## A Fast Silhouette Detection Algorithm for Shadow Volumes in Augmented Reality

Authors : Hoshang Kolivand, Mahyar Kolivand, Mohd Shahrizal Sunar, Mohd Azhar M. Arsad

**Abstract :** Real-time shadow generation in virtual environments and Augmented Reality (AR) was always a hot topic in the last three decades. Lots of calculation for shadow generation among AR needs a fast algorithm to overcome this issue and to be capable of implementing in any real-time rendering. In this paper, a silhouette detection algorithm is presented to generate shadows for AR systems. Δ+ algorithm is presented based on extending edges of occluders to recognize which edges are silhouette detection is done to show the reduction calculation by presented algorithm. The algorithm is tested in both virtual environments and AR systems. We think that this algorithm has the potential to be a fundamental algorithm for shadow generation in all complex environments.

Keywords : silhouette detection, shadow volumes, real-time shadows, rendering, augmented reality

Conference Title : ICCSST 2016 : International Conference on Computer Science and Systems Technology

Conference Location : Los Angeles, United States

Conference Dates : April 05-06, 2016