

Augmented Scenery: Expanding the Layer/Mask Paradigm to Flexible Surfaces and Generalized Anamorphosis

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Virtual Reality, Augmented Reality, and Theater. Computer theater experiments over the last decades have focused on three main topics: virtual scenery, virtual actors, and augmented performance. The first two topics are close to computer science and do not necessarily require a strong symbiosis between theater artwork and scientific research. For this reason they probably have a weaker impact on theater and scenography than augmented performance that require new forms of scenography, dedicated computer environments, and associated control devices. The work presented in this paper focuses on augmented performance and the design of virtual props and sceneries for this purpose. After an analysis of previous work on augmented performance, we present a new interface for the design of augmented scenery. It combines several layers of flexible surfaces controlled by mass-spring systems, and textured by bitmaps, videos, or intermediary scene snapshots for anamorphous rendering. This interface is used to design sets of reactive animated surfaces: they can interact with an actor through semi-autonomous behavior, and adapt themselves to various physical environments through non-planar rendering.