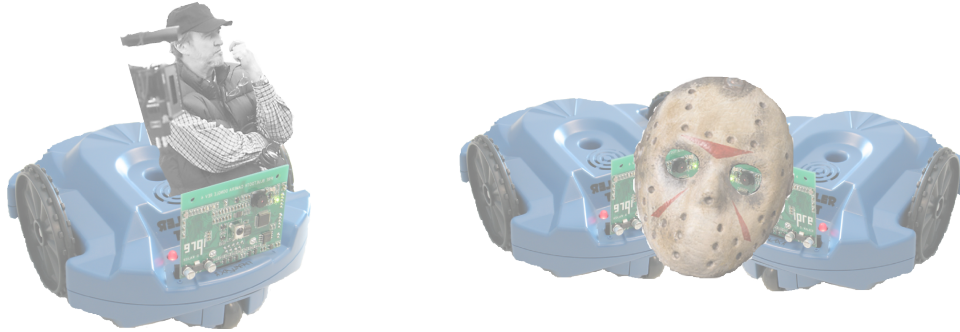


# CMSC 143: Object-Oriented Programming with Robots

## Assignment 2 – Robot Shorts



Your robots will become the director, camera operator, star actress, editor, and accompanying orchestra of the next big Annandale-on-Hudson blockbuster. This group project (two or three people per group) will extend over two assignments (one lab and one assignment). Your robots will take a series of pictures using their cameras, then you will write Python programs to edit and modify the film using various special effects. Your movie should showcase one or more famous computer scientists, for example Ada Lovelace, Alan Turing, Grace Hopper, or some of the Turing Award winners<sup>1</sup>.

### Special FX Lab – Thursday, October 20th

Implement 100 points worth of special effects. Some example effects:

- Seeing-Red (20 pts) – Make the scene have a red tint.
- Tempo-Change (20 pts) – Change the tempo of the scene in an interesting way.
- Robot-Zoom (20 pts) – Move the robot toward a scene to create a zoom effect.
- 360-view (20 pts) – Use the robot to get a 360° view of a scene.
- **Dolly-Shot** (20 pts) – Use one robot (or maybe two!) to pan across a scene.
- Fade (30 pts) – Fade a scene to black.
- Overlay (30 pts) – Draw text or some graphic on top of a scene.
- Cross-Fade (40 pts) – Fading from one scene into another.
- Screen-Shake (40 pts) – Shake the image by moving it slightly.
- Split-Screen (40 pts) – Combine two shots (maybe from two robots!) into one frame.
- Green-Screen (40 pts) – Film using a green background, later replace it with some other image.
- Extended-Exposure (40 pts) – Combine multiple frames into one, giving the effect of extended exposure.
- Make Your Own (10 - 100 pts) – The point value will depend on the novelty and difficulty.

One person from the team should submit the Python code as a zip with any sample .jpg file(s) for the effects:

```
cmsc143-sfx-LASTNAME-FIRSTNAME
    sfx.py
    any-test-images.jpg
```

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<sup>1</sup><http://amturing.acm.org/byyear.cfm>

## Your Movie — Monday, November 14th

Each member should submit a team evaluation describing what each team member contributed:

**cmssc143-movie-LASTNAME-FIRSTNAME.txt**

One person from the team should submit the Python code, a copy of your movie as an animated .gif (and optionally, a youtube link), and a behind-the-scenes powerpoint presentation.

```
cmssc143-movie-LASTNAME-FIRSTNAME
  movie.py
  movie.gif
  movie.ppt
```

The one-slide powerpoint should address the most interesting and challenging aspects of the project. You should create an animated gif of your movie using `savePicture(listOfImages, ‘output.gif’)`. In addition, you can use iMovie or the program *VirtualDub* (installed on the lab computers) to convert a series of JPEG images to an AVI movie file.

## Film Screening — Monday, November 21st

Film screenings and the robot academy awards — the Walters<sup>2</sup>. During the film screening you will also present the behind-the-scenes presentation (one-slide; 4 minutes) describing the most interesting aspects of your movie making process.

- The Walter for innovative robot camera work.
- The Walter for outstanding robot performance.
- The Walter for stellar special effects.
- The Walter for superb screenplay.

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<sup>2</sup>Named after Grey Walter, a neurophysiologist who created some of the first autonomous robots.