

Birefractive Stereo Imaging for Single-Shot Depth Acquisition

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Supplemental Material #2

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Figure 1



(a) Prototype



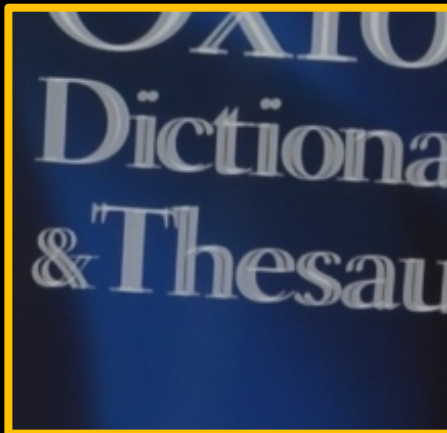
(b) Double refraction in calcite



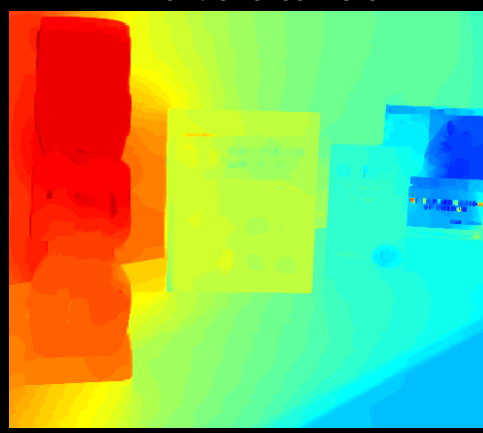
(c) Captured through calcite in front of a camera



Double refraction (close-up)



Double refraction (close-up)



