Graph 1: Input VS Linear Euler VS Bezier Euler

Graph 2: Input VS Linear Quaternion VS Bezier Quaternion

Plot graphs #1, #2 for lfemur joint, rotation around X axis, frames 600-800, for N=20, for 131\_04-dance.amc input file.

Graph 3: Input VS Linear Euler VS Linear Quaternion

Graph 4: Input VS Bezier Euler VS Bezier Quaternion

Plot graphs #3, #4 for root joint, rotation around Z axis, frames 200-500, for N=20, for 131\_04-dance.amc input file.

I implement all these four techniques. Among these four interpolation methods, Bezier Quaternion gives the best result, and Linear Euler method gives the worst result. However, Bezier Quaternion takes more time to generate the sequences.

One important notice:

At first, I found there were NaN in my generated AMC file. I couldn’t find any place in my code related to this bug. After debugging, I found that the cosine of angle computed in the “Slerp” function could be larger than 1.0001! This may be because of the bad precision of windows system. It’s really annoying.