Angular Focus Stacking: Fusing images obtained while swinging the focal plane through object space

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**Abstract**

Extended depth of field photography via stacking focus axially along a three-dimensional subject has several advantages over single-shot image capture: higher signal-to-noise ratio, lesser total capture time, and higher optical resolution within the capture volume. Concomitantly, the Scheimpflug principle is regularly used by landscape photographers to focus on close foreground and far background subjects simultaneously. Nevertheless, the depth of field in Scheimpflug imaging is limited. Is it straightforward to apply the conventional focus stacking idea to Scheimpflug cameras? Can we synthesize an extended depth of field image by fusing multiple images captured while continually rotating the lens or sensor? We attempt to provide an answer to these questions in this paper and discuss a niche application area where angular focus stacking is better suited than conventional focus stacking for extending the depth of field.

# Introduction

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[1] Authors. “The frobnicatable foo filter”, ECCV 2006 Submission ID 324, Supplied as additional material eccv06.pdf.

# Geometric model for imaging with tilted lens and sensor

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## Experiment to demonstrate AFS using sensor tilt

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# References

1. A. Alpher, , and J. P. N. Fotheringham-Smythe. Frobnication revisited. Journal of Foo, 13(1):234–778, 2003.
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