

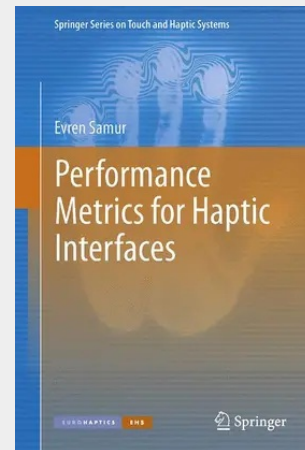
Performance Metrics for Haptic Interfaces

Haptics technology is being used more and more in different applications, such as in computer games for increased immersion, in surgical simulators to create a realistic environment for training of surgeons, in surgical robotics due to safety issues and in mobile phones to provide feedback from user action. The existence of these applications highlights a clear need to understand performance metrics for haptic interfaces and their implications on device design, use and application. *Performance Metrics for Haptic Interfaces* aims at meeting this need by establishing standard practices for the evaluation of haptic interfaces and by identifying significant performance metrics.

Towards this end, a combined physical and psychophysical experimental methodology is presented. Firstly, existing physical performance measures and device characterization techniques are investigated and described in an illustrative way. Secondly, a wide range of human psychophysical experiments are reviewed and the appropriate ones are applied to haptic interactions. The psychophysical experiments are unified as a systematic and complete evaluation method for haptic interfaces. Finally, synthesis of both evaluation methods is discussed.

The metrics provided in this state-of-the-art volume will guide readers in evaluating the performance of any haptic interface. The generic methodology will enable researchers to experimentally assess the suitability of a haptic interface for a specific purpose, to characterize and compare devices quantitatively and to identify possible improvement strategies in the design of a system.

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