

## Teaching Multiple Robots Based on Robots Capabilities

In this study, we have focused on the problem how a user teaches the motion of the multiple robots by his/her demonstration, and have proposed the easy way to separate the user's demonstration into several motions and translate them into the motion of the multiple robots. The proposed methodology is as follows: First, the user show the motion needed to accomplish the given task using the data glove (Figure 1). The proposed system in our study derives the number of robots needed to accomplish the task according with the variety of the manipulation in the task. Furthermore, the motion for each robot is determined by the user through the developed GUI based interface based on the number of robots. Finally, the motion of robot determined by above procedure is modified to more efficient trajectories of the robots by the system. We demonstrated four types of tasks; lifting up objects, inclining an object, and unfolding a chair, using the proposed method, and confirmed the motion of the multiple robots can be generated from the demonstration of the user. Furthermore, we validated the proposed method can generate the motion of multiple robots faster than previous works by the experiments.

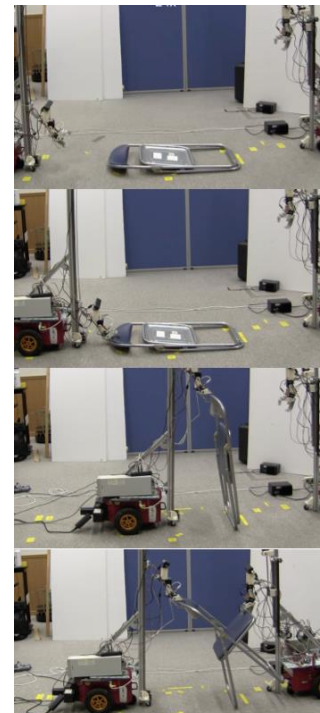
**Keywords:** mobile robot, cooperating manipulation, teaching

### Reference

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**Figure 1** *Demonstration of unfolding the chair by the user.*



**Figure2** *Motion of multiple robots generated by the proposed system.*