Gesture Recognition Using Depth Images

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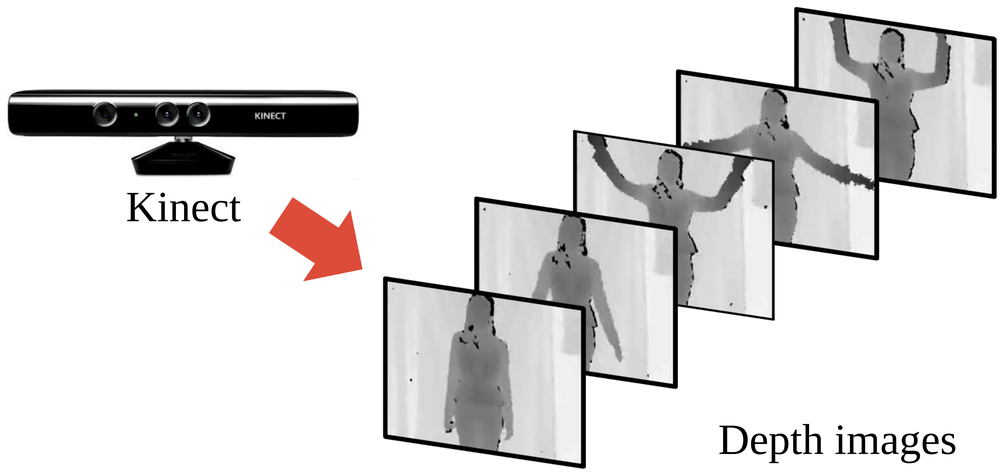
Motivation

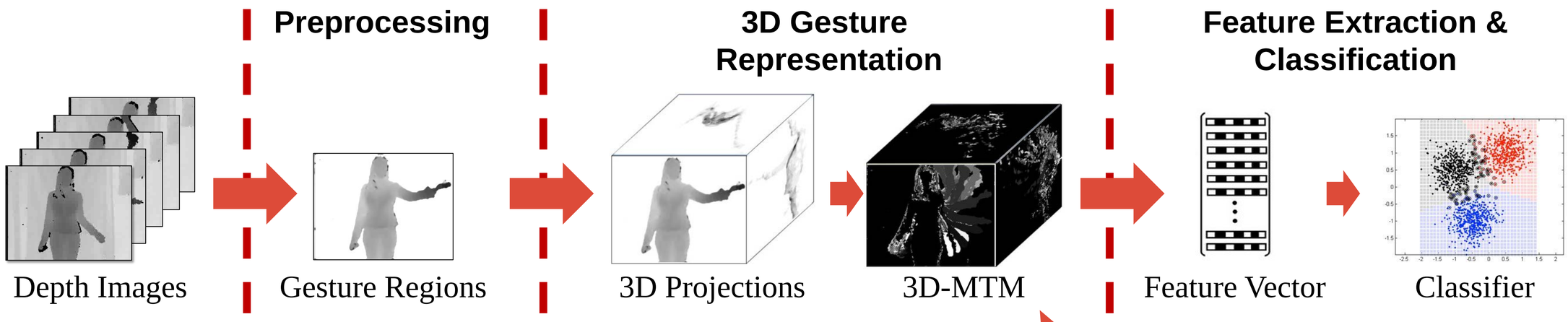
❖The successes of gesture recognition have been limited to the use of RGB images captured by video cameras.

❖ Depth information has long been regarded as an essential part of successful gesture recognition.

❖ The Kinect camera provides depth information through collecting a sequence of depth images for human gestures.



