Using Kinect to Evaluate Dance Performances
Third Year Group Project

Stylianos Venieris, Theo Pavlakou, Zeping Xue,
Yijie Ge & Hesam Ipakchi

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Abstract

1 Kinect & NiTE Software Evaluation

To determine a method of evaluating the dance student, the limitations of the camera and the NiTE software must first be evaluated with respect to the criteria addressed below. To do this we use the UserViewer Application that comes as a sample with the NiTE software library with the camera elevated 75cm above the ground, within the 60cm to 180cm range that is suggested by Microsoft for optimal tracking.

1.1 Camera Range

To test for the camera's range, we lay a tape measure on the ground starting from directly below the camera up to 8m away from the camera. We then use two subjects of different heights and body shapes to evaluate the performance of the camera and the software for tracking at different distances. The subject first starts within a few centimetres of the camera and slowly moves backwards until the camera calibrates and starts tracking and continues to do so until the tracking is lost. After this, the subject is required to start from the depths of the room, much further than the range of the camera, and to start walking slowly towards the camera, again taking a record of the following specifications. The results can be shown in Tables **??** to **??**.

Distance from Camera/cm	Description of Performance
60	Identification of subject. Tracking. No skeleton.
120	Skeleton fitted
410	Tracking is lost

Table 1: Subject moving away from camera. Subject height 180cm.

Distance from Camera/cm	Description of Performance
100	Identification of subject. Tracking. No skeleton.
120	Skeleton fitted
410	Tracking is lost

Table 2: Subject moving towards camera. Subject height 180cm.

Distance from Camera/cm	Description of Performance
70	Identification of subject. Tracking. No skeleton.
110	Skeleton fitted
430	Tracking is lost

Table 3: Subject moving away camera. Subject height 150cm.

Distance from Camera/cm	Description of Performance
50	Identification of subject. Tracking. No skeleton.
110	Skeleton fitted
430	Tracking is lost

Table 4: Subject moving towards camera. Subject height 150cm.

1.2 Effect of Varying Lighting Conditions

1.3 Obstruction in Range

1.4 Velocity of Movement

1.5 Camera Angle Relative to Subject

1.6 Multiple People

1.7 Multiple Cameras

Appendix

Some Code

```
int main()
{
  // your code
  x = 5;
}
```