

## Description and Requirements<sup>1</sup>

### Requirements

- The main activity in this course is a semester-long group project. The size of groups for animation projects can vary but each group should consist of at least three students. **Objective** of this project is to create a short animation. *Short* here implies something on the order of at least few minutes. Animation may not necessarily be a complete story. It could be a **vignette** or a scene that might be in an animation.
- **Animation ideas:** Look at the animation gallery/projects as well as user galleries on through my web page and rest of the web. There are some amazing examples and may give you some ideas. You are limited only by your imagination.
- **Group responsibilities:**
  - Producing a web page for the project and keeping it up-to-date on their progress, including a written description, current storyboard, sample stills, and sample animations.
  - Making several presentations throughout the semester explaining the progress, presenting the design of the animation as it evolves, and showing partial results.
  - Producing a final animated product.

### Choosing the Project

Be careful in how you choose your project. Your idea and how well you design it will have a major impact on your success.

- Don't be overly ambitious. This is only a semester project.
- Think about what you need to do in order to pull off the project.
- Good projects are ones that can be done at various levels of sophistication (see 'Complexity' below). A project whose success is dependent on one complex technique may fail miserably if that technique doesn't work how you expected it to.
- One of the main things you need to learn in this course is how difficult it is to do a good looking animation. It is relatively easy to get something moving; it is another thing to present it to the viewer so that the viewer can tell what's going on.

### Parts of the Project

The project will consist of the following:

1. Documentation
2. Presentations
3. The final animation.

The animation will have four components:

- The storyboard - the description of what the animation will look like.
- The models used in the animation
- The renderings of individual frames showing scene composition and lighting
- Animation – a sequence of frames showing final motion

The entire group should work on the story ideas and development of the storyboard. It is important to have certain group members be primarily responsible for the different tasks: model building, scene layout, shading, motion, and lighting.

There will be four presentations by each group concerning the status of the animation throughout the term:

1. Sketch storyboard
2. Developed storyboard, all sketched and few developed models, few developed frames and sketch animation.
3. Final models, final frames, developed animation
4. Final animation, presented at the final exam time slot

Each student is responsible for being involved in the presentations.

### Levels of Complexity

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<sup>1</sup> Partially adopted from Prof. Rick Parent (Ohio State University)

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*Don't underestimate how hard it is to do good animation.* Animation is very much a trial-and-error process. As such, it requires a lot of time to do right. You save yourself a lot of time by attacking the problem intelligently. Plan how you're going to test the different facets of the animation and how you're going to progress from one stage to the next.

It is important that you develop the animation using various **levels of complexity**. For example,

- Use simple rendering to test motion
- Use simple objects and shading to test motion and camera positioning.
- Use simple motion (or no motion) to test rendering and camera placement

### Documentation

Each group is required to maintain a web site containing the following information:

- Members of the group,
- A written description of the animation, tasks, progress, problems, solutions, etc.
- Storyboard for the animation,
- Outline of tasks, which member is responsible for the task, and status during the term,
- Milestones for the project and status during the term,
- Estimated time required for rendering,
- Sample images from the animation as they become available,
- Sample motion sequence from the animation as they become available,
- If you borrow 3D models from other sources, please attribute them appropriately. If you make your own 3D models, let me know that in your hand-in, so that I can give you credit for that work in your final grade. However, please do not hand in the end result of a tutorial you have walked through for some animation system.
- *Be sure to attribute all sources of models, textures, and sound effects and music.*

### Presentations

Part of your grade is based on your participation of group presentations. It is expected that **EVERYONE** will participate, at least a little, in **EACH** presentation and everyone is expected to participate equally in all presentations for the entire term. Each of the first three presentation will be 6% of the total project points.

#### Presentation 1: Preliminary Proposal (Jan. 28, 2015)

This presentation should take about 10 minutes, plus time at the end for any discussion or questions.

Each group will present, for critique by the rest of the class, the following:

- A **storyboard** consisting of half a dozen to a dozen (hand-drawn) key frames and an explanation of the action, including timing estimations for the shots
- A list itemizing the **tasks** to be done and a tentative timeline,
- **Assignment** of tasks among group members,
- **Milestones** needed to complete the project and a timetable for getting them done,
- Thoughts on how will you implement the project.

All of this should be put on the project web page.

At this point, the storyboard should be considered a proposal that is subject to change. Remember, this is a **tentative** plan. This is not cast in stone. You can modify as you see fit in the next couple of weeks. But I want you to start seriously considering what you're going to do for your project. The group should be looking for constructive feedback from the rest of the class on the storyboard and should be prepared to modify the storyboard based on the feedback it gets. Similarly, with respect to the tasks and their assignment, expect constructive criticism. You may also be critiqued on your "in-front of class" presentation mechanics.

#### Presentation 2: Final Proposal and Initial Progress Report (Feb. 11, 2015)

Each group will present, for critique by the rest of the class, the following:

- **Final storyboard and animatic** - the timing of the scenes should be completely nailed down so you know the length of the piece down to the number of frames.
- Finalized **tasks, assignments and milestones**,
- **Basic models** of few of the objects used in the animation with perhaps **reasonable models** of some.

