

عنوان مقاله:

3D Hand Motion Evaluation Using HMM

محل انتشار:

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خلاصه مقاله:

Gesture and motion recognition are needed for a variety of applications. The use of human hand motions as a natural interface tool has motivated researchers to conduct research in the modeling, analysis and recognition of various hand movements. In particular, human-computer intelligent interaction has been a focus of research in vision-based gesture recognition. In this work, we introduce a 3-D hand model recognition method that offers flexible and elaborate representation of hand motion. We used landmark points on the tips and joints of the fingers and calculated the 3-D coordinates of these points through a stereo vision system followed by a Hidden Markov Model (HMM) to recognize hand motions. Experimentally, in an effort to evaluate the formation of hand gestures similar to those used in rehabilitation sessions, we studied three evolving motions. Given the natural hand features and uncontrolled environment, we were able to classify and differentiate unnatural slowness or rapidness in the performance of such motions, ranging from 45% to 93%.

کلمات کلیدی:

Machine Vision Stereo Vision Motion Recognition Video Processing Image Processing HMM (Hidden Markov Model)

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