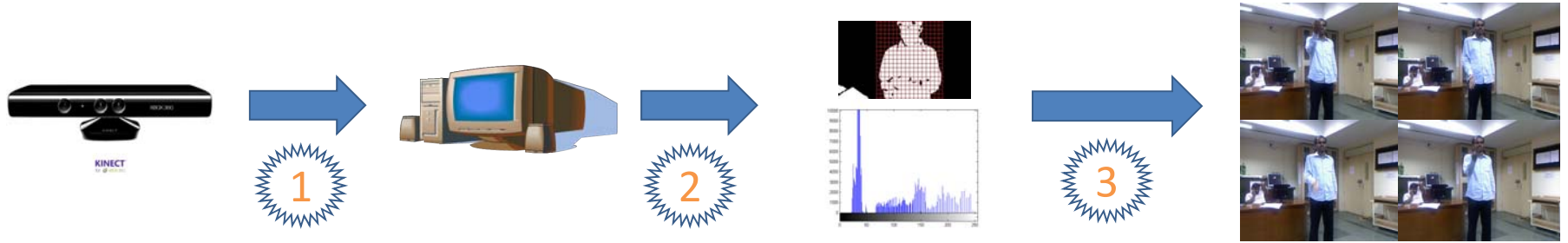


Gesture Recognition using Microsoft Kinect

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1. Capture depth data using Kinect.

2. Extract low level features after some preprocessing.

3. Detect gestures like clap, raise arms, nod head etc.

Problem Statement

- Mimic human gestures to interact with computers
- Utilize rich information content in depth data
- No explicit skeleton detection



Gesture Waving

Preprocessing

- Background subtraction by thresholding followed by histogram equalization

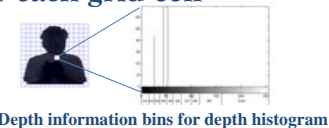


Classification

- Support Vector Machines with linear kernel

Feature Extraction

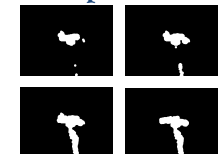
- Spatio-depth features
 - Place grid and collect depth values in 10 bins for each grid cell



- Temporal depth features
 - Image difference of consecutive RoIs
 - Motion profile of nearer parts of body



Difference Image



Motion profile of limb and torso

Gestures While Standing



Body Swing



Looking Around



Palm Action



Rising Hand



Hand Sweep



Stretching



Leg Movement



Waving