(d) Depth from double refraction

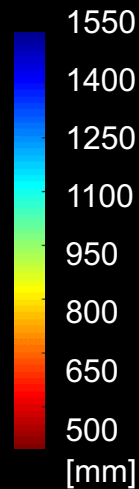


Figure 5



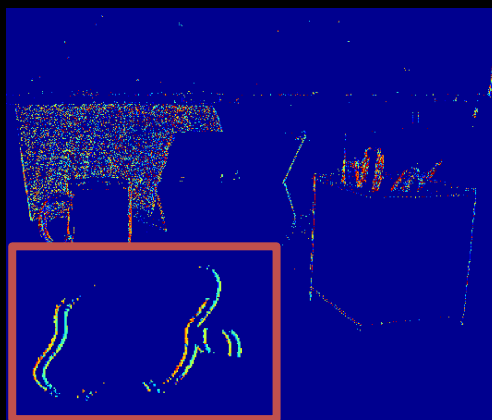
(a) Double-refraction image



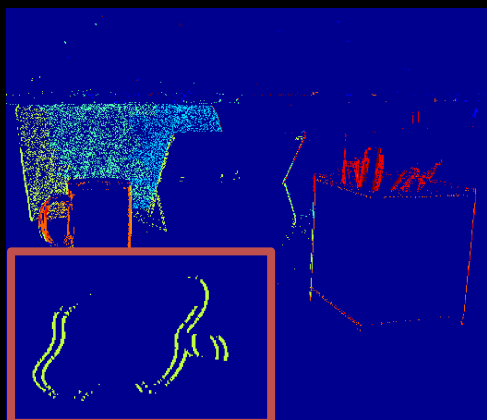
(b) Gradient magnitude



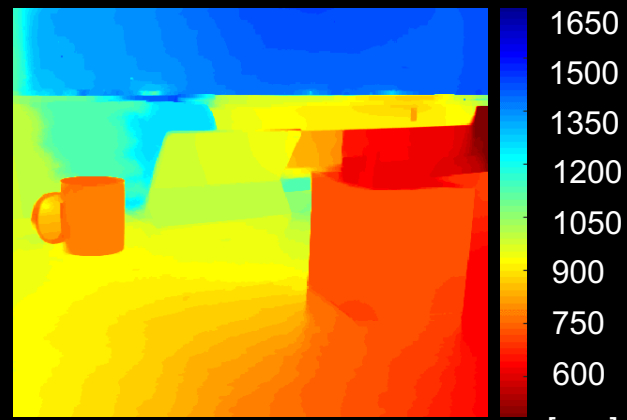
(c) Handling ambiguous pixels



(d) Sparse depth map
w/o cost aggregation



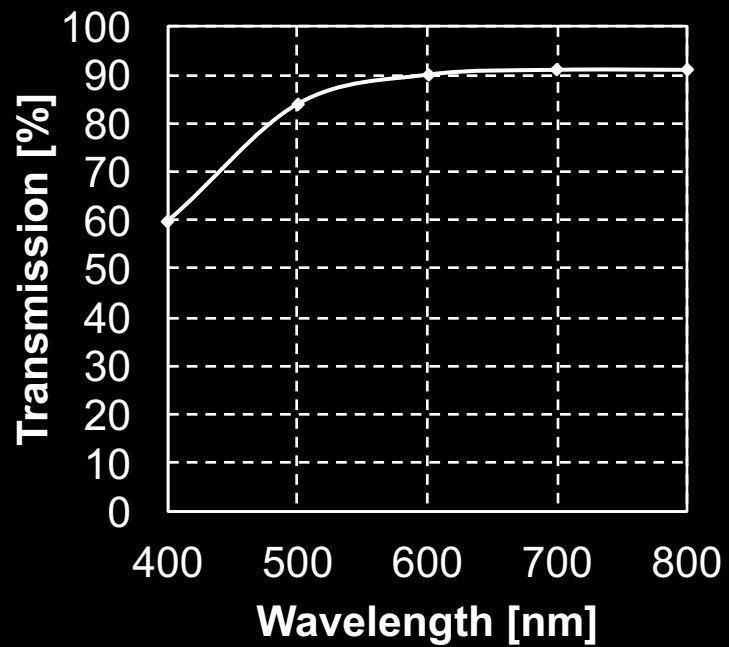
(e) Sparse depth map
w/ cost aggregation



(f) Dense depth map

1650
1500
1350
1200
1050
900
750
600
[mm]

