

CS 1301 – Special Effects Extreme

Due: Friday April 3rd, before 11:55 PM EST

Out of 150 points

Files to submit: hw7.py

individual input images as jpeg or gif files

example animated gifs demonstrating the effects

Pair 2: This is a pair programming assignment!

You are expected to work with the person you have been paired with in class, and you are both responsible for submitting the exact same code to T-Square. Follow good pair-programming practices by working together at a single computer and switching the driver/navigator role frequently. Your pair may collaborate with other students in this class. Collaboration means talking through problems, assisting with debugging, explaining a concept, etc. You should not exchange code or write code for other pairs. Collaboration at a reasonable level will not result in substantially similar code. For pair programming assignments, you and your partner should turn in identical assignments.

For Help:

- TA Helpdesk – Schedule posted on class website.
- Email TAs
- Newsgroups

Notes:

- **Don't forget to include the required comments and collaboration statement (as outlined on the course syllabus).**
- **Do not wait until the last minute to do this assignment in case you run into problems.**
- If you find a significant error in the homework assignment, please let a TA know immediately.

Part I – The Assignment:

This is an open-ended group assignment where your robots will become the director, camera man, and editors of the next big Hollywood Hit. One or more robots will be used to take a series of pictures using their cameras, the images should then be manipulated to create a series of special effects. In your next assignment you may write, direct, shoot and edit a feature film, using the special effects you develop here. You have been assigned to groups to do this homework in your recitation.

Create innovative robot camera work/special effects. Your group can do as many special effects as you want, but can only earn up to 150 points (e.g. you can do above 150 points if you are worried that you may lose points on one of your effects). You must use the Myro picture/image functions, and NOT use Calico Graphics Objects framework. (If you find yourself typing “import Graphics” you are doing something wrong.)

Several examples:

- Seeing-Red (15 pts) -- Make a picture have a red tint.
- Fade (35 pts) -- Fade a video of multiple pictures gradually to black.
- Overlay (35 pts) -- Draw text or some graphic on top of a picture.
- Multiple Exposure (50 pts) -- Combine multiple frames into one, giving the effect of extended exposure by averaging their pixel values.
- Cross-Fade (40-50 pts) – Animated fading from one picture (40pts) or video (50pts) into another.
- [Split-Screen](#) (40-50 pts) -- Combine two pictures (maybe from two robots!) into one frame (40pts) or combine two moving videos into a single video (50 pts).
- Green-Screen (50 pts) -- Film using a green background, later replace the green background with some other image.
- Screen-Shake (45 pts) – Image on the screen “shakes”.
- [Lens-Flare](#) (20 pts) – Create spot(s) of light somewhere in the picture.
- Make Your Own (10 - 100 pts) -- The point value will depend on the novelty and difficulty. Let us know what you think it is worth and we'll take that into consideration.

Resources

- [Notes](#) about the Myro image interface.

Have fun with this! Save all your code in a file called **hw7.py**. If your code does not demonstrate the effects you have created iteratively, you should also submit animated gifs called **<name-of-effect>.gif** to show off your special effects, but you will still need to submit the python code behind it all. If your code runs fast enough to display the special FX in real-time, you do not need to turn in an animated gif file. If it will take a long time to re-create your special effect, we recommend you turn in one or more effects.gif file(s) [you may name them based upon the effect] to demonstrate the special effects you have created. You may submit before and after images (named appropriately) for effects such as seeing-red or overlay, which only involve a simple change.

Part II – Turning it in:

As per the usual, **EACH** group member needs to submit a copy of the group’s file(s) to T-Square before the deadline. Don’t forget to include a collaboration statement with your other group member’s names.

You should submit the input images you used, a sample output image or animated gif for each of your special FX functions, as well as your special FX python code.

Happy filmmaking!

Part III – Grading Criteria:

Here is an idea on how the effects will be graded.

- Seeing-Red (15 pts) – The picture has more red than any other color, but not just a pure red box (-10 pts for not being able to tell what the scene in the picture is).
- Fade (35 pts) – The video starts in full color (10 pts), ends in full black (10 pts), and the change is gradual (15 pts).
- Overlay (35 pts) – The text/graphic is obviously on top and not part of the picture. This can be either a still image, or an overlay on top of a movie.
- Extended Exposure (50 pts) – There are at least 2 distinct scenes visible in the same picture.
- Cross-Fade (40-50 pts) – It starts with one complete picture (10 pts), ends with a completely different scene (10 pts), and slowly fades so that you see both at the same time in the middle (20 pts for static picture, 30 pts for video cross fade).
- Split-Screen (40-50 pts) – There are parts from 2 distinct images combined into a single image (40 pts), and both are “moving” with multiple frames (animated) at the same time (+10 pts)
- Green-Screen (50 pts) – A “sprite” is overlaid onto the background with irregular edges. The “sprite” was originally shot on a solid color (not necessarily green) “screen”, and only the non-screen-colored pixels were copied from the source (sprite) movie to the background image or movie.
- Screen-Shake (45 pts) – Image stays intact, but moves from side to side, or up and down, or both.
- Lens-Flare (20 pts) – There is at least one spot of light (white or light-colored pixels).

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