**IBM -NALIYA THIRAAN**

A Gesture-Based Tool for Sterile Browsing of Radiology Images

LITERATURE SURVEY

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# **LITERATURE SURVEY-1**

# **Impact of radiologic imaging on the surgical decision-making process in suspected appendicitis in children**

# Author: Sylvie Kesar MD,Hakan Jorulf MD,PhD

Reference:https://www.sciencedirect.com/science/article/abs/pii/S1076633204003514

Prospective study including 593 children with suspected appendicitis was conducted. The surgeon’s initial clinical disposition was recorded, designating the patient for operation, observation, or discharge. Thereafter, the patients were randomized to undergo either ultrasound only or ultrasound and abdominal [computed tomography](https://www.sciencedirect.com/topics/medicine-and-dentistry/computer-assisted-tomography). The studies were evaluated by radiologists, who indicated if appendicitis was present or not. After [radiology](https://www.sciencedirect.com/topics/medicine-and-dentistry/radiology) was completed, the surgeon re-examined the patient and made the final disposition. The change of disposition pathway was recorded. Final diagnoses were established by means of surgical, histopathologic, and/or clinical follow-up findings.

# **LITERATURE SURVEY-2**

# **Preference elicitation: Obtaining gestural guidelines for PACS in neurosurgery**

# Author: Naveen Madapana ,Rahul Taneja

Reference: https://www.sciencedirect.com/science/article/abs/pii/S1386505618308633

A gesture elicitation study was conducted with nine neurosurgeons. Initially, subjects were asked to outline the gestures on a drawing board for each of the PACS commands. Next, the subjects performed one of three imaging tasks using gestures instead of the keyboard and mouse. Each gesture was annotated with respect to the presence/absence of gesture descriptors. Next, K-nearest neighbour approach was used to obtain the final lexicon that complies with the preferred/popular descriptors.

# **LITERATURE SURVEY-3**

# **Investigating Clutching Interactions for Touchless Medical Imaging Systems**

# Author: Sean Cronin, Euan Freeman, Gavin Doherty

Reference: https://dl.acm.org/doi/10.1145/3491102.3517512

Touchless input could transform clinical activity by allowing health professionals direct control over medical imaging systems in a sterile manner. Currently, users face the issues of being unable to directly manipulate imaging in aseptic environments, as well as needing to touch shared surfaces in other hospital areas. Unintended input is a key challenge for touchless interaction and could be especially disruptive in medical contexts. We evaluated four clutching techniques with 34 health professionals, measuring interaction performance and interviewing them to obtain insight into their views on clutching, and touchless control of medical imaging.

# **LITERATURE SURVEY-4**

# **Touchless Interfaces in the Operating Room: A Study in Gesture Preferences**

# Author: Naveen Madapana, Daniela Chanci,Glebys Gonazelez

Reference:https://www.tandfonline.com/doi/abs/10.1080/10447318.2022.2041896?journalCode=hihc20

Touchless interfaces allow surgeons to control medical imaging systems autonomously while maintaining total asepsis in the Operating Room. This is specially relevant as it applies to the recent outbreak of COVID-19 disease. The choice of best gestures/commands for such interfaces is a critical step that determines the overall efficiency of surgeon-computer interaction. In this regard, usability metrics such as task completion time, memorability and error rate have a long-standing as potential entities in determining the best gestures. In addition, previous works concerned with this problem utilized qualitative measures to identify the best gestures.