CIS 6600: Advanced Topics in Computer Graphics and Animation

Authoring Tool Project (Spring 2026)

Instructor: Dr. Stephen H. Lane
University of Pennsylvania

The goal of this project is to review state-of-the art research in the fields of computer graphics and animation as well as provide students with working knowledge of how to convert theory to practice by developing an associated graphics/animation authoring tool. Working in teams of two, students will design and develop an authoring tool that that facilitates the creation of a new type of user interaction, animation/simulation capability or 3D graphics special effect. Research papers published in the SigGraph Conference proceedings over the period 2015-2025 will provide the basis for the features/functionality/special effects that can be selected for implementation in the authoring tool. Each group will analyze the need and user requirements for the tool they plan to develop, prepare a formal software design document, construct a project work plan, develop the authoring tool functionality and user interface, test the design and demonstrate the authoring of associated content. A plug-in to standard authoring tools such as Maya or Houdini must also be developed to enable importing of appropriate assets and/or exporting of results.

DELIVERABLES

The authoring tool project includes the following deliverables:

1. **High Concept** doc for the Authoring Tool – Due Wed., Feb. 11th

   - Please use the template provided for your High Concept Doc

2. **Literature Survey** for your Authoring Tool Design Doc – Due Wed, Feb. 18th

   - In order to create the Literature Survey, you will need to read the papers referenced in the paper you have chosen to implement, then chain backwards through a number of levels of references until you identify/reach the seminal work(s). Once the seminal work(s) have been identified, you can then chain forward to trace the evolution of the research. In this document you need to include a tree-like graph showing the evolution of the research from the seminal work to the paper you have chosen to implement along with descriptions of the enhancements/improvements/ contributions made by each of the subsequent works. Examples of the Literature Survey can be found in the Modules/Authoring Tool/Literature Survey Example section of the CIS6600 Canvas site

3. **Authoring Tool Design Doc** – Due Wed, Feb. 25th

   - Please use the template provided for your Authoring Tool Design Doc. Examples of the past Authoring Tool Design Docs can be found in the Modules/Authoring Tool/Design Doc Examples section of the CIS6600 Canvas site

4. **Version Due Dates and Design Reviews**
   - Preliminary Design Review – Wed, Feb. 25th
   - Alpha Version/Design Review – Wed., Mar. 25th
   - Beta Version/Design Review – Wed., April 15th
   - Final Version Demo – Wed, May 5th

5. **Final Version**
   - Final Version Project Code and Videos Due – May 11th