SinaSim: a Low-Cost Laparoscopic Surgery Simulator Using Virtual Reality Environment

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Abstract

Training of laparoscopic Surgery using virtual reality based trainers are a costly but highly effective training platforms to ensure maximum skill acquisition before clinical practice for surgical residents of minimally invasive surgeries.

In this article, we introduce SinaSim, a low-cost laparoscopic surgery simulator based on virtual reality environment, to address the abovementioned fiscal issues. Then we proceed to describe its main features and capabilities. As one of the most essential component of this system is the virtual reality software, we tend to demonstrate it with more details.

Screenshots of the final graphical view of each training task as well as graphical user interface which provides the trainees with necessary information about their learning progress, is included in this report.

The preliminary results of this study shows that the performance of both hardware and software of the final version of SinaSim laparoscopic surgery simulator are up to the standards of a commercial virtual reality based trainer in spite of its lower final price.

Key words: SinaSim, Laparoscopic Surgery Training, Laparoscopic Surgery Simulator, Virtual Reality