Figure 8

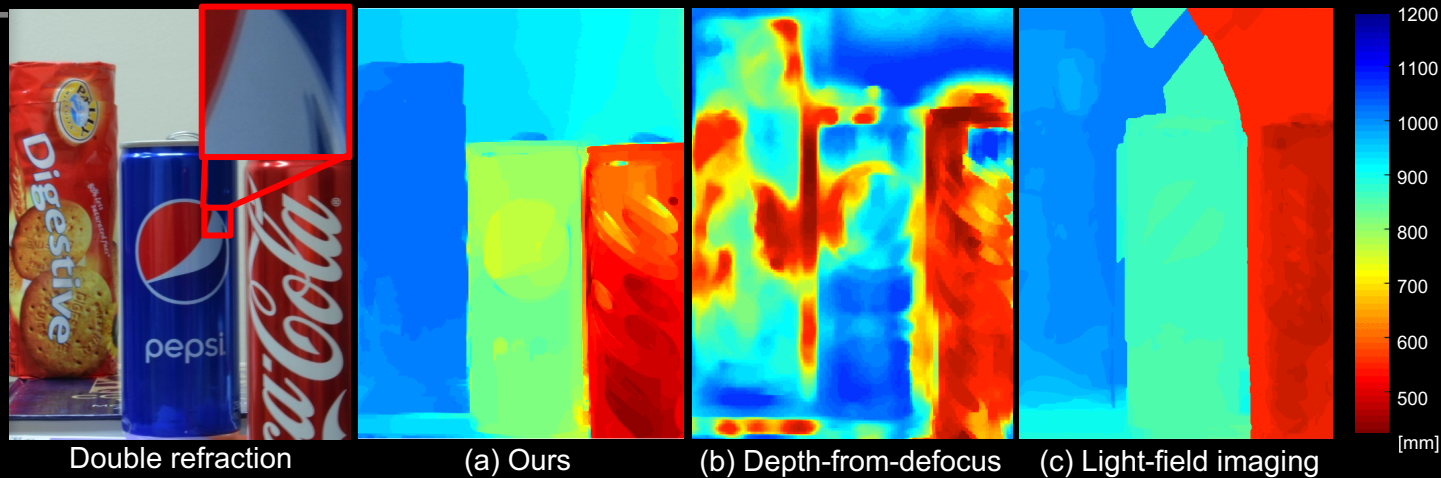


(a) With calcite



(b) Without calcite

Figure 12 Comparison