

Taylor Ellis  
IV3 Report  
CINE 4200  
November 20, 2020

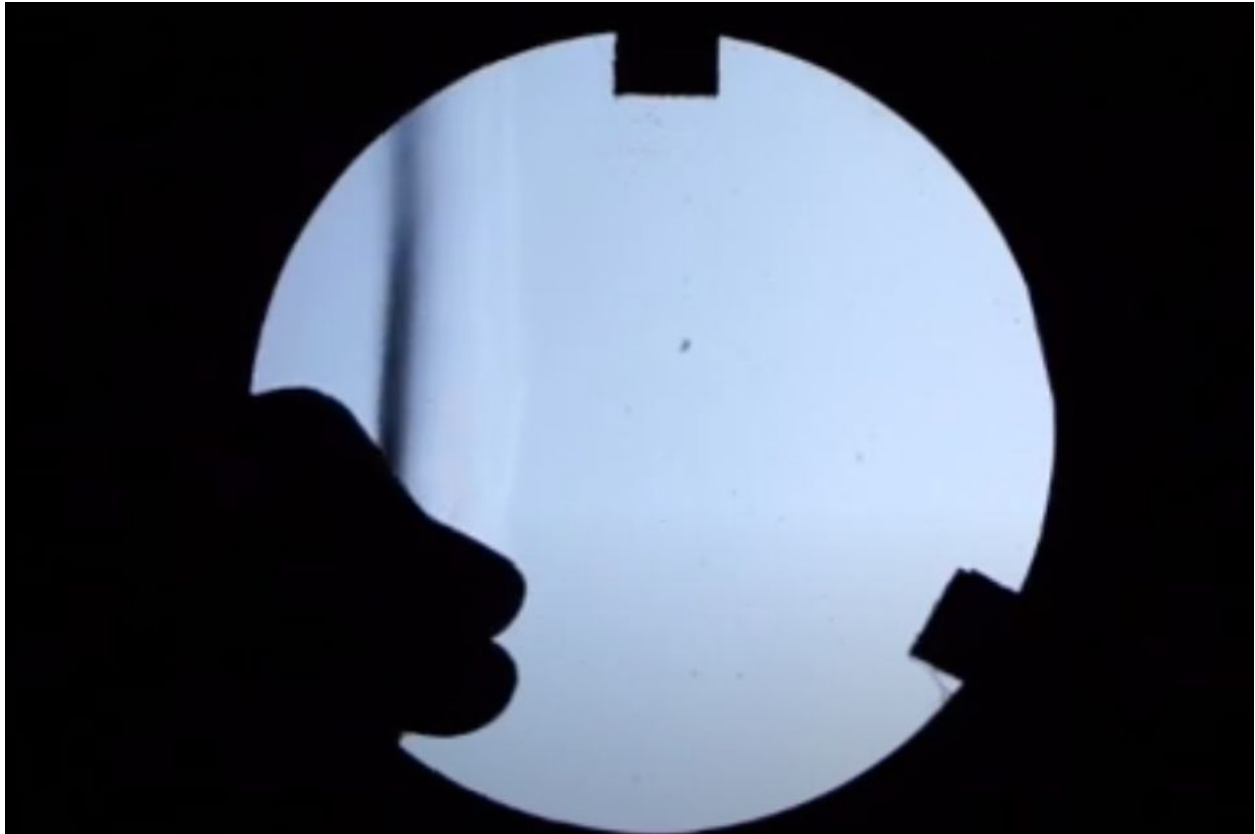


Figure 1: Thumbnail from IV3 Video

The intent of the video I captured for this assignment was to explore the Schlieren imaging technique. The flow apparatus used consisted of a Edmund Optics Schlieren system. Alongside the 4.25" inch mirror, I set up an LED attached to a breadboard for the lightsource, and used a razor blade to cut the light as seen in figure 1. My assistant, Greg Lund, helped me by holding the lighter and lighting the candle as I was imaging the effect.

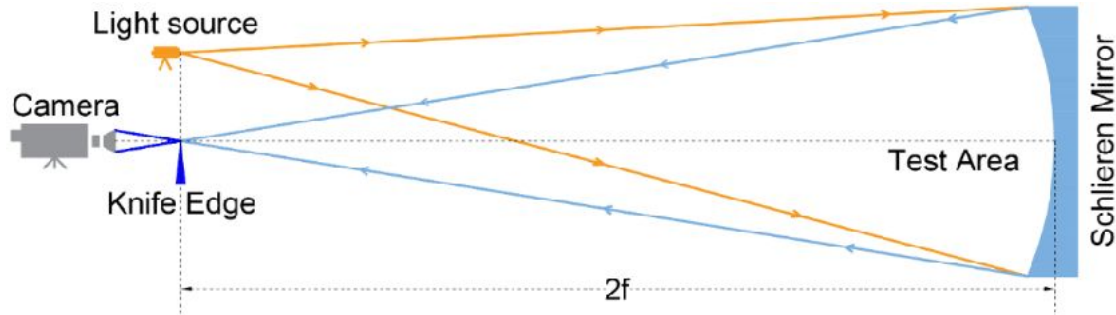


Figure 1: Schlieren Setup Diagram [1]

The phenomenon I captured with the Schlieren setup is the result of the differing index of refractions between the rising hot air from the flames, and the surrounding air. This imaging technique allows us to see the thermal plume of the lighter and burning candle respectively.

The image was captured with a Nikon D3300 body and a 18-50mm lens. I used an aperture of 5.3, shutter speed of 1/160, 3200 ISO and 48mm focal length. I used iMovie to add a title frame, stitch and trim the two clips, and the stabilization module to help even out the shakiness of my tripod.

Overall I was satisfied with the end result I was able to achieve using this imaging technique. It took me a couple tries to get the system properly set up, and I found that my choice of light source greatly impacted the quality of image I was able to achieve. In my final attempt I used an LED light, and that made a significant difference. In the future I would invest in a sturdier tripod, as my cheap one was unable to support the weight of my camera and lens which lead to a shaky video.

## References

[1]

[https://www.researchgate.net/figure/Setup-of-single-mirror-schlieren-imaging-system-where-2f-6000mm-twice-of-the-focal\\_fig2\\_336306217](https://www.researchgate.net/figure/Setup-of-single-mirror-schlieren-imaging-system-where-2f-6000mm-twice-of-the-focal_fig2_336306217)