01.Intro

Welcome to Flow Vis!

Today:
- Syllabus
- First Assignments (8? 9!?!)
- Schedule

3 handouts:
1. Syllabus
2. Initial Assignments
3. Copyright Agreement

http://www.danielwurtzel.com/air.cfm   <file://C:\Users\hertzber\Documents\01CLASSES\FlowVis\MeetingsPapers\58AestheticsDFD2012\WurtzelPas_de_Deux.flv>

Background Survey:

You'll get an email from CATME.org to fill out a survey that will be used to form teams.

Important! When putting in your schedule, check the times you are NOT available.

Also important! Instead of Writing Skills, rate your photographic equipment and experience:

1. If you have a DSLR or dedicated video camera, and you are experienced with editing stills or video rate your writing Skill as 'Exceptional'.

   If you have a DSLR or dedicated video camera (or plan to buy one within a week or two) but not much experience, rate your writing as 'Above Average'.

2. If you only have a point-and-shoot camera but it has manual features (control over focus and exposure), rate yourself as 'Average'.

3. If you have a point-and-shoot, but it doesn't have manual features, or you don't know if it does, rate your writing skills as 'Marginal'.

4. If you don't have a camera or only have a cell phone camera, rate your writing skill as 'Needs Improvement'.

Syllabus

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RTFM

Initial Assignments
Flow Visualization: The Physics and Art of Fluid Flow
Spring 2014

Due Tuesday 1/21, start of class:

1. **Fluids Perception Survey:** You will receive an email invitation and link to the online survey. The software will know if you respond, but your responses will still be anonymous. This is part of a research project on the effectiveness of this course. Participation is voluntary, but is expected and much appreciated. You may opt out of the survey, but still get credit via a link in the email.
2. **Copyright Agreement Form** signed hardcopy due in class.
3. **Syllabus Agreement Form** signed hardcopy due in class.
4. **Flow Vis Background survey:** This survey will be used to place you on teams of mixed backgrounds, skills and equipment. Again, you will receive a link at your CU email address.
5. **Best of Web**. Look over course materials, and previous years' images and reports. Explore the links page too. You need to know what has been done in order to push the boundaries of new work. For this assignment, choose an online image or video that you feel exemplifies the best art/science flow visualization. **Your submission must include attribution to the original author of the image or video**. If you can't find out who the original author is, you must choose a different work. You will be asked to vote on your classmates' choices (and they will vote on yours). Due via D2L.
6. **Camera Survey**. (Optional) If you already have a camera, enter its specifications and your opinion about it to help other students choose one for themselves. (Survey is in progress.)

Submit as a post in the 'Best of Web' discussion, not dropbox

Look at others' posts, and vote.

Due Tues 1/28, start of class

7. **Vote** on 'Best of Web' in D2L.

Due Monday Feb 3 by *4 PM*:

8. **Image Assignment 1: Get Wet**.

The purpose of this assignment is to "get your feet wet". Make a picture of fluids (air or water, gas and/or liquid, any fluid, any combination of fluids) that both (1) demonstrates the phenomenon being observed and (2) is a good picture. Use any imaging technique you are familiar with, analog or digital, still or video, black and white or color, positive or negative, flash or available light, etc. Make the clearest, sharpest, cleanest, most interesting picture possible.

This means you will probably need to set up a situation, control your variables, do it once, observe the results and do it again once you know what works and what doesn't. **Keep notes** on what you've done for your write-up. You should expect to spend 20 hours on this assignment, including the write-up.

You are welcome to work in teams to create the image you want, but you are individually responsible for your own final image. Formal teams and more elaborate projects will be set up for later assignments.

Everyone's images will be displayed and critiqued in class beginning Tuesday 2/4. *You will be expected to bring your laptop and enter comments on everyone's images.* Your comments will be anonymous, signed only by your MEID number, which will be available in the D2L grade book.

All images must be accompanied by a short REPORT, <u>due one week</u> after your image is critiqued. If your image is critiqued on a Thursday, your report is due at 5 pm the next Thursday. See the Report Guidelines document on the website for info.

To speed posting your image on the website, please provide the following, in the D2L assignment drop box:

a) Final image: the best resolution file you have of your final image or clip, for future large format prints and presentations. TIFF, png or Photoshop formats preferred; jpg and raw formats are ok for unedited images. Use the best resolution setting that you can. If your camera only takes jpgs, use the largest file, finest jpg setting. **If you edit the file (and you should at least crop appropriately) DO NOT SAVE AS A JPG.** Save as TIFF, PNG or some other lossless format instead.

b) Original: Whatever your original (still) camera file is. Raw, CR2, NEF, jpg, whatever. If you are shooting video, unedited video clips are required if your video processing includes color shifts or distortions.

c) Reports, one week after your image is critiqued in class: Both a Word document of your report, and a pdf , both in the D2L dropbox designated for reports.

d) SAF: A completed image self-assessment form, also in the D2L report dropbox, on the same date that your report is turned in.

Image assignments are due 4 pm the day before critique begins, so I have time to put the slideshow together before class.