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- **Sample scenes** showing camera positions and model placement in several frames of the animation. The rendering of these can be crude: line drawing or simple polygonal models.
- An **animatic** (search the web to find out what is animatic) showing timings of sequences and camera moves using either still scenes or blocked out movement through scenes

The storyboard, models and scenes as well as the other information should be made available on the web. The information should be integrated into the web site so that it can be easily browsed. By this time, the general story should be pretty firm and there should be no question about the feasibility of the project. However, there is still room to make some adjustments to the storyboard when problems are encountered along the way.

### Presentation 3: Intermediate Progress Report (Mar. 18, 2015)

Each group will present, for critique by the rest of the class, the following:

- **Final models** of **ALL** objects used in the animation.
- **Computation times** for sample scenes in the animation. This together with the number of frames of the piece should give you a very good idea of how much computation time you'll need to complete the project.
- At least few sample **fully rendered scenes** showing camera positions and model placement in several frames of the animation.
- **Simple motion studies** showing crudely rendered every-nth-frame animation.

The models and scenes should be made available on the web. A demonstration of the motion desired should be made at this point. Refinement of the other aspects should be well underway.

### Presentation 4: Final presentation of animation (Project submission date/time)

The final animation will be shown during the final exam time. The presentation should start with an explanation of the techniques used to produce the animation, who did what, all of the software's used, problems encountered and how they were resolved. At this time, you should also be submitting a written document listing all of the details about the animation, etc. like that has been done throughout the term.

### Final Editing

For the animation, you should do about a minute of animation with sound and titles.

**Soundtrack:** You can easily add a simple soundtrack to the animation using Premier. You won't need to do any precise synching of sound unless you want to.

### Grading

Grading of the project is based on:

- Difficulty of the techniques considering the background of students involved in the project.
- The overall quality of the presentations to the class.
- The sufficiency of the information in the group web site.
- The quality of the results presented during the final presentation.

If the project is not completed by the time of the final presentations, the animation may be completed by taking an incomplete. However, the grade for the project will be reduced. The group must still make a presentation at the time for final presentations showing whatever results they currently have.

Grading of the individuals in the group is based on:

- Grading by peer group mates.
- Complexity of assigned tasks and quality of work (considering background of student),
- The participation of the student in the class presentations.

### Some general comments about animations:

1. The most successful animations are those that have a simple idea that is done well. Try to avoid being too ambitious. Generally speaking, very often projects involving organic objects such as human/animal fail miserably (generally due to lack of time and/or level of difficulty).

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2. Making an animation is like producing an entire movie. You are the writer, director, set designer, artist, photographer, sound effects engineer,... Each of these aspects of the animation requires attention. Professional animations have experts dedicated to each of these areas.
3. The most technically challenging aspect of animation is timing. Make use of draft renderings of animations, so that you can test the timing of your animated objects and camera. For example, make sure your camera does not pan too quickly. Be aware that the speed of the real-time wire frame previews that you see in the animation system may not correspond to that of the final rendered video.
4. Pay attention to lighting. Too much lighting can create washed-out scenes with muted colors. Not enough lighting results in dark, obscured images. Shadows can occur with ray-traced environments, and they are particularly difficult to deal with.
5. Make sure your models are clearly visible in the animation. If the models are too far away, or obscured by other objects, then the viewer will not even notice them. See note 3 above as well, because a fast camera can zoom by a model too quickly.
6. Try not to move your camera around too much. Quickly turning cameras and those that uses zoom too frequently are difficult to watch. If your models are doing lots of movement, then keep camera movement to a minimum. Separate camera cuts that are spliced together are probably more effective than to move the camera itself.
7. Be aware of aliasing problems:
  - a. Temporal: if objects move cyclically, make sure they don't synchronize with the frame rate of the movie.
  - b. Texture: if textures are rendered at a finer resolution than the video file, they can "sparkle" in each frame.
8. Give yourself plenty of time for rendering the final video. If you have a lot of complex models and textures, lighting effects such as reflection and refraction, and special effects such as particles and explosions, then rendering can take hours and perhaps days.

### **COPYRIGHT ISSUES:**

It is expected that none of the material used in your project will be in violation of any of the copyright laws. It is exclusively **your responsibility** to make sure if the material you would like to use is freely available or requires explicit permission from the author/owner of the information. If you have exclusively obtained permissions from the owner of the material, it is **your responsibility** to make sure that the terms allow you to make modification in it. **REMEMBER** that free availability on the Internet doesn't mean that it is copyright free. You need to carefully review the "**Terms of Agreement or Use**" and it **MUST** be part of the documentation. In case you are required to seek explicit permission from the author/owner of the copyrighted information, this permission and its correspondence (including emails) should be part of your documentation. Your animation **MUST** start with a title and must also contain your names with semester. Credits **MUST also include** name of the professor and affiliation with the School of Computer Science and the University of Windsor along with all other necessary credits. The final animation **MUST** have a declaration to indicate that it is a "*student project*" and that it "*does not violate any copyright laws*" as well as credit to the sources, as necessary.

Please understand that your professor and School of Computer Science at the University of Windsor along with the group members jointly own the rights of the final product. Your professor may use your work for non-commercial activities, even in modified form, without any explicit permissions from you. This includes making it available through web-site, submission to a exhibition or conferences, School's promotional activities etc.