



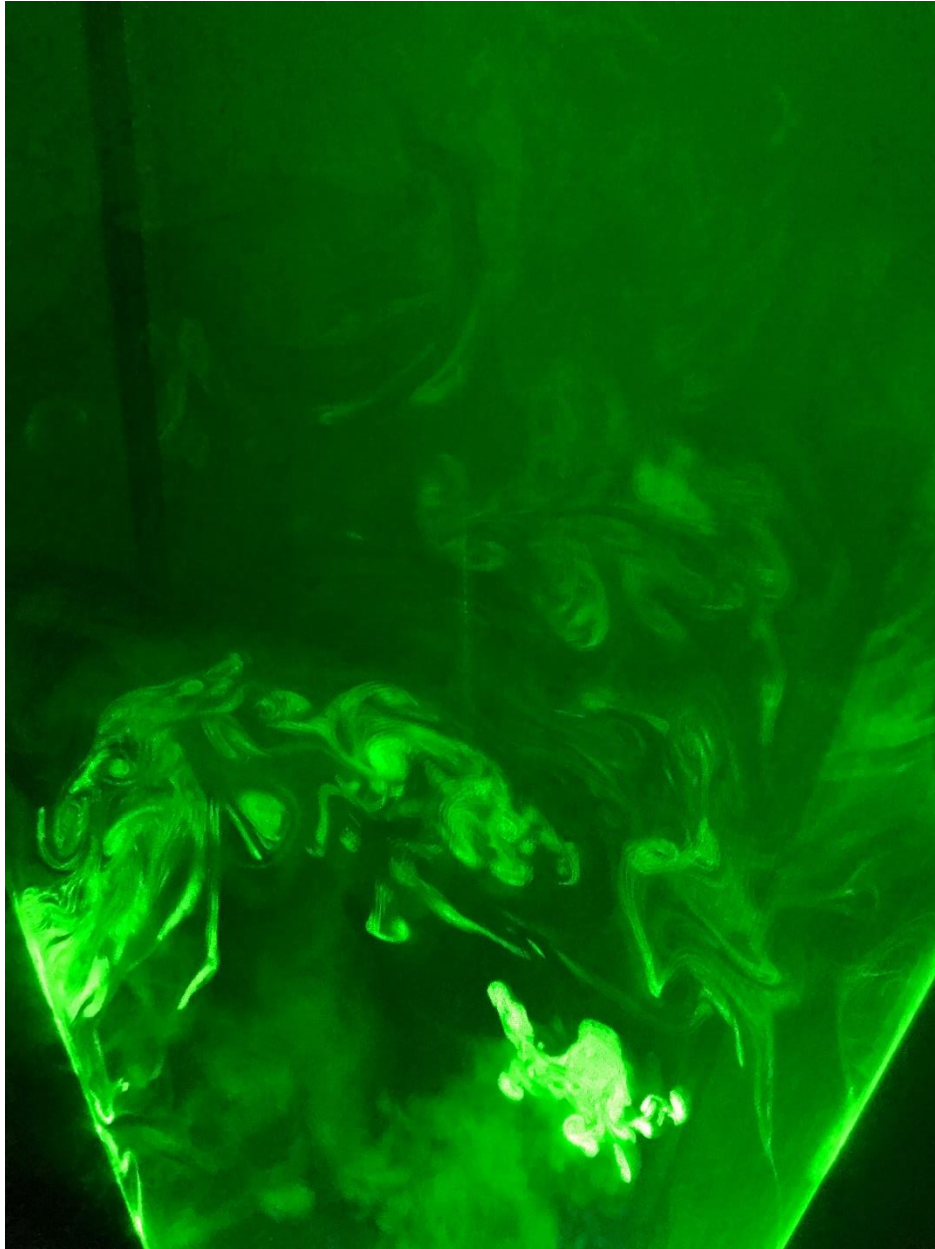
Team Third Report

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Flow Visualization 4151-4200-001

