Human-Robot Cooperative sweeping Using Commands Embedded in Actions

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This paper proposes a novel interaction model of a human-robot cooperative task.   The model employs CEA (Commands Embedded in Actions), which reduces a human cognitive load because it requires less explicit human-robot communication than direct commanding methods in conventional interaction models.   We propose a guideline along which to design robots' actions based on CEA, and apply it to a cooperative sweeping task by a human and a small mobile robot.   CEA is experimentally shown to reduce the human cognitive load more than direct commanding methods do in this sweeping task.