Designing Expressive Behaviors to Improve Human-Robot Relationships

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Abstract : Trust plays an important role in building and sustaining long-term relationships between people. In this paper, we present a robot that communicates using nonverbal behaviors such as facial expressions and body movements. Our study reports on an experiment in which participants were asked to team up with the robot to perform specific tasks. We varied the expressivity of the robot and measured the effects on trust, quality of interactions as well as on the praising and punishing behavior of the participant towards the robot. We found that participants developed a stronger affinity towards the expressive robot, but did not show any significant differences in the level of trust. When the same robot made mistakes, participants unconsciously punished it with lesser intensity compared to the neutral robot. The results emphasize the role of expressive behaviors on participant's perception of the robot and also on the quality of interactions between humans and robots.