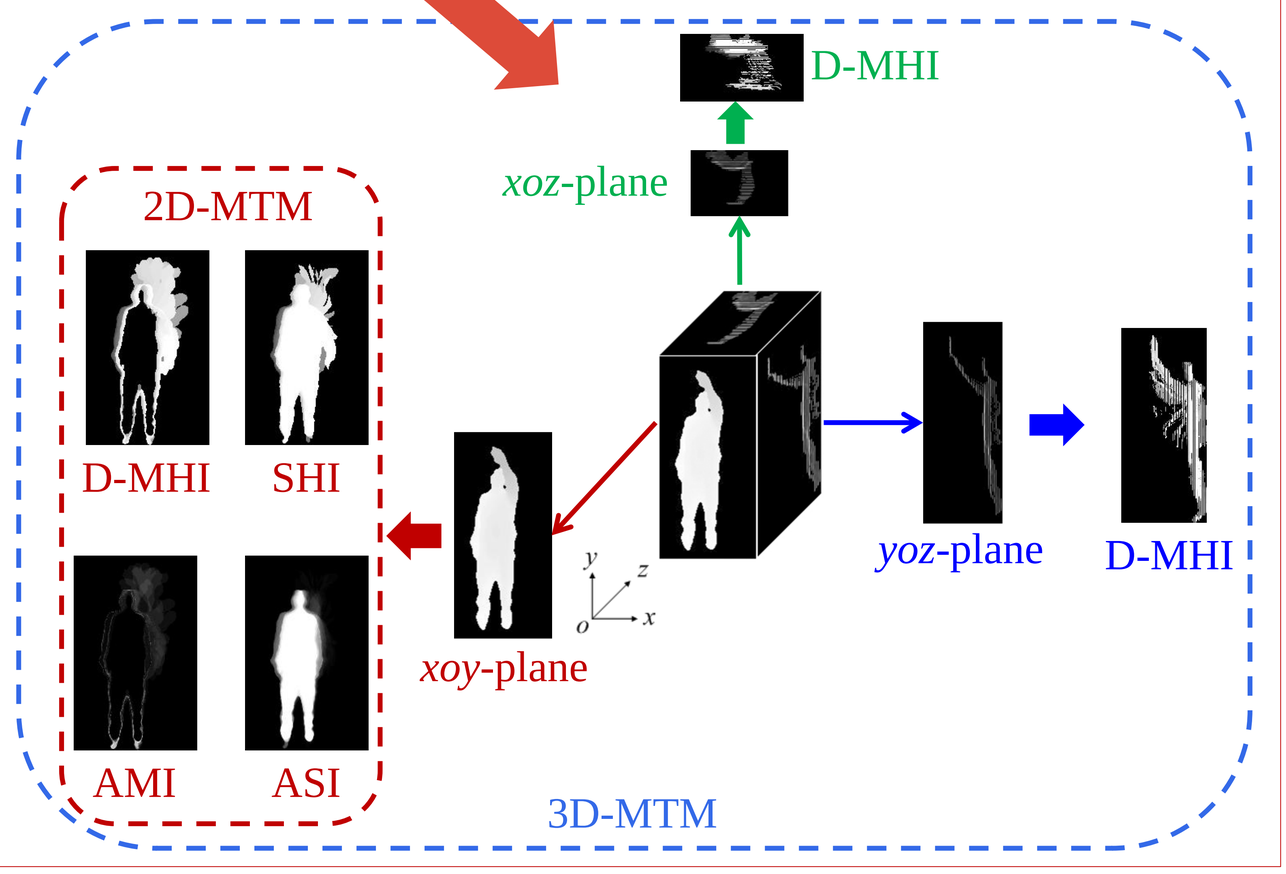
Proposed Approach



❖ **Preprocessing:**
- Background removal – Otsu's method
- Smoothing – median filter

❖ **3D Gesture Representation:**
- 2D motion trail model (2D-MTM)
- 3D motion trail model (3D-MTM)

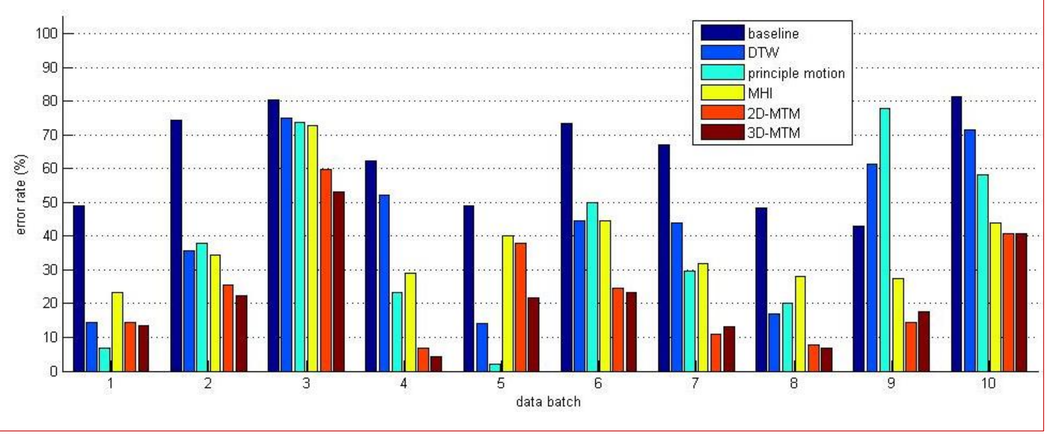
❖ **Feature Extraction and Classification:**
- HOG, HOF and multimodal information
- Maximum Correlation Coefficient and SVM



Experiments and Results

❖ **Dataset:**
- Chalearn gesture dataset

❖ **Results:**
- The proposed approach achieves 21.74% average error rate.
- The 3D-MTM can be effectively adopted for gesture recognition.



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