

## TOWARDS AUTOMATIC DETECTION OF PHYSICAL ACTIVITIES IN CLINICAL WORKS

M.A.C.M. Raafi

*Department of Mathematical Sciences, South Eastern University of Sri Lanka*  
[raafim@seu.ac.lk](mailto:raafim@seu.ac.lk)

Clinical errors are relatively common in operating theatres (OT) and severely impact on patient health as well as increased medical costs for the healthcare sector. It has been identified that it is important to operate a suitable activity detection system in OT to detect physical behaviours of a clinician to prevent error in clinical work. However, the existing technological approaches for activity detection in OT are limited in their ability to detect those physical behaviours and thereby correct the mistakes during clinical work. Therefore, the present study was focused on designing a system model which allows a computer to automatically identify the physical actions of clinicians in order to detect and understand mistakes in the OT to minimize clinical errors. It involves finding suitable technologies to identify activities in the OT and designing a prototype system (PS) to detect activities for an aspect of clinical work. During this research a simulation study was carried out to develop such a PS in order to identify specific physical characteristics in clinical work as a proof of concept. In the simulation study, a volunteer acted as an anaesthetist to perform actions of an aspect of anaesthesia work in a motion capture lab. The movements of volunteer were recorded using motion capture method. The captured data were then used by the developed PS to recognize the activities. The experimental results show that the PS identifies the expected physical activities of the volunteers in that given scenario. It reveals that the developed PS works to detect given physical behaviours in that clinical work. However, the PS was implemented and tested for a small scale task, therefore the other scale tasks would also be considered to upgrade and validate the system in the future research.

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