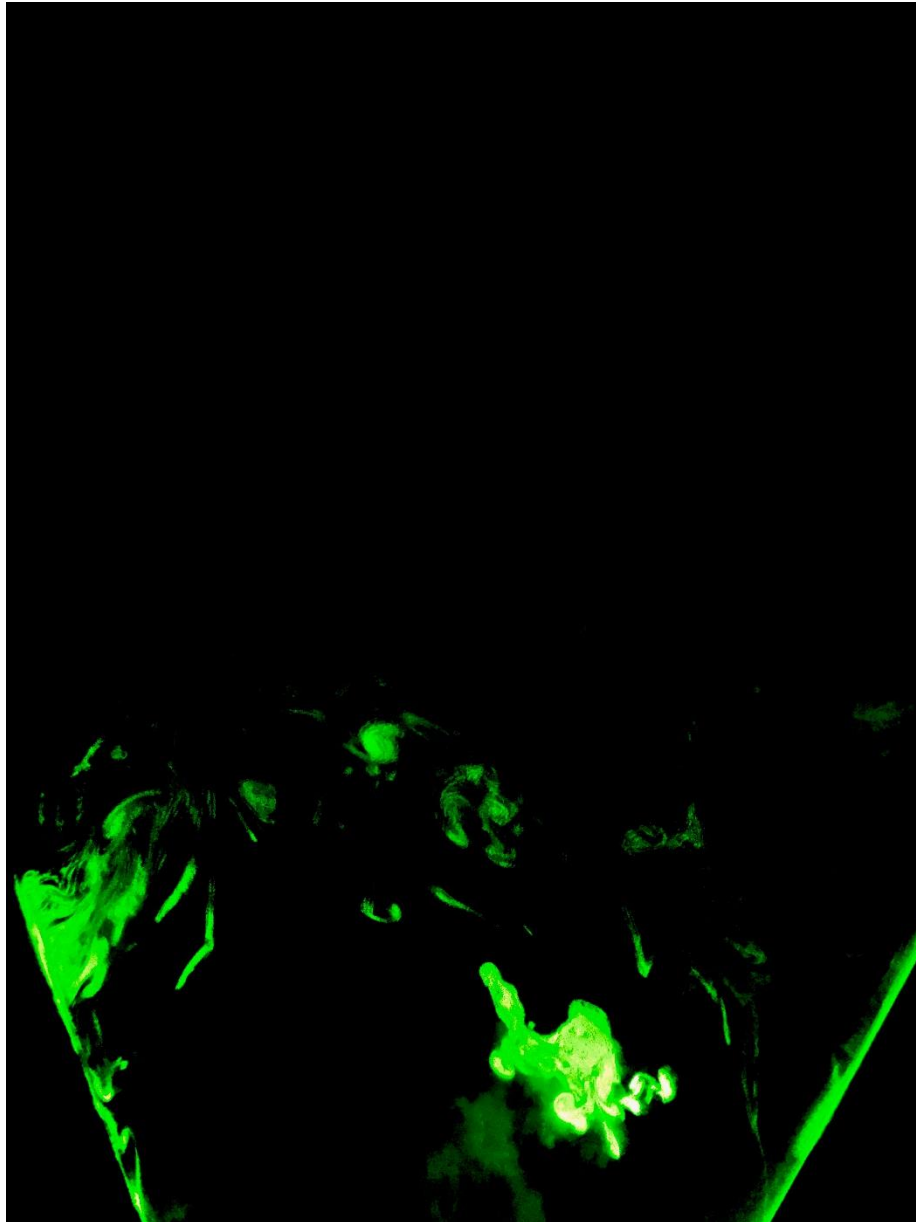
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The picture used in this assignment utilizes a laser sheet in a dark room and smoke being blown into it. When the smoke crosses the sheet of laser, a 2D-like projection of the flow can be visualized. For the final image, edits were used to create an image that looked like it could've been painted with a neon aesthetic. The sharp contrast of neon green on black gives a spooky neon feeling. The room used made for a difficult capture of this fluid flow due to the natural currents of the room. The smoke would only be visible for a brief moment before being swept away. This method of flow visualization is a fun way to observe turbulence and what a cross section of that turbulence projection would look like.



*Figure 1: Laser sheet and smoke*

The picture was taken on an iPhone 7 camera with an F-stop of f/1.8, exposure time of 1/4 sec, ISO-100 and a focal length of 4 mm. It was in a dark room in the idea forge with the lights blacked out.



*Figure 2: color brought with darkened background*

The final picture results in a still of the smoke crossing the sheet of laser with a black background and enhanced color. The final aesthetic is neon which gives the picture an eerie radioactive feeling. Laser lights are a great way to visualize turbulence. As seen in the unedited picture, the cross sections of the flow can make very interesting shapes. When looking at the cross sections, a similar effect of looking at clouds happen where one's imagination can associate the swirls to depict other things from life.



*Figure 3: Final edited picture*

Getting a camera to focus on the smoke in a dark room with a bright light source was a difficult task to accomplish. However, beyond the difficulty of capturing this phenomena, it was a very fun experiment to produce and I learned a lot by being able to visualize these turbulent cross sections. Being able to observe the smoke as a whole and the image as it crosses the sheet of laser allows for a lot of insight on what is actually happening as it is moving through the room. This simple setup is easily repeatable for anyone who wants to try this for themselves. A recommendation is to have a way to clear the smoke out of the room in order to keep it easy to breathe while performing this.

Source:

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