# Appearance based and Gesture Independent Model for Natural Human Hand Detection and Tracking[*]

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## Abstract

**Many researchers work on enhancement of Human Computer Interaction methods and try to make it more natural and intuitive. This includes researches in: understanding human languages, gestures recognition and brain signals recognition. But the heavy use of hands in human everyday life makes hand recognition and tracking researches very important.**

**In this paper, we present a novel method to recognize and track a human hand moving in front of digital camera in an unknown environment without any constraints on fingers positions or hand gesture and with no need to wear any additional devices like gloves or markers. Our method can distinguish between hand and other moving objects especially faces, by applying some proposed criteria to determine which object is representing the hand. A practical study is performed to evaluate the performance of the proposed method. Hand interactive virtual TV is made as a realistic application to report users experiences. Results show that our proposed method can recognize human hand at real-time with 99% accuracy rate in normal indoors light.**

**Keywords: Human Machine Interaction, Hand Recognition, Hand Tracking**

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