with single-shot depth imaging



Comparison with two-shot stereo imaging

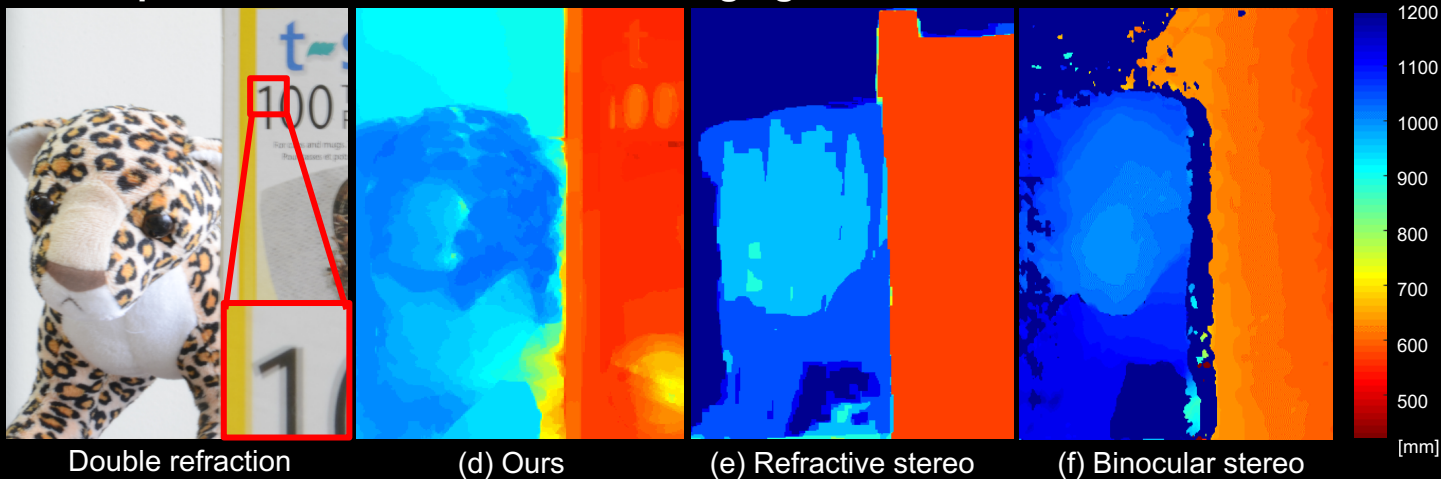


