先端科学技術研究科　修士論文要旨

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要旨

Haptic shared control (HSC) is a control approach where both a human operator and an autonomous controller exert force on a shared, physical control terminal of a robot. HSC allows the fluid combination of human intelligence and machine precision, improving task performance and reducing the human workload. When the autonomous controller is unreliable, however, the frequent disagreement between the human and the machine input adversely affects the task performance and the operator workload. Previous research showed that allowing the human operator to adjust the control authority can alleviate the problem. However, the decision of when and how much to adjust the authority remained a challenging task for a human operator. The present thesis investigated an approach that utilized a grip mechanism for adjusting and recommending control authority based on controller performance. The first study showed that the recommendation method was an effective approach in aiding the adjustment of the control authority. Further investigation into the relationship between the controller performance and authority recommendation highlighted individual variability in authority recommendation acceptance. For more human-compatible assistance in authority allocation, an adaptive approach to the personal decision process is necessary.