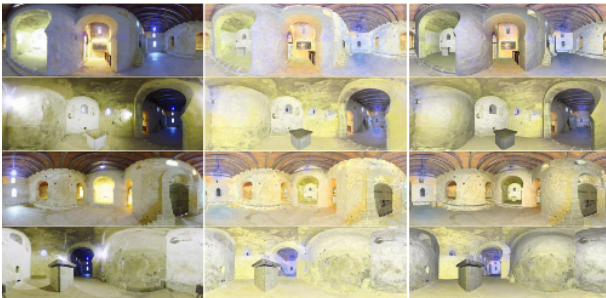


Intensity-Guided Exposure Correction for Indoor LiDAR Scans

Comino, Marc; Andujar, Carlos; Bosch, Carles; Chica, Antoni; Munoz-Pandiella, Imanol



Terrestrial Laser Scanners, also known as LiDAR, are often equipped with color cameras so that both infrared and RGB values are measured for each point sample. High-end scanners also provide panoramic High Dynamic Range (HDR) images. Rendering such HDR colors on conventional displays requires a tone-mapping operator, and getting a suitable exposure everywhere on the image can be challenging for $360^\circ \times \frac{1}{2} \times \frac{1}{2}$ indoor scenes with a variety of rooms and illumination sources. In this paper we present a simple-to-implement tone mapping algorithm for HDR panoramas captured by LiDAR equipment. The key idea is to

choose, on a per-pixel basis, an exposure correction factor based on the local intensity (infrared reflectivity). Since LiDAR intensity values for indoor scenes are nearly independent from the external illumination, we show that intensity-guided exposure correction often outperforms state-of-the-art tone-mapping operators on this kind of scenes.