

Tracking and replication of hand movements by teleguided intelligent manipulator robot

Abstract

In this paper, a new method is presented that allows an intelligent manipulator robotic system to track a human hand from far distance in 3D space and estimate its orientation and position in real time with the goal of ultimately using the algorithm with a robotic spherical wrist system. In this proposed algorithm, several image processing and morphology techniques are used in conjunction with various mathematical formulas to calculate the hand position and orientation. The proposed technique was tested on Remote teleguided virtual Robotic system. Experimental results show that proposed method is a robust technique in terms of the required processing time of estimation of orientation and position of hand.

Keywords; Intelligent manipulator, 3D Hand tracking, Human computer interaction, Morphology