An Emotional Adaption Approach to increase Helpfulness towards a Robot

Abstract:
This paper describes a new methodological approach and robot system to trigger more prosocial human reactions towards a robot by transferring social-psychological principles from human-human interaction to human-robot interaction (HRI). The main idea is to trigger increased helpfulness by proactively creating similarity through dynamic emotional adaption of the robot to the mood of the human. This is achieved in an explicit and implicit way: Explicitly, by a similarity-statement of the robot of being in the same mood as the user, and implicitly by controlling the affective parameters of facial and verbal expressions of a robot head in an interaction scenario such that the current values of the human mood in the dimensions of pleasure, arousal, and dominance (PAD) are matched. In a first step, this is accomplished by an initial self-assessment by the human participant to be extended by automatic emotion recognition modules in a later stage. The effectiveness of the approach is confirmed by significant experimental results.