

Master's Thesis

A blind/referenceless subjective quality assessment for time-delayed teleoperation

Using a teleoperation system with haptic feedback, the users can thus truly immerse themselves into a distant environment, i.e., modify it, and execute tasks without physically being present but with the feeling of being there. A typical teleoperation system with haptic feedback (referred to as a teleoperation system) comprises three main parts: the human operator OP)/master system, the teleoperator (TOP)/slave system, and the communication link/network in between [43]. During teleoperation, the slave and master devices exchange multimodal sensor information over the communication link. This work aims to develop a referenceless subjective quality index for time-delayed teleoperation system. This index is able to describe the subjective quality of experience based on a series of objective metrics.

Your work:

- (1) build up a teleoperation system.
- (2) design subjective test and collect enough subjective evaluation data as the ground truth.
- (3) collect the objective metrics of teleoperation systems and design a training scheme based on the ground truth. Machine learning approaches may be needed.
- (4) Evaluate the proposed quality index under different conditions.

Prerequisites

C++

Advisors

Xiao Xu