

Motion Overlap for a Mobile Robot to Express its Mind

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This paper discusses how a mobile robot may express itself to get help from users in a cooperative task. We focus on a situation in which a robot expresses its state of mind to get a user to lend it help. The design we propose, called motion overlap (MO), enables a robot to express human-like behavior in communicating with users. We reasoned that human-like behavior in a robot could help the user to understand its state of mind. We designed a small sweeping robot based on MO that conducts back and forth movement, and compared its MO expression in experiments with other nonverbal communication, i. e., buzzers and blinking LEDs. We found that the MO expression encouraged most users to help the robot. Differences among results obtained for the three types of expression were statistically significant, and results demonstrate that MO has potential in the design of robots for the home.