

For my final group assignment I wanted to continue my experiments with using my projector playing colorful images to illuminate fluid phenomena. Initially I wanted to play around with food coloring in water and see if the projection allowed me to see something different in this frequently utilized technique for showing how one fluid disperses into another. I tried dropping a few drops straight into the water and soon realized this was not what I wanted to capture. I then tried stirring the water into a vortex and then dropping the color in. After playing around with a couple different setups, I discovered that I was far more interested in how the light was hitting the floor after passing through my container. As the vortex was more intense the light was scattered about a lot more than when the water was calm. I decided that I wanted to capture this change over time so I stirred the water and filmed the light as the vortex calmed down. I did attempt putting food color in the water while capturing the light, but it had a negligible effect on the end result.

The setup I settled on consisted of a 1.5 gallon round fishbowl, my projector playing a colorful loop, a plastic spoon, and a Canon Rebel Ti on a tripod. I set the fishbowl on my basement floor with the projector sitting on the floor about a foot and a half away, shining directly into the middle of the fishbowl. I placed the camera directly over the fishbowl, making sure the tripod legs did not block any of the light, stirred the water, removed the spoon and let physics take care of the rest. The light went from an arch shape while the vortex was more intense to a parabolic cone shape when the water was still. This must be due to the fact that the light is bent by the water and does not pass straight through the middle when there isn't actually any water in the middle. As one would expect, the light was also much more scattered and choppy while the vortex was strongest and smoother when the water calmed down again.

I used normal tap water in the fishbowl. The bowl itself was made out of glass about a third of an inch thick. As far as lighting is concerned, there was a small amount of light from the other room that helped illuminate the setup, however most of the light providing the image came from the projector. The projector was playing a loop that contains a radial pattern that morphs into a more grid-like pattern and then back. The loop always contains the colors red, blue, yellow, green and purple, however, it is interesting to see how the light on the ground only displays one or two of these colors at a time. I'm not sure if this is due to part of the projection just being blocked or if the different colors of light blend together, either way, it causes the light on the ground to cycle through several hues as the loop progresses.

I used a Canon Rebel Ti3 digital SLR with a zoom lens about two and a half feet above the ground to capture the video. The field of view is about 2 feet across. I shot at 30 frames per second with a shutter speed of 1/60 of a second. As far as post production editing went, I changed very little. I lowered the blacks and increased the highlights slightly to give the video a full range of contrast. Other than that, I did not do any cropping or adjust the speed of the footage at all.

I was very happy with my product after completing this assignment. Although it was not really close to my original intent for this image, I was happy I followed the path I did in order to discover something I hadn't thought of before. The video does a very good job at revealing how light scatters through agitated water, particularly a vortex. It would be really cool if I had some way of controlling how fast the water was spinning without having to block the light. If I ever find a round glass blender or something similar I will defiantly recreate this effect.

Image Assessment Form
Flow Visualization
Spring 2010

Name(s)

Assignment:

Date:

Scale: +, ! = excellent □ = meets expectations; good. ~ = Ok, could be better. X = needs work. NA = not applicable

Art	Your assessment	Comments
Intent was realized	□	
Effective	!	
Impact	□	
Interesting	!	
Beautiful	□	
Dramatic	!	
Feel/texture	!	
No distracting elements	□	
Framing/cropping enhances image	~	

Flow	Your assessment	Comments
Clearly illustrates phenomena	!	
Flow is understandable	□	
Physics revealed	!	
Details visible	!	
Flow is reproducible	□	
Flow is controlled	□	
Creative flow or technique	!	
Publishable quality	□	

Photographic technique	Your assessment	Comments
Exposure: highlights detailed	!	
Exposure: shadows detailed	!	
Full contrast range	!	
Focus	□	
Depth of field	□	
Time resolved	!	
Spatially resolved	!	
Clean, no spots	□	

