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Modeling of Complex Communicative Behavior for F-2 Companion Robot

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Abstract

We design F-2 companion robot, supporting natural multimodal communication. The robot is operated by a set of scripts, triggered by input speech and generating behavioral patterns in BML format. To make robots behavior as close as possible to humans, we extract natural communication patterns from the Russian Emotional Corpus REC (over 400.000 annotations), reproduce key patterns in Blender 3D editor and export them to MySQL database ($n = 220$). For each generated BML the software retrieves the corresponding movement from the database, joins compatible patterns and performs them on the robot. Robot can also receive the coordinates of surrounding human faces and simulate direct gazes towards the eyes of the addressee. It can also perform oriented (pointing) gestures: switch between directions or between several interlocutors. This allows us to model complex robot behavior, as shown in our experiment, increasing human satisfaction from robot-to-human interaction (Research is supported by the Russian Science Foundation, project No 19-18-00547).