Room Scale Virtual/Hybrid Reality Endoscopic Surgery Simulation System Using and Synchronized Patient-Specific Anatomy Virtual and Physical Models

Published date: May 17, 2018

Technology description

Invention

This invention provides medical students and professionals the ability to practice surgical techniques in virtual reality with true hepatic feedback. This technology is currently designed for otolaryngology procedures where users are provided with a virtual reality headset and imitation medical tools for operating on a tangible model head.

Background

Typically, medical students are able to practice surgical techniques on a cadaver one time during their education. While this is helpful, students would benefit from being able to practice their surgical procedures multiple times throughout medical school. Studies show that limited surgical exposure in medical school corresponds to longer surgery times and more complications after graduate school. Although virtual surgery is an option already on the market, the technology presented here builds upon what's currently available by enabling hepatic feedback within virtual surgery.

Application area

Currently limited to Otolaryngology surgical procedures

Potential to expand and encompass other surgical procedures

Advantages

Provides hepatic feedback

Includes the use of medical modeled tools

Useful across various surgical fields

Seamlessly synchronized with physical and virtual models

Prompts a warning when entering surgical danger zones

Less expensive than other comparable virtual simulators

Operates on consumer-grade VR equipment

Institution

University of Arizona

Inventors

Eugene Chang
Vice Chair
Otolaryngology - Head & Neck Surgery
Saurabh Jain
Graduate student
Systems and Industrial Engineering
Young-Jun Son
Professor and Head
Systems & Industrial Engineering
Samuel Barber
Resident Physician
Otolaryngology

邮 箱：yeyingsheng@zf-ym.com