Figure 13

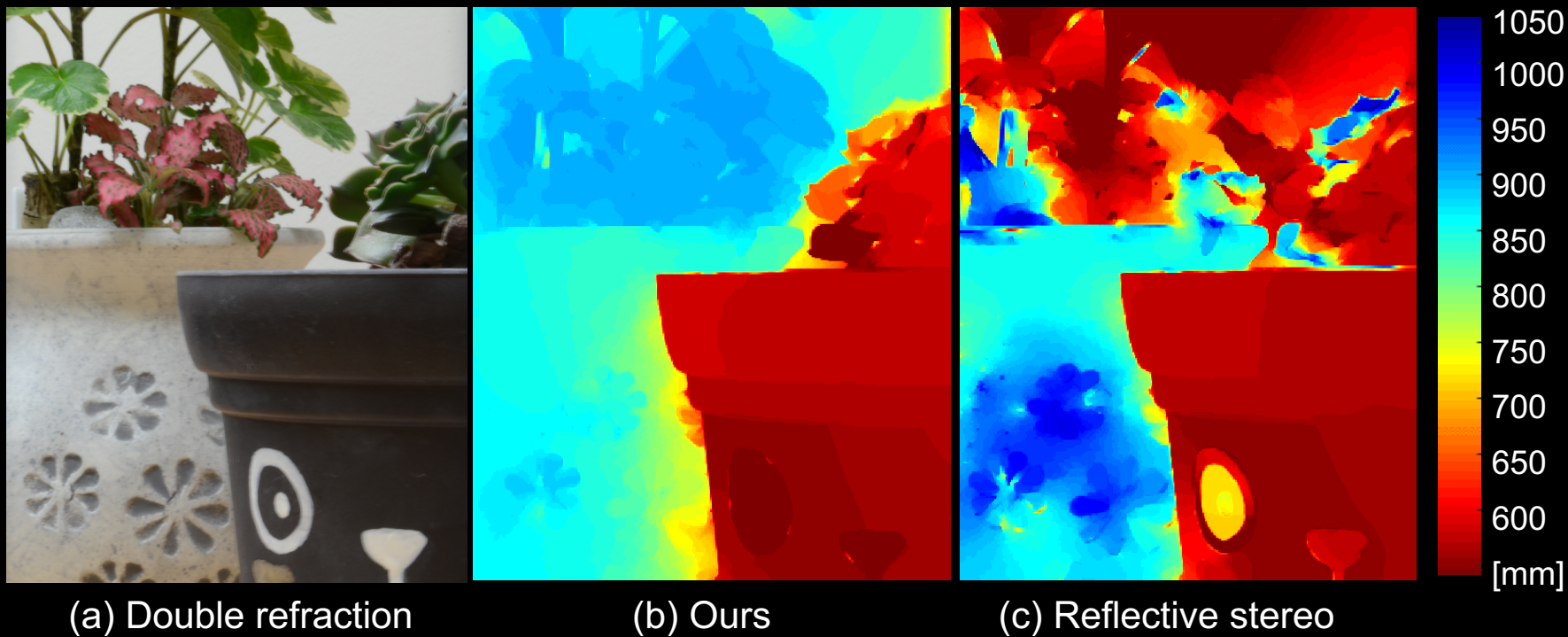


Figure 14

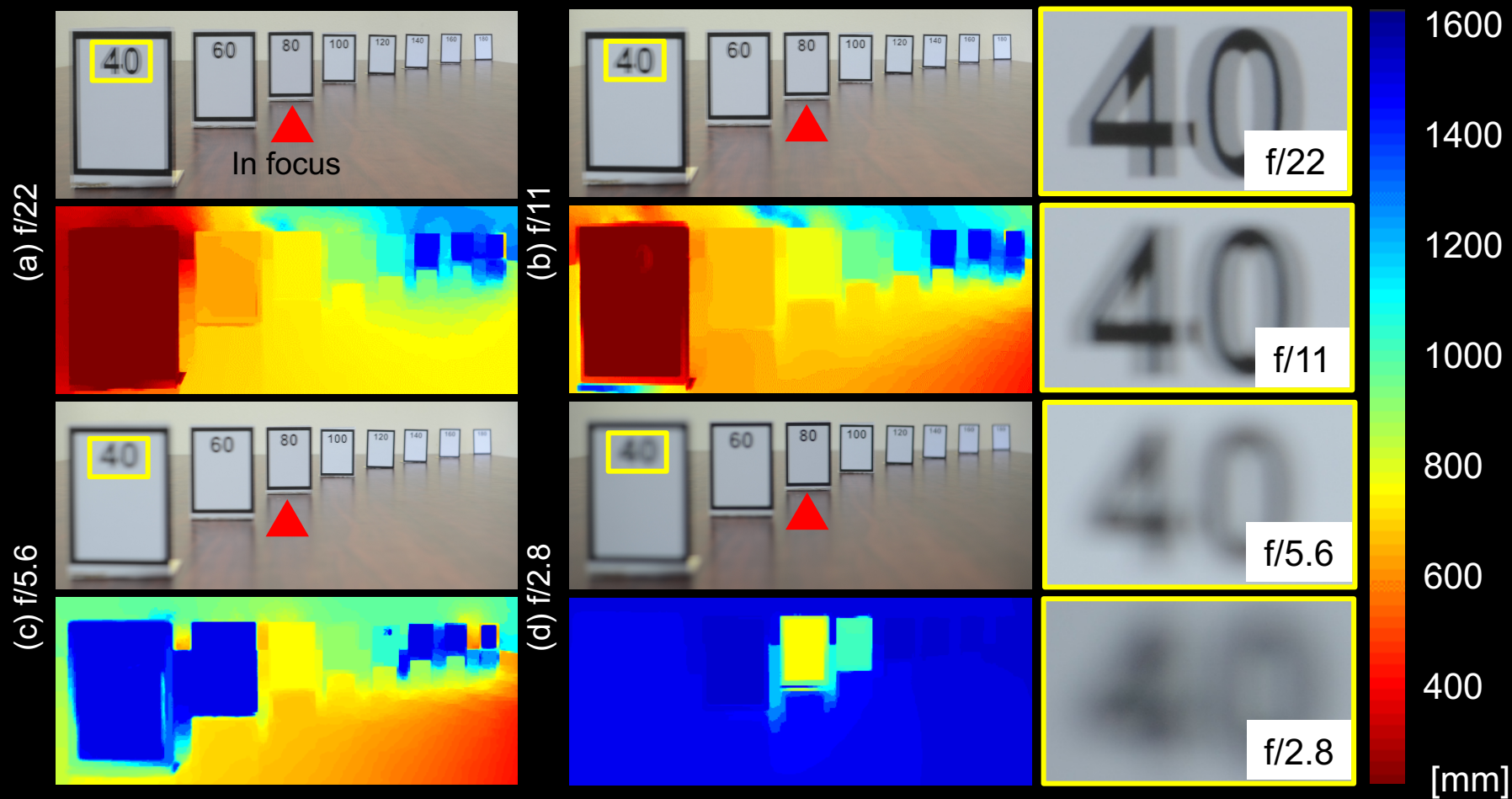


