

Motion Synthesis Using Relative Joint Distances

Anzela Kravcevic

In the field of animation, where reuse of motion capture files is highly advised due to its expensive operation and time consuming setup, methods such as motion graphs give the ability to synthesis high quality motions using only a limited set of basic motion capture files. Effective motion graph construction has been in research since 2002, where the most highly used motion similarity method is computing Euclidean distances between joints. However, finding new methods for motion similarity that can emulate human perception could provide better overall motion graph results.

The following dissertation proposes the use of Joint Relative Distance (JRD) method in motion graph construction. The method uses relative joint distance values for pose comparison between two motions. Transition points are selected from areas of frames with high similarity and pruned based on three criteria to determine optimal transition points to be used in the motion graph. This method is examined in comparison to previous motion graph construction methods and the results are evaluated with three demo applications that focus on stationary dance motions as well as bipedal.