

# Incident Light Fields

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Our visual system registers light and processes the input stimuli into representations that we can interpret. The high bandwidth and processing capabilities of the human visual system are very powerful, which has motivated extensive research and development of techniques for conveying information and experiences through computer generated images. Such images allow us to understand complex systems, make decisions based on multidimensional data and create virtual worlds. The research area directed towards generating such images is called computer graphics.

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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