Please include your last name as part of each file name. If D2L is a problem, you can use CU-Boulder Safe File Transfer (https://accellion.colorado.edu) or email the files to hertzberg@colorado.edu or, as a last resort, drop off a CD or a USB memory key to ECME 220 (will be returned in class). Submitting via D2L is much preferred.

Hints for Get Wet:

- Using the built in flash on your camera usually results in ugly images. Use something like white cardboard, foil, or tissue to 1) bounce the light so it comes from a different direction and 2) diffuse the light to soften the shadows. A small light tent and a couple of lights are available for checkout in the Durning lab.

- Avoid distracting backgrounds. Tabletop photo tents and seamless backdrops are available for checkout in the Durning lab.

- If you image a drinking glass or bottle, make sure no distracting text or logos are visible on the glass.

- If you use a fish tank or other glass enclosure, be careful about where the flash reflects off the glass (to become a distracting white hole in your photo).

- Automatic focus systems often have trouble with fluid images, which have no sharp lines. If your camera has a 'focus lock' feature (try pressing the shutter button halfway), lock on a ruler or other sharp-edged object held in the desired focus plane before you make the image, or use manual focus.

- Almost any deficiency in color balance, contrast, etc., can be adjusted in Photoshop, but this requires a working familiarity and access to the program. The Quickstart Photoshop book is the easiest entry point if you don't know the program. Some instruction will be given in class.

Safety considerations: If you want to work with **flames**, you must follow the combustion guidelines posted on the website. When working with household materials, you are pretty safe if you stick to personal hygiene (i.e. soaps and shampoos) and food products. If you are working with cleaning or medical products, or lab chemicals, you must discuss them with me first, and you may be required to submit a safety proposal.

Due Weds 2/19/13, 4 pm.

9. **The Photography of Clouds.** There will be two Clouds Assignments, with the first due **Weds Feb 20**, and the second image due Monday April 7. This is to give plenty of opportunity to observe a variety of atmospheric conditions. *Images made before January 10 2012 will not be acceptable for the first assignment, and images made before February 20 2012 will not be acceptable for the second assignment.* Exceptional images made prior to this course can be submitted in addition to new images for discussion and posting, please document them as best you can. *Be sure the date set in your camera is correct; it will be used to place your image on the website in chronological order.*

Cloud image submission should include

a) your edited image
b) your original (unedited) image
c) the appropriate Skew-T diagram
d) a short statement of cloud type and stable or unstable atm. Not a document, just a short note.
e) One week after your image is critiqued in class you will submit a report, and an assessment form, same as for all the other images/vids. Your report should also include the appropriate Skew-T diagram. See the Report Guidelines document for additional details on the cloud report requirements.

Photograph a cloud. In fact, photograph clouds as often as possible, and start as soon as possible. You will soon discover that it is not easy to do but that it is a very pleasant diversion from everything else that you do.

Do keep track of where, when, and how the image was made, including what direction you were facing. *Your report must include atmospheric sounding data* (e.g. a Skew-T diagram; we'll cover how to download the data in class from http://weather.uwyo.edu/upperair/sounding.html) and discuss the physics revealed. There will be a series of lectures on cloud physics to help you interpret your images. The most common problem is selecting the wrong date/time for the sounding data. The morning data is taken with a 12Z time, with the correct date. Evening data will have 00Z time *for the next day*. The Report Guidelines document includes information for you cloud reports.

The most famous "cloud" photographs were made in black and white by the legendary early twentieth century New York art dealer, photographer, and husband of Georgia O'Keefe, Alfred Steiglitz. He called them "equivalents" and considered them to be music.

Sunrise and sunset are sometimes quite colorful or even extraordinary, but may be difficult to picture in a satisfying way. During the day, individual clouds can be extremely interesting. In the course of this assignment you will discover what the English writer and amateur photographer George Bernard Shaw once said about the photographer: "The photographer is like the cod (fish) who lays a million eggs so that one may hatch." So, keep

looking up and keep pressing the button. And, if you have access to an extreme wide angle lens as well as a telephoto lens, use them as needed and as often as possible. Also consider making a short time lapse video instead of, or in addition to a single image. Some digital cameras have software to automate this process, and you can check out an automatic time from Prof H. Quicktime Pro is an inexpensive program that can easily turn a sequence of image files into a video.

Clouds require that you think outside the box.

Additional hints:
- No doubt you have seen the absolute black skies of Ansel Adams, with brilliant picturesque white clouds. This trick is accomplished using a red or orange filter with black and white settings. A circular polarizing filter can be used to heighten contrast in color images, but they are pricey and may cause color shifts. This can also be simulated in Photoshop afterwards, at least to some extent.
- Good cloud images can be acquired from airplanes. Be sure your window is clean, and sit in front of the wing if possible, on the side towards the sun.
- Again, many cameras have difficulty focusing on clouds. A manual setting for infinite focus distance is best. You might be able to do a focus lock on a distant hilltop.
- Avoid foreground objects like trees or buildings unless you specifically want them in the image. Parking lots and structures often have good sky views.