A GESTURE BASED TOOL FOR STERILE BROWSING OF RADIOLOGY IMAGES

PROBLEM STATEMENT

Examining patient-specific image data, gathered from computed tomography scans and magnetic resonance imaging scans, during a surgical procedure requires doctor-computer interaction that supports medical imaging manipulation while allowing doctors' hands to remain sterile. However, traditional methods of human-computer interaction fail to provide an efficient method of medical image manipulation supporting users' focus of attention. With the advent of Artificial Intelligence, a new mode of interaction, Gesture-based interaction is introduced. Gesture-Based interaction provides an efficient, intuitive, accurate and safe means of interaction without affecting the quality of work.

A vision-based hand gesture recognition system has been proposed for surgeons to interact with medical image viewers during an operation. This system interprets the real-time user's hand gestures and translates it to appropriate commands which are then used for manipulation of radiology images.

The proposed model is initially trained with images of different hand gestures such as hands representing numbers 1,2,3, and 4. Real-time images are captured using an integrated web camera which are compared with the trained images of hand gestures and respective tasks associated with the hand gestures. The allowed activities include resizing, blurring, and flipping the radiology images based on the hand gesture commands. Thus, the vision based hand gesture system eliminates the contact between surgeon and computer interfaces which helps in maintaining sterility and ensure patient safety in operation theater.