Multi Focus Imaging using Optical Phase Mask (Ramot)

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Abstract

A method for extended depth of field imaging based on image acquisition through a thin binary phase plate followed by fast automatic computational post-processing is presented. By placing a wavelength dependent optical mask inside the pupil of a conventional camera lens, one acquires a unique response for each of the three main color channels, which adds valuable information that allows blind reconstruction of blurred images without the need of an iterative search process for estimating the blurring kernel. The presented simulation as well as capture of a real life scene show how acquiring a one-shot image focused at a single plane, enable generating a de-blurred scene over an extended range in space.

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