

# A Gesture Based Tool for Sterile Browsing of Radiology Images [Literature Survey ]

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.

Human-Computer Interfaces (HCI) deals with the study of interface between humans and computers. The use of radar and other RF sensors to develop HCI based on Hand Gesture Recognition (HGR) has gained increasing attention over the past decade. Today, devices have built-in radars for recognizing and categorizing hand movements. In this article, we present the first ever review related to HGR using radar sensors. We review the available techniques for multi-domain hand gestures data representation for different signal processing and deep-learning-based HGR algorithms. We classify the radars used for HGR as pulsed and continuous-wave radars, and both the hardware and the algorithmic details of each category is presented in detail.

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 and are compared regarding usability and performance in a user study with 10 users. The user study revealed that it is possible to change the angle of the gantry within 10 seconds average in an experimental setup.

The widespread use of technology in hospitals and the difficulty of sterilising computer controls has increased opportunities for the spread of pathogens. This leads to an interest in touchless user interfaces for computer systems. We present a review of touchless interaction with computer equipment in the hospital environment, based on a systematic search of the literature. Sterility provides an implied theme and motivation for the field as a whole, but other advantages, such as hands-busy settings, are also proposed. Gestures have been implemented for input, system and content control.

## References:

[A Gesture-based Tool for Sterile Browsing of Radiology Images](#)

[Hand Gestures Recognition Using Radar Sensors for Human-Computer-Interaction](#)

[Gesture-controlled image system positioning for minimally invasive interventions](#)

[Touchless computer interfaces in hospitals:](#)