

Animating human model in OpenGL using data from Vicon system

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Abstract

This paper explains how to animate 3D human model in OpenGL, avoiding most common problems, that occurs while dealing with various human body rigid parts transformations. The animation is associated with real person movements, while using data from Vicon motion capture system. Animating is made in lowest programming C++ OpenGL level, without using any 3rd part already made applications.

Keywords: Human animation, Vicon system, OpenGL, C++, Linear Blend Skinning

1. Introduction

Our animation focuses on the most common and partly simple human body animation technique, that uses joints to animate human model. The joint structure, given their position and orientation, can be thought as being human body skeleton. The skin shape is associated to the joints, where as it's a 3D polygon mesh and it's the only thing that is displayed for the end-user. Due to very fast computation speeds, this technique is the most popular in animation production. On the other hand, using simple shape blending technique to deal with complex human body rigid parts transformations, there are various skin deformation problems. Typical ones are collapsing elbow, candy-wrapper joint when the arm turns 180 degrees, intersection between two adjacent bones (links) around a joint. Also such a technique don't consider many very complicated and detail human body deformations, for example dealing with muscles (stretch or bulge).

1.1. Previous works

What we've read and what was written there. References.

1.2. Overview

What is represented in further sections?

2. Animating skeleton

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