

Literature Survey

Gesture-controlled image system positioning for minimally invasive interventions

Benjamin Fritsch, Thomas Hoffmann, André Mewes and Georg Rose

This work examines how a touchless interaction concept contributes to an efficient, direct, and sterile interaction workflow during CT-guided interventions. Two hand gesture sets were designed specifically under consideration of the clinical workflow and the hardware capabilities. These were used to change the position of an X-Ray tube and detector of a CT scanner without breaking sterility.

A Gesture-based Tool for Sterile Browsing of Radiology Images

Juan P. Wachs, Helman I. Stern, Yael Edan, Michael Gillam, Jon Handler, Craig Feied, Mark Smith

The use of doctor-computer interaction devices in the operation room (OR) requires new modalities that support medical imaging manipulation while allowing doctors' hands to remain sterile, supporting their focus of attention, and providing fast response times. This paper presents "Gestix," a vision-based hand gesture capture and recognition system that interprets in real-time the user's gestures for navigation and manipulation of images in an electronic medical record (EMR) database.

Intention, Context and Gesture Recognition for Sterile MRI Navigation in the Operating Room

Mithun Jacob, Christopher Cange, Rebecca Packer, and Juan P. Wachs

Human-Computer Interaction (HCI) devices such as the keyboard and the mouse are among the most contaminated regions in an operating room (OR). This paper proposes a sterile, intuitive HCI to navigate MRI images using freehand gestures. The system incorporates contextual cues and intent of the user to strengthen the gesture recognition process.

Vision Based Hand Gesture Recognition

Pragati Garg, Naveen Aggarwal and Sanjeev Sofat

In this paper a review of vision based hand gesture recognition is presented. The existing approaches are categorized into 3D model based approaches and appearance based approaches, highlighting their advantages and shortcomings and identifying the open issues.