Figure 15

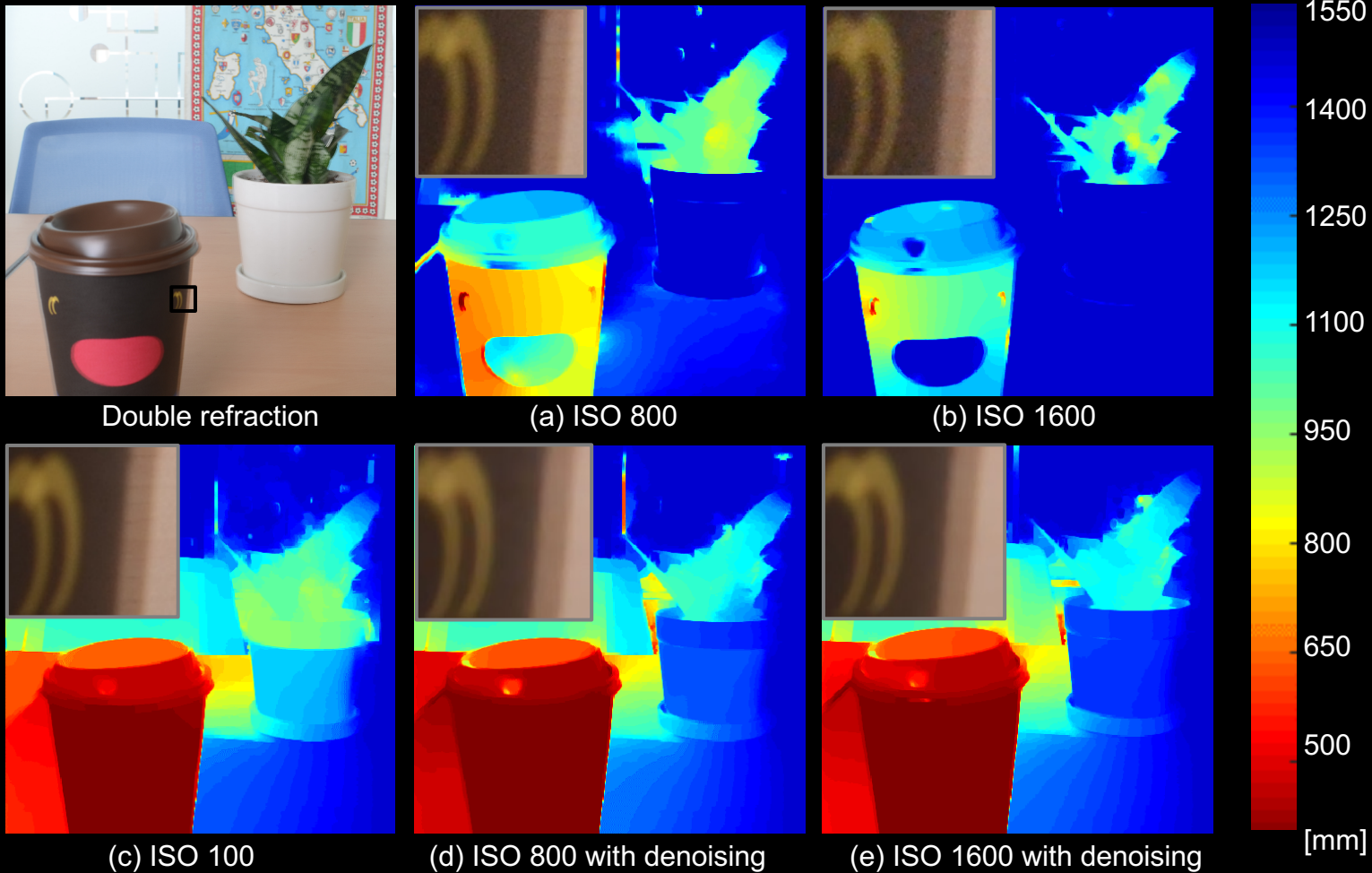


Figure 16

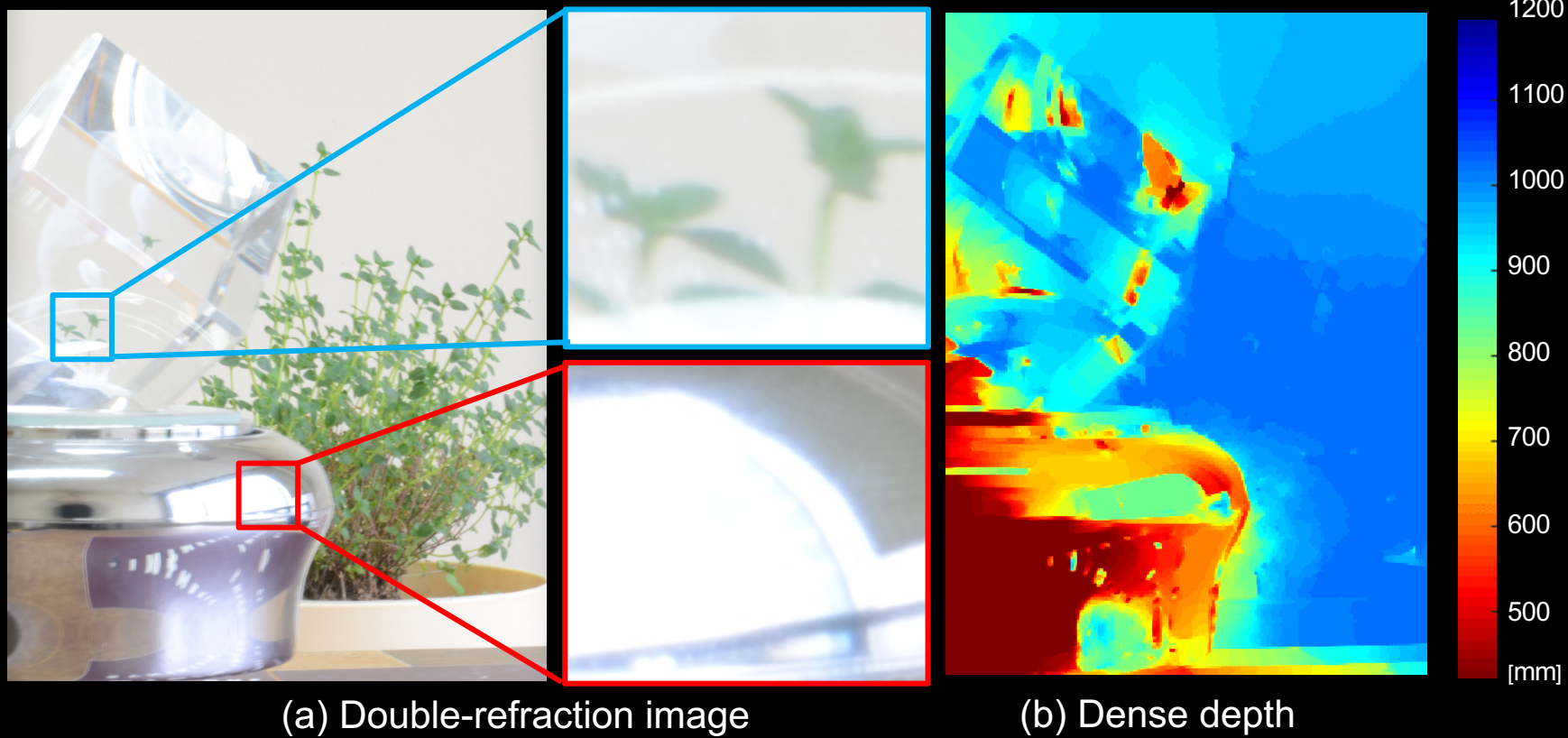
