

## Implicit Intention and Activity Recognition of a Human Using Neural Networks for a Service Robot Eye

M.W.C.N. Moladande  
Department of Mechanical Engineering  
The Open University of Sri Lanka  
Nugegoda, Sri Lanka  
cmoladande@gmail.com

B.G.D.A. Madhusanka  
Department of Mechanical Engineering  
The Open University of Sri Lanka  
Nugegoda, Sri Lanka  
bgmad@ou.ac.lk

### Abstract

*Introduction of the assistive robot concept has created numerous ways to restore vital degrees of independence for the elderly and disabled people on their Activities of Daily Living (ADL). The most important aspect of an assistive robot is to understand the user's intentions with minimum number of interactions. Based on these facts, in this study we suggest a novel method to recognize the implicit intention of a human user, by using verbal communication, behavior recognition and motion recognition from the combination of machine learning, computer vision and voice recognition technologies. After recognizing the implicit intension of the user, the system will be able to identify the necessary objects from the domestic area that is going to help the human user and point them out to fulfil his/her intention. By far, this study is expected to simplify the human robot interaction (HRI) while consequently enhancing the adoption of assistive technologies and improving the user's independence in ADL. These findings will certainly help to guide future designs on implicit intention recognition and activity recognition to an accurate intention inference algorithm and intuitive HRI.*

**Keywords:** *Human-robot interactions, activities of daily livings, human friendly robotics, service robots, implicit intention*