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### Team 3 Assignment

This video was taken for our third team project. We were trying to capture inverse buoyancy, or like behavior, in smoke from incense. Both images and video were utilized but video was the preferred method due to decreased motion blur.

The video was taken in a bedroom with all of the doors and windows closed to reduce draft. We cut one of the small sides out of a rectangular cardboard box (about 3x1.5ft). We then taped black construction paper in such a way that it was curved in the box like a wave. The excess paper curved over the open face of the box and acted as a hood. The incense (puddy form) was lit underneath the wave shape in the paper.

The incense rises initially because it is much hotter than the surrounding air. The initial plumes are mostly laminar because the incense stick is lit in different places and individual streams rise up from these spots. However, there is no easy exit for the smoke so after hitting the roof, the smoke curls back down with the paper's shape. The smoke then builds up throughout the rest of the box and forms turbulent currents. After the box becomes smoky, the temperature rises and the incense begins to lose its buoyancy more quickly than before. The evidence of vortex rings in the video captures negative buoyancy behavior in the smoke.

We used black construction paper to provide contrast to the smoke. To illuminate the shot we used a clip on light that was clipped on to the camera tripod. The light was at a 45-degree angle to the subject and was roughly 2 feet away. Color was added to the shot in post.

The content in the frame is probably about 1.5x1.5 feet. The object was about 3 feet away from the camera lens. The lens was a Canon USM II 16-35mm and was set at the 35mm position. The camera used was a Canon EOS 7DII. This camera has a 2/3 chip so it does crop the frame by 2/3 (blown up 35mm). The lens was at f4.5 with the ISO at 1000. The video was captured at 60fps and at a resolution of 1290x720. To edit the shot I put the clip into Final Cut Pro 7. I then split the clip in half (time wise), and layered the two halves together. I altered the opacity of the shots so as to superimpose the images over the top of each other. I applied a different color scheme to each shot.

I really like that we able to capture the vortex rings from the incense. The video is nice because it depicts the movement of the smoke quite well, and doesn't have the motion blur that we were getting from the stills. This idea could be taken in many different directions. One could certainly experiment more with different shapes and how they might affect the smoke's behavior.