

CS 1301 – Special Effects Extreme

Due: Wednesday November 7th, 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 will 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). Several examples:

- Seeing-Red (15 pts) -- Make a picture have a red tint.
- Tempo-Change (20 pts) -- Change the tempo of the video in an interesting way. For example, you can capture images at 5 frames per second, and then duplicate (double up) each frame in playback to make the output appear to be in slow motion.
- Robot-Zoom (15 pts) -- Move the robot toward a scene while taking photos to create a zoom effect.
- 360-view (15 pts) -- Use the robot to take a 360 degree movie of a scene by rotating.
- [Dolly-Shot](#) (20 pts) -- Use one robot (or maybe two!) to pan across a scene.
- Fade (35 pts) -- Fade a video 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 it with some other image.
- Screen-Shake (45 pts) – Image on the screen “shakes”.
- [Lens-Flare](#) (20 pts) – Create a 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, you should also submit an animated gif called **effects.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 shots (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.

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).
- Tempo-Change (20 pts) – The speed of the video is different from which it was filmed at. (make it a drastic change for full points).
- Robot-Zoom (15 pts) – The main object(s) in the video gets closer/bigger as the video progresses (gradual, not far then right up close). The object does not move, only the camera.
- 360-view (15 pts) – The movie shows a full 360 degree view around the root. There is nothing missing from the surroundings (obvious holes -10 pts). The movie ends with the camera facing the same direction it started.
- Dolly-Shot (20 pts) – The movie shows a “side-view” that progresses to the left or right.
- 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 2 distinct videos on the screen at once (20 pts), and both are “moving” at the same time (30 pts) (20 pts for two images only)
- 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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