

## **Cooperative object transfer in mediolateral direction: evaluating motion smoothness using object's centre of gravity and its effect on the object rotational motion**

### **Abstract**

A motion of two humans performing cooperative object transfer during seated position in mediolateral direction was recorded. The position data of the object's centre of gravity were then converted to jerk value which is used to evaluate cooperative motion's smoothness with certain experimental conditions. The object's rotational motion during the task was also investigated to understand its relationship with the cooperative motion smoothness. Cooperative smoothness was maximized when both subjects understand the initiation time and termination point of the motion. Despite of high angular rotation during cooperative object's transfer, human managed to achieve a relatively smooth motion.

**Keywords** — Cooperative object transfer, follower, leader, mediolateral, motion smoothness