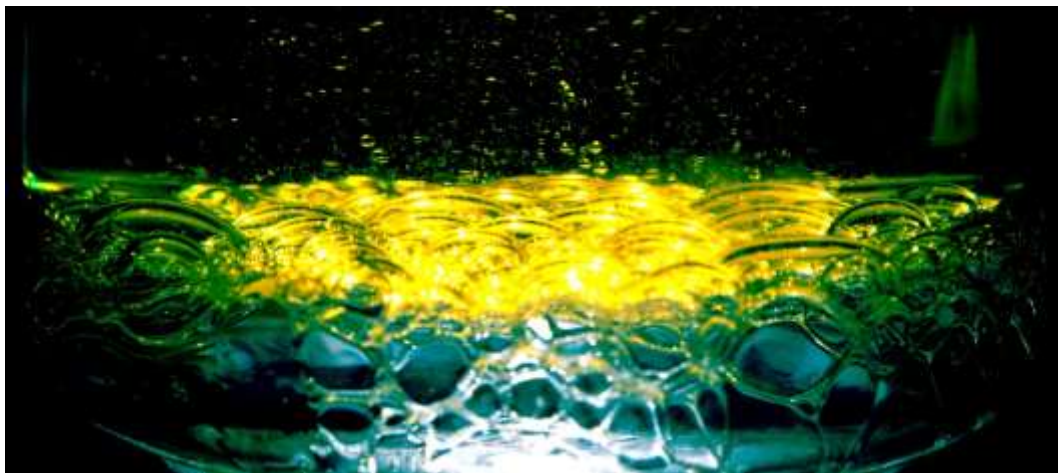


Peter Davis  
Get Wet Assignment



This project was meant to give an introduction to flow visualization. There were no specific guidelines for the project, and gave me a chance to be creative and explore different options. I tried out a lot of flows, with varied success. Initially I played around with milk and food coloring. I was able to get some very colorful, interesting flows of the food coloring, but it did not seem very original to me. I also dyed olive oil, so that I could have different colored liquids separated next to each other. I poured some water into a glass of olive oil, and found that it formed bubbles when it fell through the oil. I really like how the light reflected off the top surface of the bubbles. The top half of the bubbles was yellow and the bottom was clear.

This image demonstrates a couple fluids phenomena well. First, it shows how polar and non-polar liquids will not mix. This is why the water and oil form two separate layers, with the denser water on the bottom. It also exhibits surface tension effects. Each water bubble is surrounded by a thin film of

oil. The bubbles are held together because the oil molecules are attracted to each other. The size of the bubbles depended on the size and speed of the water drops as they were poured into the glass. Slowly pouring the water allows it to fall through the oil without forming any bubbles. Splashing smaller drops into the glass forms small bubbles, and something in between forms larger bubbles. For this image I tried to make fairly large bubbles. The glass was about 3 inches in diameter, and the bubbles were about 0.3 inches in diameter.

There were no complicated visualization techniques needed for this image. The bubbles were static. The picture was taken outside in bright sunlight. The bright light illuminated the top surface of the bubbles better, providing better contrast and showing the curvature of the bubbles more effectively. The picture was taken at 3:00 PM, with the sun midway up in the sky. The glass was placed between the camera and the sun, so the light from the sun was reflected straight at the camera.

The lens was as close to the glass as possible to capture maximum detail of the bubbles. A macro lens was not used. A DSLR camera was used. The picture was taken in aperture dependent mode. I wanted a large depth of field so that I could show all of the bubbles in focus. My early pictures had too large of an aperture, and a lot of detail of the bubbles was lost. There was plenty of light outside, so I could have a small aperture and still have a bright enough image. I did not need a fast shutter speed since I was taking a picture of a static situation. I made a number of changes to the image in Photoshop. I increased the contrast and decreased the brightness so that the top surface of the bubbles really stands out from the background. I also tweaked the color of the image, mainly increasing the blue. This gave the image a wider range of color and made it a bit more interesting.

Overall I consider my image a success. I'm not a great photographer, and disliked over 90% of the pictures I took for this assignment. So I was happy when I was able to get a couple that I thought were pretty good. I was mainly aiming for an artistically interesting image, with fluid physics secondary. It is not a very interesting fluid situation, but I believe is an aesthetically pleasing one. With more time spent taking pictures with different backgrounds, lighting conditions and camera settings I do think I could take a better picture. I also would like to learn how to use Photoshop more so I could improve more details of the image.