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On-going project: Senior Thesis

Automated Anamorphic Projections on Planar and Arbitrary Surfaces

Anamorphic projection is an image that is intentionally distorted so that the original image can be seen only when looked at from a certain perspective, or using a special device, for example a mirror. Origins of anamorphosis can be traced back to the 16th century art, but beyond the aesthetic values, anamorphosis has found its uses in many practical settings, such as road signs, and keystone correction. Despite the widespread uses, there is a surprising lack of detailed explanation of the mathematical principles behind anamorphosis, and there is hardly any computer software generating the anamorphic projections. The goal of this project is to apply computer vision techniques to create a program that automates the process of generating anamorphic projections. We use a projector-camera system to derive homography mappings between the projector image and the projection surface, and propose a method for generating an optimal anamorphic image for multiple viewers using least-squares. Future work will focus on generating dynamic anamorphic projections for arbitrary surfaces.