Snowfall: More Winter frivolity

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`http://scompt.com/school/classes/animation-algorithms/snowfall`

Summary

I plan to implement the technique for modeling falling snow described in [MMAL05]. I would like to apply it to a simple scene with the ultimate goal of an animation similar to the one that Moeslund et al. presented. I don't intend to model the accumulation of the snow at all at this point, although this may be one possible extension point for the project.

System and Software

All of my animation and rendering will be done offline using one of the RenderMan renderers available. Initial tests have been done using 3Delight and aqsis, but I would also like to experiment with prman. Because of the render time possibly needed, I will attempt to distribute the rendering. I will be describing and animating the scene using cgkit [cgk], a python interface to the complete RenderMan API. Initially, animation parameters will be given in code or through command-line arguments. Eventually, a simple GUI may be written to set the parameters. At this point, these parameters are unknown, so the GUI cannot be described.

Project Timeline

I will likely follow the same steps taken in [MMAL05].

- Model a snowflake. Create spinning snowflake movie.
- Model simple movement of snowflake.
- Model the wind field the snowflake is floating in.
- Combine everything into an animation containing some addition objects (house, etc.)

Ideally, there would be a week or so between the accomplishment of each milestone. I will have the chance to do some work over Christmas break, so hopefully the first milestone and some work on the second one can be done.

Final Presentation

For the final presentation, I will probably display the completed animation. The results of the above milestones would also be good to show to illustrate the evolution of the code. Also, renders from intermediate steps in the algorithm would be useful to illustrate the algorithm.

References

[cgk] The python computer graphics kit. http://cgkit.sourceforge.net/.

[MMAL05] T.B. Moeslund, C.B. Madsen, M. Aagaard, and D. Lerche. Modeling falling and accumulating snow. *Vision, Video and Graphics*, 2005.