

“TEAM THIRD”

Image Context Report

ABSTRACT

This report will provide context for my third team image in the fall 2016 flow visualization class.

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Flow Visualization: The Physics and Art of Fluid Flow

1 CONTEXT AND PURPOSE

I am very excited to speak about our second team photo. I again took a slightly different approach than my teammates, even though it was technically the same apparatus. This photo is of saturated latex paint that is dripping across a glass surface. There is a variety of colors including, purple, neon green and light blue. All these paints were "Behr" brand latex indoor paints bought from home-depot in small sample sizes for \$3.99 each. Our original plan was to capture photographs of the paint running through standing water in a ten-gallon fish tank. If you reference some of my teammates photographs, we were rather successful in accomplishing our objective. The one problem with our set-up was how much water was required to repeat the photo trial. It required a lot of careful maneuvering to dump out the fish tank and refill it. If we were going to repeat the trials, I would use a smaller tank for sure. My photo is actually the result of cleaning the tank at the very end of a trial. The paint from a previous paint drip has collected on the bottom of the tank. When we dumped the water out of the tank, this is the formation the paint made on the bottom tank glass.

2 FLOW APPARATUS



Figure 1 - Ten Gallon Fish tank, similar to one used in trials.

As seen above, a ten-gallon tank was used for the creation of this photograph. The latex paint was dropped from a tube into cold water in the tank. Some latex paint would diffuse into the water in the tank, but most would travel down to the tank floor and sit there. The water was then drained into a kitchen sink. At this point the paint would begin to travel down the angled surface of the tank floor, being forced by the exiting water flow. The paint on the floor of the tank was much more viscous than the water exiting, so the paint was left at the bottom when all the water had been drained. When all the water had been drained, this allowed for good opportunities to photograph the flow that I submitted.

3 DESCRIBE THE VISUALIZATION TECHNIQUE

The visualization technique shown is rather true to the original image. You can see the original unaltered image taken in figure 3. Additionally, you can see the final team 2nd image shown after post processing in figure 2. You can see that a small amount of color saturation was added to the final photograph. Also, removal of the general gray, washed out tone of the original photo was taken out of the final photo. These features were applied with the stock Microsoft photo editor. A relatively low aperture was used because of the low light scenario of the photograph and the flat plane of focus. I used a focusing rack and pinion style tripod head to achieve tack sharp focus on the glass plane.

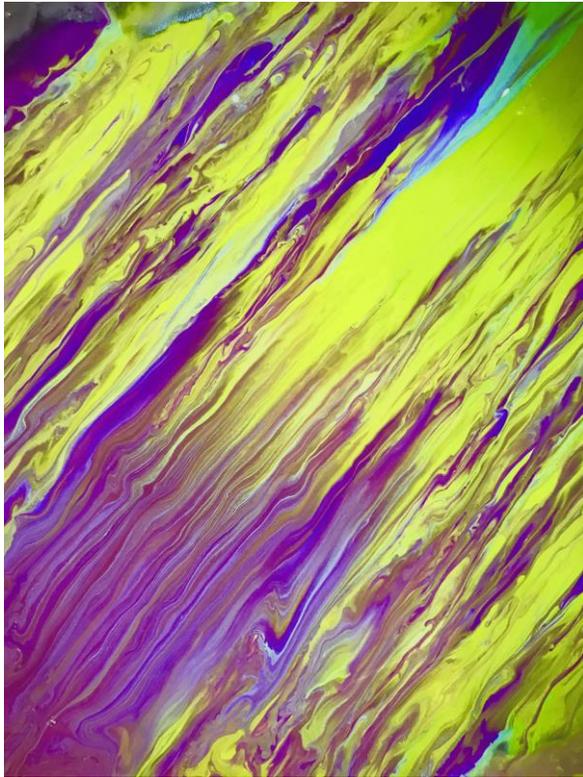


Figure 2 - Final Image

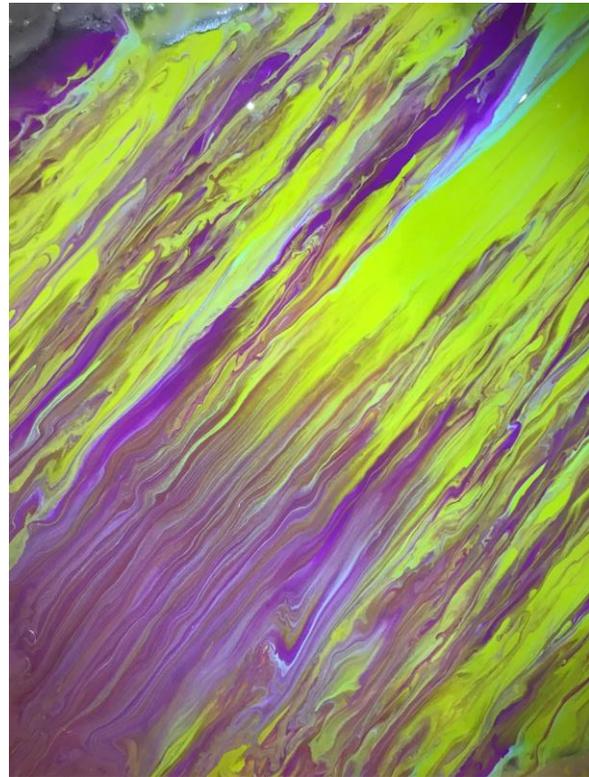


Figure 3 - Original Image

4 PHOTOGRAPHIC TECHNIQUE

I'll begin my discussion on my photographic technique with my camera. I am using a Canon 7D DSLR camera body. Capable of achieving 18.1 MP of resolution in its highest quality mode. The camera has a APS-C sensor, not a full frame. At the time I was using a Canon 18-200 mm F/3.3-5.6 lens. The lens had a UV eliminating Tiffen filter. The camera modes for this particular image were as follows, F/ 4.5, ISO-1600, Exposure time of 1/100 sec. With a focal length of 40 mm focal length at the time. The surface shown in the photograph is about 1-1.5 feet away.