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# Hand gesture recognition using depth data

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**Abstract:**
A method is presented for recognizing hand gestures by using a sequence of real-time depth image data acquired by an active sensing hardware. Hand posture and motion information extracted from a video is represented in a gesture space which consists of a number of aspects including hand shape, location and motion information. In this space, it is shown to be possible to recognize many types of gestures. Experimental results are shown to validate our approach and characteristics of our approach are discussed.

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### 1. Introduction

Gesture recognition has been a subject of much study lately as a promising technology for man-machine communication. Various methods have been proposed to locate and track body parts (e.g., hands and arms) including markers, colors, and gloves. We propose a method that does not require color information or extra device to be worn by the user. Such a gesture recognition module would have many applications including man robot communication, intelligent rooms, and interactive games.

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### Keywords

**IEEE Keywords**
Shape, Image recognition, Data mining, Data analysis, Intelligent robots, Cameras, Optical computing, Hardware, Communications technology, Man machine systems

**INSPEC: Controlled Indexing**
image motion analysis, gesture recognition, image sequences, data acquisition, image sensors

**INSPEC: Non-Controlled Indexing**
motion information, hand gesture recognition, real-time depth image data, active sensing hardware, hand posture

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