

Visual Filler to facilitate smooth communication over a system with transmission delay

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Abstract

Turn-taking in a smooth conversation is supported by the anticipation of utterance timing by each participant. However, it becomes difficult to maintain natural turn-taking in some video telecommunication systems with transmission delay, because the utterance and motion of each participant are presented to the other with a time lag. As a result, speakers often feel that the handover of the floor is failed, and make another speech that leads to a collision of the utterances. In this talk, we would like to introduce a novel method, which we named Visual Filler, to fill redundant turn-taking gaps caused by network transmission delay. The Visual Filler is an artificial visual stimulus overlaid on the display of telecommunication system, and has a similar functionality of filler sounds in audio channels. That is, in order to distract speaker's attention from unnatural temporal gaps, the stimulus is presented to a speaker at appropriate timing after the end of the speaker's utterance, and is sustained until the arrival of another speaker's response. We show some experimental results that the Visual Filler reduces unnaturalness of turn-taking on a simulated telecommunication system with transmission delay.