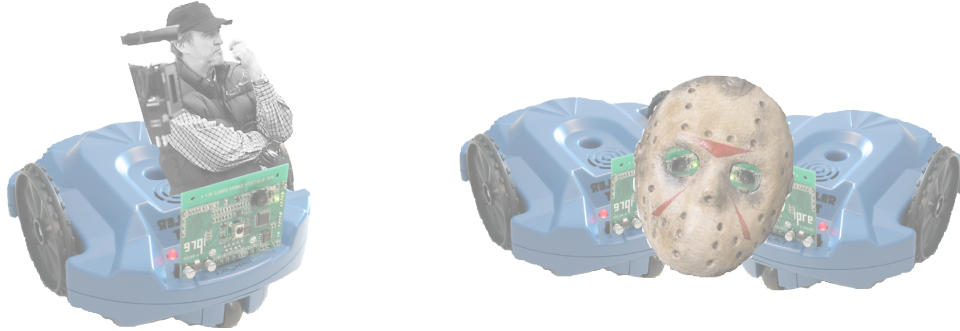# CMSC 143: Object-Oriented Programming with Robots
Assignments 3 & 4 – Robot Shorts

Your robots will become the director, camera man, 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. 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. Finally, with the help of a robot (or computer) providing an accompanying soundtrack, you will play your film.

Special FX – Tuesday, March 24th

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.
- 3D Image (40 pts) – Use multiple images to create a red/blue anaglyph 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.

Each member should submit a team evaluation describing what each team member contributed: **cmsc143_specialfx_NAME.txt**.

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

```
cmsc143-assignment3-LASTNAME-FIRSTNAME/
      sfx.py
      testimages.jpg
```

Your Movie — Thursday, April 9th

Each member should submit a team evaluation **cmsc143_movie_NAME.txt**.

One person from the team should submit the python code, a copy of your movie either as a youtube link, or .gif or .mov file, and a behind-the-scenes powerpoint presentation.

```
cmsc143-assignment4-LASTNAME-FIRSTNAME/
      movie.py
      move.gif or movie.mov or movie.avi
      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 the program *VirtualDub* (installed on the lab computers) to convert a series of JPEG images to an AVI movie file. We'll go over this process during lab.

Film Screening — Thursday, April 9th

Film screenings and the robot academy awards — the Walters[1]. 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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[1]Named after Grey Walter, a neurophysiologist who created some of the first autonomous robots.