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A major goal within computer graphics is photorealistic image synthesis of virtual objects, that is, the ability to generate images where it is impossible to distinguish virtual objects from real. In the synthesis of such high fidelity images the illumination plays a key role.

This thesis and the included papers describe methods that allow synthetic objects to be placed into real world scenes, looking as if they were actually there. This is accomplished by methods for capturing the illumination in the scene, and algorithms for using such captured lighting in the image synthesis.
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