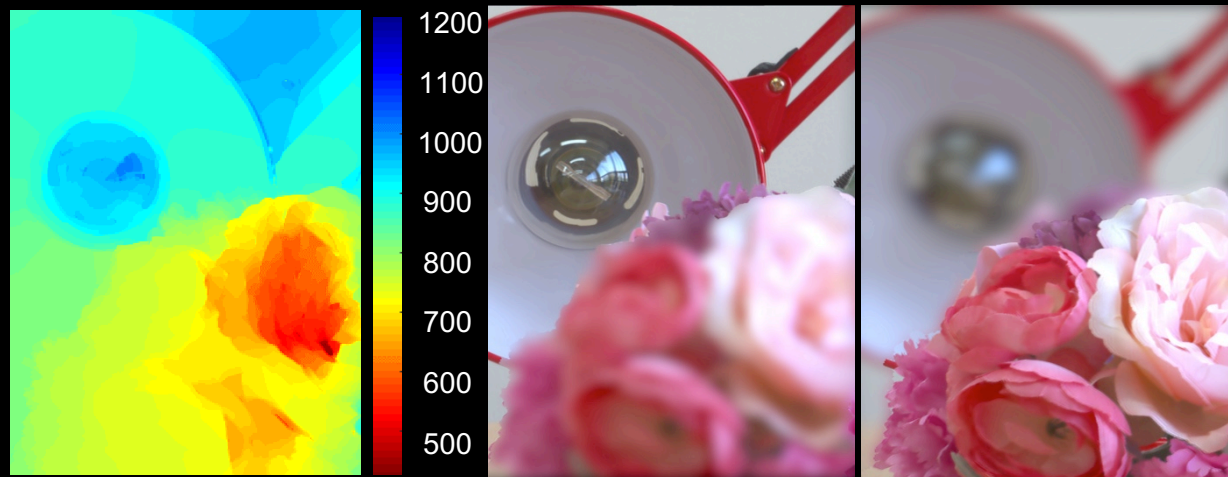


Figure 17



(a) Double-refraction Image

(b) Deblurred image



(c) Depth map

[mm]

