Light Field Reconstruction from Focal Stack based on Depth Estimation
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Motivation
Light field photography can record not only the intensity of light projected on camera film or sensor but can also record the direction from which the light travels. Light fields can be captured by varying camera position or using microlens, which can be costly and poor resolution. Because a focal stack is a 3D projection of light field, we expect to recover light field from focal stack.

Workflow
The workflow was adopted from [1]

Gaussian-blur the gradient and pick the label with highest blurred gradient

Find edge using kernel of 3x3

Inaccurate depth estimation can easily cause artifacts at boundary. The estimation is challenging when the image is in low resolution. However, the inner object region is more accurately imaged.

Experimental Results
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Related Work