

The process of setting material properties for realistic appearance after rendering is usually tiresome and often requires carefully crafted skill for fine-tuning the parameters, as different combinations of these parameters can produce different-looking materials. To simplify this process, we introduce a solution to the texture transfer problem by creating a pipeline containing several deep neural networks. These networks subsequently represent solutions to inverse rendering and material segmentation by predicting intrinsic scene characteristics, like diffuse and specular albedo, surface normals, glossiness, view vector, texture coordinates, and segmentation, all from a single image. Artists can subsequently plug these inferred properties inside their 3D scene representations and thus reduce the time needed to iterate over several design ideas. To train these networks, we generated high-quality dataset of substantial size using physically-based techniques to ensure good generalization on real-world images.