

Get Wet : Report

Sunday, February 7, 2010

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Image 1)

Image 2)

Original image

Manipulated image.

Introduction

Get Wet was a project to get its participants thinking about the physics behind fluid dynamics as an artistic medium. My goal was to capture the effects of a splash between a drop of milk and a puddle of milk the instant after they make contact. By making the drop purple and leaving the puddle white I hoped to see how the fluids mixed directly after the impact.

QuickTime™ and a
decompressor
are needed to see this picture.

Figure 1

Set up

In order to capture the splash the best the milk puddle was placed on a black table. A three-point light set up was used to illuminate the splash. Three 500-watt omni lights were used as Key, Fill, and Back lights. Figure 1 shows the position of the three lights in relation to the puddle and camera. A syringe was used to drop one drip of milk at a time. A plum bob was used to align the puddle and the syringe to ensure the drop would land in the center of the puddle. Gravity was the only force acting on the dropping milk. The camera was focused on the center of the puddle.

Technique

Both the drop and puddle of milk was composed of mixture of condensed milk and 2% milk. The ratio was 3:1 (two parts 2%, one part condensed milk). The drip mixture was dyed a light purple. The puddle was left the normal color of milk. This allowed for a noticeable clue of where the milk came from (drop or puddle) in the droplets of the splash.

The camera used was a digital SLR Canon 40D. The photo was captured as a RAW file approx 12.4MB, 3,888 by 2,592. The field of view of the image was approximately 6cm by 6cm. The camera was approximately 30cm away from the puddle. The lens focal length was 75mm. Aperture was set to 7.1. The camera shutter speed was set to 1/2200. The ISO of the camera was 1600. The original image was cropped and color corrected using iPhoto. Contrast, sharpness, shadows, and color saturation

was increased from the original image. The levels were also adjusted to make darks blacker and lights slightly whiter; this was done to emphasize the area directly under the splash point.

Image

The image reveals the splash between the puddle of milk mixing with that of drop of a similar mix. The purple dye allowed the dropped milk to be distinguished from the milk of the puddle within the splash, although a better color could have been used to stand out more against the white milk and the black background. The image shows the physics of a splash between the two bodies of milk. This image met my goal of capturing the instantaneous moment of collision between a drop of milk and a puddle of milk. I would be interested to know how the thickness of the puddle affects the shape and direction of the splash.

I would improve this image by adding more intense light to the set up. This would allow a lower ISO to be used. By using a lower ISO the f /stop could be increased, with an increasing f /stop the depth of field would be increased as well. With a greater depth of field more of the actual splash would be able to be in focus. This would allow for the physics of the splash to be observed around the complete point of impact, not just the adjacent areas to the focus plain.

I enjoyed this first project. I took over 800 different photos. The ones that I took with dropping milk into a puddle of milk intrigued me the most. Although I don't know all the physics behind why the milk acted this way, the results intrigued me. I would like to continue capturing the rare and quick moments of fluid dynamics such as this through out this semester.