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Challenges of Capturing Temporal Volumetric Video Data for Relightable Object Reconstruction

Since its inception, computer graphics research is focused on modeling and creating computer-generated content that captures the appearance of the real world. For several decades, a lot of work went into reconstructing objects and scenes through photographs and other capturing methods. This does not only include geometry acquisition but also material and appearance reconstruction. In more recent years, the rapid developments in hardware and improvements of computing power led to the research of so-called light stages. Consisting of dozens of cameras and light sources, these dome setups can be used to capture a new form of research data called volumetric videos. This type of data allows for temporal consistent and relightable reconstructions of, for example, humans in arbitrary virtual environments. However, due to the necessity of high spatial and temporal resolution, even short videos can result in huge amounts of data. In this poster, we summarize some of the recent approaches in reflectance data capturing and outline problems of volumetric videos in the context of research data management.

Primary authors: ZINGSHEIM, Domenic (Institute for Computer Science II (Uni Bonn)); Prof. KLEIN, Reinhard (Institute for Computer Science II (Uni Bonn))

Presenter: ZINGSHEIM, Domenic (Institute for Computer Science II (Uni Bonn))

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