

# LITERATURE SURVEY

## ON

### A GUESTURE - BASED TOOL FOR STERILE BROWSING OF RADIOLOGY IMAGES

SI.NO	TITLE AND AUTHOR (S)	YEAR	TECHNIQUES	FINDINGS / PROS / CONS
1	Developing a Touchless User Interface for Intraoperative Image Control during Interventional Radiology Procedures. Justin H. Tan, MD • Cherng Chao, MD, JD • Mazen Zawaideh, BS • Anne C. Roberts, MD • Thomas B. Kinney, MD	2013	Leap motion Controller	In this study, they proposed a simple and accurate implementation of the machine learning method for hand gesture recognition tasks. They have evaluated and compared multiple classification methods, to finally choose the best recognition model to develop a touchless real-time graphical user interface for medical image manipulation based on this hand recognition approach.
2	Gestures for Picture Archiving and Communication Systems (PACS) operation in the operating room: Is there any standard? Naveen Madapana 1, Glebys Gonzalez 1, Richard Rodgers 2, Lingsong Zhang 3, Juan P. Wachs 1	2018	1. Command extraction, 2. Unconstrained gesture elicitation 3. Agreement analysis 4. Synapse Software was used for browsing radiology images	In recent years, there has been a major spur of hand-gesture interfaces for controlling Electronic Medical Records in the Operating Room. Yet, it is still not clear which gestures should be used to operate these interfaces. This work addresses the challenge of determining the best gestures to control a PACS system in the OR, based uniquely on agreement among surgeons.
3	Touchless computer interfaces in hospitals: A review Seán Cronin GLANTA Ltd, Ireland Gavin Doherty Trinity College Dublin, Ireland	2019	Eye gaze technology (EGT), capacitive floor sensors and inertial orientation sensors; colour cameras such as the Canon VC-C4,5 the Loop Pointer and MESA SR-31000 ToF cameras; Siemens integrated OR system; wireless hands-free surgical pointer;29 to the Apple iPad; leap motion controllers; and the Microsoft Kinect ToF camera G1	A variety of outcomes are studied in the literature with accuracy of gesture recognition being the most frequently reported outcome. There are a number of factors that should be considered when evaluating a system. Validation of sensitivity and recall of gestures, precision and positive predictive value, f-measure, likelihood ratio and recognition accuracy should all be rigorously evaluated using standard, public data sets.
4	Hand-gesture-based Touchless Exploration of Medical Images with Leap Motion Controller. Safa AMEUR, Anouar BEN KHALIFA, Med Salim BOUHLEL	2020	Leap motion Controller	In this paper, we develop a touchless graphical user interface based on the LMC, which offers a new experience for the surgeon to command medical images named DICOM images (Digital Imaging and Communications in Medicine). The framework relies essentially on a strong recognition approach which consists of extracting statistical features like the mean and the standard deviation from the LMC raw data. Then, we train our system on a public dataset composed of 11 gestures dedicated to command DICOM images
5	Gesture-controlled image system positioning for minimally invasive interventions Benjamin Fritsch*, Thomas Hoffmann, André Mewes and Georg Rose	2021	1. Stereo infrared optical tracking system 2. Qt application framework (Qt Group, Helsinki, Finland)	The main purpose of the software is to control the position of the X-Ray tube. Especially when using gantry CT systems, it is not possible to see the real time angle of the X-Ray tube because of the CT housing. For this a prototypical GUI was developed to visualize the real time position and provide gesture interaction capabilities