Handin 1

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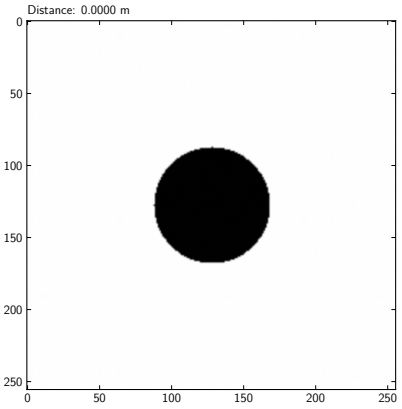
1 Task 1-3

There TSM function can be found in tsm.py as the static function TSM. The intensity of the field after propagating some distance after the circular block with radius 400 µm can be seen in Figure 1. The intensity is normalized to the maximum intensity of the field which is the reason why the field appears to be much darker includegraphics Figure1b.

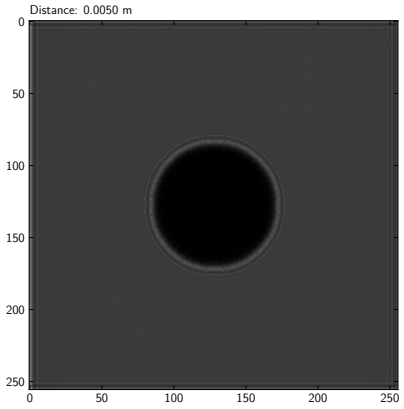
2 Task4

A lens with focal length 1.5 m was used during the simulation. The inensity near the far field can be seen in Figure 2a and Figure 2b and the inensity in the far field can be seen in Figure 2c. There sharpness of the image appear to be very sensitive to small changes in the distance from the lens.

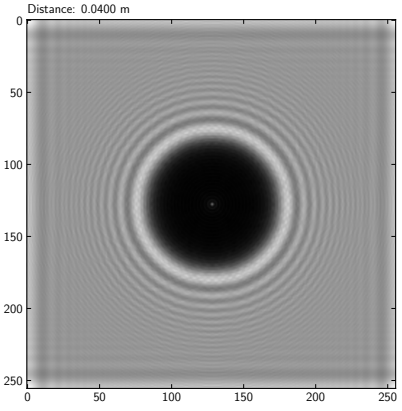
All of the images in Figure 2 (especially Figure 2c) match what I saw in the lab (simulated size was approximately 1.2 cm).



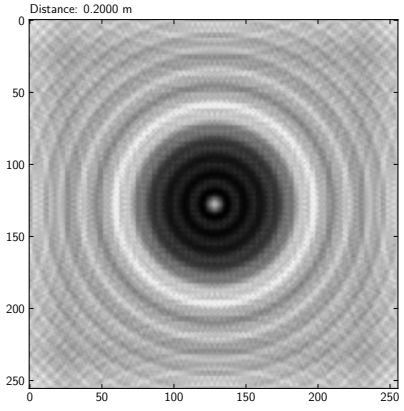
(a) Field intensity distribution after propagating 1 µm.



(b) Field intensity distribution after propagating 5 mm.

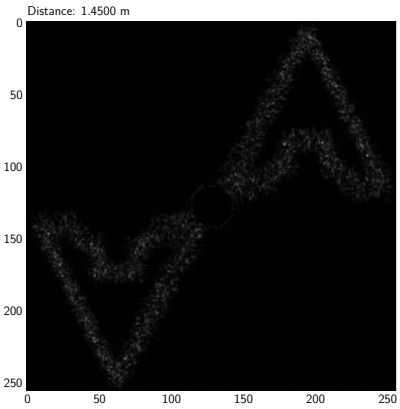


(c) Field intensity distribution after propagating 4 cm.

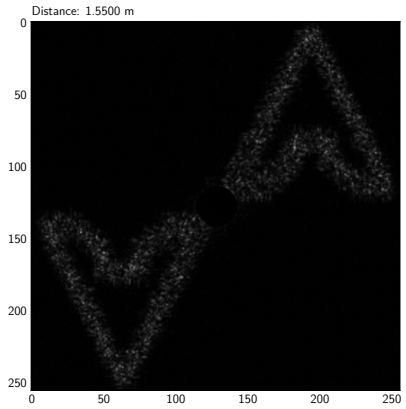


(d) Field intensity distribution after propagating 2 dm.

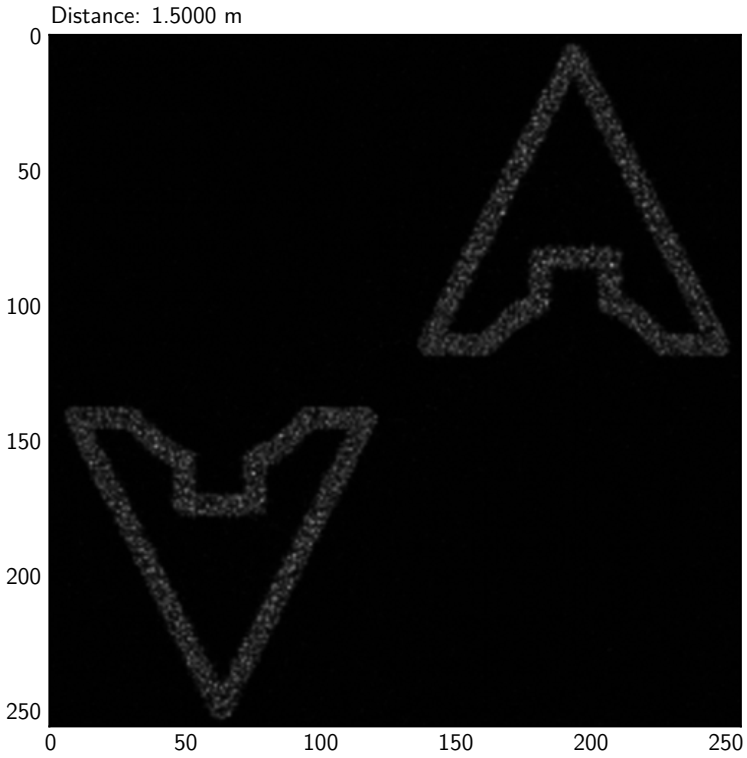
Figure 1: The intensity of the field after propagating a some distance from there circular block. All field point values are normalized to the maximum intensity of field.



(a) Field intensity distribution after propagating 1.45 m from the lens.



(b) Field intensity distribution after propagating 1.55 m from the lens.



(c) Field intensity distribution after propagating 1.5 m from the lens.

Figure 2: The intensity of the field after propagating a some distance from lens. All field point values are normalized to the maximum intensity of field.