

Title: Cooperation among Humans and Robots with Force Feedback over Network

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Abstract: Currently, many researchers focus on studies on collaborative work by employing multiple remote robot systems with force feedback. In a remote robot system, for example, a human can operate a remote robot with force sensors over a network by using a haptic interface device while watching video. Each human can perceive reaction force via the haptic interface device when the robot arm hits/touches some objects. Therefore, by using multiple systems, we can do various types of work which only humans cannot do. In such work, we need to achieve efficient cooperation among humans and robots (that is, between robots, between robots and humans, and between humans) by using force feedback as well as voice and video over a network. To realize stable and high-quality remote robot control with force feedback, we need to integrate and enhance stabilization control and QoS (Quality of Service) control which we have independently studied so far. In the keynote speech, we will explain the current state of study on remote robot systems with force feedback and present new directions of the study.