CompSci 94
Storyboards and Camera Markers
January 30, 2018

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Class Today

• Setting up Camera Markers and moving between them
• Storyboards
• Classwork – Draw/write a storyboard that uses camera markers
• Be sure to checkoff your classwork when done
Top 10 List – Surviving CompSci 94

10. Ask Questions
9. Read the Book
8. Visit your professor in her office
7. Learn how to spell Rodger
6. Start early and keep working until it is correct
Top 10 List (cont)

5. Read the Compsci 94 bulletin board - Piazza
4. Attend class – Be on time!
3. Disconnect (email, facebook, chat, text) and focus/think about what you are doing
2. Seek help when stuck (1 hour rule)
1. Keep number for Lilly’s Pizza handy
Animation Programs: Scenarios and Storyboards

• 2-step process for creating animations
  – Step 1: Design (or Algorithm)
  – Step 2: Implementation (Translate to code)
Step 1: Design

• Decide on problem to be solved
  – Often problem is given to you, by instructor or boss
  – Other times, you make it up!
  – We will do both

• Design a solution
  – Use a storyboard design
Example Problem (scenario)

• The scenario is:

A spaceship with an astronaut Amy has landed on the moon and Amy is walking around. Suddenly a sound, and an alien peeks out from behind a rock. The camera zooms in to get a good look, then pans out. Amy runs to the ladder and the alien hides. Amy goes up the ladder to the ship and the alien peeks out again. The ship takes off and the alien asks “don’t you want to play?”

• The problem is:

How can we create this animation?
Designing a Solution

• First decide on objects for the scene
• Then, create a storyboard
  – A list of actions
• A storyboard can take two forms
  – Sketches
  – Textual “to do” list
Objects in the scene

- Objects: Amy, alien (hidden), ship with ladder down, rock
- Opening scene: a moon scene
- A quick sketch:

- Don’t have to be an artist!
Storyboard Template

- Scene number
- Scene sketch (picture)
- Description
- Sound
- Text
Storyboard
Scenes 1 and 2

List of objects:
ship, ladder, Amy, rock, alien

Initial Scene

Noisel, An Alien appears to the right of the rock.
Amy turns toward the rock.
Storyboard
Scenes 3 and 4

List of objects:
ship, ladder, Amy, rock, alien

Camera zooms in to get good look at alien. Then zooms back to original location.

Amy runs to ladder while Alien runs behind rock.
Storyboard
Scenes 5 and 6

List of objects:
ship, ladder, Amy, rock, alien

Amy goes up into spacecraft. Then ladder goes up. Alien comes out of hiding.

spaceship takes off and Alien says “Don’t you want to play?”
Storyboard in Text form

• Animation artists (Disney or Pixar) sketch their storyboards
• You may not have such expertise, so can also use a textual form

Alien peeks out and makes noise.
Amy turns head towards sound.
Camera zooms in and back out.
Amy runs to ship, alien hides.
Amy goes up into ship, ladder up, alien peeks out.
Ship takes off, Alien wants to play.

Like a “to do” list
How does Pixar make movies?

**THE PIXAR PROCESS**
There is a scene in *Toy Story 2* when the old man repairing Woody tells the impatient toy collector Al, “You can’t rush art.” This is especially true at Pixar, where films go through four stages: development, creating the storyline; pre-production, addressing technical challenges; production, making the film; and post-production, “polishing” the final product. Use the lever to the left to learn about the specific steps of each stage.

**HOW WE MAKE A MOVIE**
*Pixar’s Animation Process*

1. **A STORY IDEA IS PITCHED**
   A Pixar employee pitches his or her idea to other members of the development team in a way that’s reminiscent of a sales pitch. The real challenge is to get the audience to believe in the idea and see the possibilities in it.
How does Pixar make movies? (cont)

2. THE TEXT TREATMENT IS WRITTEN
A treatment is a short document that summarizes the main idea of the story. Sometimes, many treatments of the same idea will be developed in order to find the right balance between solid ideas and open possibilities, which will be filled in later by development and storyboard artists.

3. STORYBOARDS ARE DRAWN
Storyboards are like a hand-drawn comic book version of the movie and serve as the blueprint for the action and dialogue. Each storyboard artist receives script pages and/or a “beat outline,” a map of the characters’ emotional changes that need to be seen through actions. Using these as guidelines, the artists envision their assigned sequences, draw them out and then “pitch” their work to the director.
Storyboard example

Title: A Space Scare

Objects Used: Astronaut (Amy), UFO, tea Table (hidden), rocky Outcrop, alien

Initial Scene

Noise! An Alien appears to the right of the rock.
Amy turns toward the rock

Camera zooms in to get good look at alien.
Then zooms back to original location

Amy runs to ladder while Alien runs behind rock

Amy goes up into spacecraft. Then ladder goes up. Alien comes out of hiding.

spaceship takes off and Alien says "Don't you want to play?"
Camera Control

- Remembering a Camera Position with a tripod
  - May move the camera, then want to move it back
  - May want to remember a good camera position
- Use Camera Markers (like a tripod)
  - **ALWAYS** save original camera position before moving camera
To create a CameraMarker (tripod)

• Click on “add Camera marker”
Create Camera marker (cont)

• Give it a name and a color

• Then it appears here:
Create another camera looking at alien

- Need to move alien out from behind rock
- Use purple camera controls and move close to alien
- Add another camera marker, green this time
Move Camera back to original view with a one shot

1) Select camera
2) Select one shot
3) Select Move and Orient to
4) Select Camera marker
Result: You can see camera marker in front of alien (won’t show when click play)
Move back and you can see camera for original position
Moving the camera with code

• Move camera to a Camera marker or use moveAndOrientToAGoodVantagePointOf without a camera marker

• ALWAYS save a camera marker of start view
From Storyboard to Code

• Alien peeks out and makes noise. 
  Amy turns head towards sound. 
  Camera zooms in and back out. 
  Amy runs to ship, alien hides. 
  Amy goes up into ship, ladder up, alien peeks out. 
  Ship takes off, Alien wants to play.

Convert this to Code
Final Code

declare procedure myFirstMethod

do in order

- this.alien delay 2.0

do together

- this.alien playAudio new AudioSource _gasp_male_08.mp3 (1.41s)_
- this.alien move LEFT, 2.0 add detail

- this.Amy turnToFace this.alien add detail

- this.camera moveAndOrientTo this.cameraMarkerNearAlien, duration 2.0
- this.camera delay 1.0

- this.camera moveAndOrientTo this.cameraMarker1, duration 1.0 add detail

- this.Amy turnToFace this.teaTable add detail

do together

- this.Amy move FORWARD, 10.5 add detail
- this.alien move RIGHT, 2.0 add detail
Final Code (cont)
This lecture covered

• Setting up camera markers
• Moving the camera in one shot or in code
• Writing a storyboard and then translating to code.