Abstract

To make a computer scene realistic and visually engaging efficient shadows are needed. The process of generating shadows is preferably complex. When a object completely or partly obstructs the light, a dark area will be created inside the bright area which is often called a **shadow**. With the help of shadow the correlation between light source and object can be determined. In 1977 Frank Crow came up with the idea of shadows and in 1978 with the help of depth buffer Lance Williams proposed the idea of of implementing shadows which became popular in 2005 after the techniques were used in Doom 3. Shadows are an outcome of three different areas **umbra,penumbra, antumbra**. For a naturalistic shadow all these parts should be considered.Shadows can be categorised in two sections, hard shadows which have sharp edges and those edges are very well defined. One of the challenges which is faced while rendering the shadow is aliasing . When jagged edges can be noticed in resultant shadow it is because of aliasing. A new technique known as Percentage-Closer Soft Shadows was invented to render shadows. This technique is capable of creating significantly precise soft shadows with the use of single shadow map. The computation cost will be less as there is no necessity of pre-computation and post-computation or any extra calculations. It can also replace the traditional shadow map and reduces its complexity. The use of single sample and no extra processing makes this technique worth of trying. In PCSS shadow rendering technique, instead of using classic pixel shader for shadow mapping, PCSS shader is used. This research focuses on analysing the PCSS technique and summarising the advantages and disadvantages of PCSS.