

3D based head movement tracking for incorporation in facial expression system

ABSTRACT

Head movement tracking is a necessary system in our attempt to establish the positioning of the head in an instance of the time. In computer graphics, head positioning sequence must be done in a proper manner so that the rendering will appear realistic. The head role becomes more important when a facial expression is being depicted. As a true facial expression must be accompanied with some motion of the head, rendering the facial expression without any proper description regarding head movement will make the head less realistic. This paper proposed a dual-pivot 3D-based head movement tracking system (DPHT) that enables modeler to capture the movement of the head. By having two pivots in the system, the movement of the neck can be modeled together with the yaw, roll and pitch of the head. This movement of the neck is an integral part of the facial expression depiction as can be attested by someone who 'pulls' his neck in manifestation of disgust. The results in this paper show that having a dual-pivot tracking system, head positioning can be better established hence producing more realistic head movement model.

Keyword: Face expression modeling; Computer graphics; Face tracking; Face animation