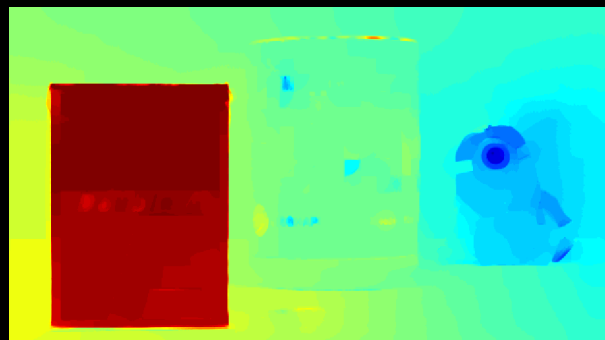
(d) Focus in back

(e) Focus in front

Figure 18



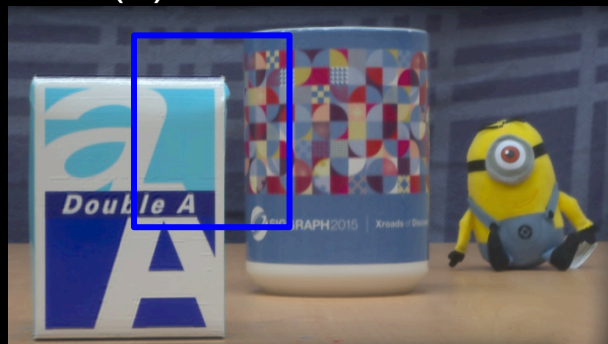
(a) Double refraction



(b) Depth map



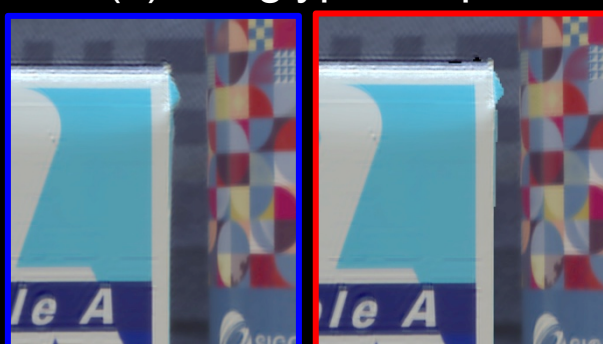
(c) Anaglyph 3D photo



(d) Left image

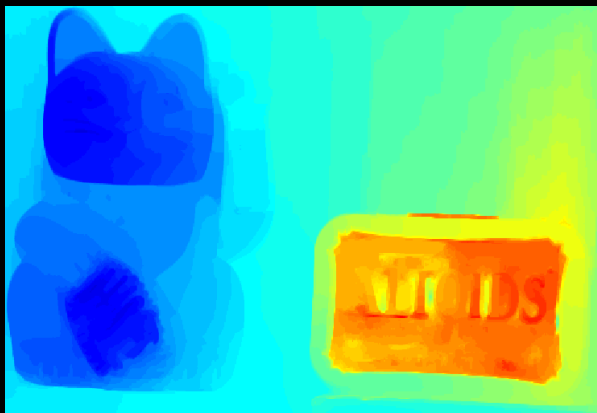


(e) Right image



(f) Close-up images

Figure 19



(a) Double refraction

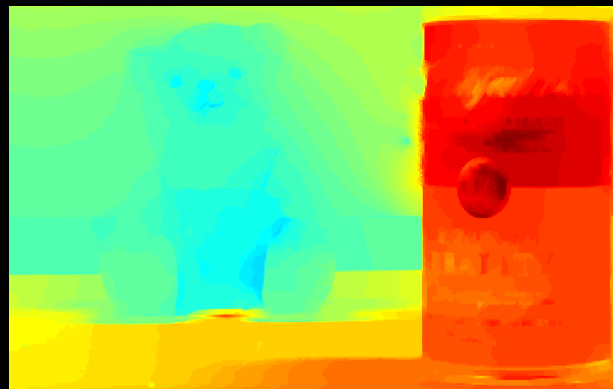
(b) Depth map

(c) Decolorization

Figure 20



(a) Double refraction



(b) Depth map



(c) Depth-aware
image compositing