Creation of visually-pleasing images has always been one of the main goals of computer graphics. Two important components are necessary to achieve this goal --- artists who design visual aspects of an image (such as materials or lighting) and sophisticated algorithms that render the image. Traditionally, rendering has been of greater interest to researchers, while the design part has always been deemed as secondary. This has led to many inefficiencies, as artists, in order to create a stunning image, are often forced to resort to the traditional, creativity-baring, pipelines consisting of repeated rendering and parameter tweaking.

Our work shifts the attention away from the rendering problem and focuses on the design. We propose to combine non-physical editing with real-time feedback and provide artists with efficient ways of designing complex visual aspects such as global illumination or all-frequency shadows. We conform to existing pipelines by inserting our editing components into existing stages, hereby making editing of visual aspects an inherent part of the design process.

Many of the examples showed in this work have been, until now, extremely hard to achieve. The non-physical aspect of our work enables artists to express themselves in more creative ways, not limited by the physical parameters of current renderers. Real-time feedback allows artists to immediately see the effects of applied modifications and compatibility with existing workflows enables easy integration of our algorithms into production pipelines.