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ATLS 4151-001
November 7, 2022
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For Vis three group eight decided to experiment with oobleck using food coloring and a shake table. Our initial intention was to capture vertical waves and tendrils in the oobleck during its movement, however, we were unsuccessful in creating that type of flow during this attempt. It is worth mentioning that our group did attempt the experiment again and was successful in creating excellent visuals involving those standing waves I mentioned previously (see Tobin and Bryce's IV3 visuals!).

To get the desired effect we started with creating our oobleck by combining one cup of cornstarch with one and a half cups of water. To disturb our oobleck we used a shake table in the ITLL (Integrated Teaching and Learning Laboratory) on campus, we could control the settings of the shake table using a connected computer terminal. To avoid damaging any of the shake motor or related equipment we surrounded the area with saran wrap and placed the oobleck in a Tupperware container that was taped to the surface of the shake table's plate. We began shaking the container at different frequencies and adding different colored food dyes into the suspension. The pictures below reflect the mixture after being shaken with some dye dispersed around the center, and 6 drops of red and green dye around the outside edges of the container. The afterimage of some of the vortices created by the motion can be seen in the image.

Edited

Original

The swirly patterns are remnants of these vortices, some of which were counter-intuitively rotating around each other in the same direction. The forces caused by the shake table's vibrations had an interesting and unique effect on the non-Newtonian oobleck. For more context on the final images, you can see William Watkins' visual for the same project to see the video of the dye dispersing that led to this shot.

The field of view in this image is approximately five inches by five inches, and it was captured using a Cannon EOS Rebel T7 DSLR camera with an 18-55mm lens. The original image had dimensions of 6000x4000px whereas the edited version was cropped down to 3214x2645px. The image was taken with an f-stop of f/5, exposure time of 1/300th of a second, and ISO setting of 100. No flash was used for this image, but two studio lighting poles were used to add abundant light to the subject. The image's contrast and brightness were adjusted, as well as the frame and size.

Overall I was pleased with this shot, however, I wish the focus was a lot better. The swirling patterns from the vortices are really nice to look at and I'm happy with the pale colors that resulted from our chosen food dye. In a future experiment with these same materials, I would love to actually incorporate some vertical motion in the shake table to get those really cool vertical oobleck nodes that the fluid is capable of.