

EIN 5255 Written Research Assignment

You may choose from a wide variety of topics relevant to simulation. Below is a list of some topics that students have used in the past. You may choose one of these or create your own.

Applications Subjects:

1. Medical Simulation and Training –First Response and Surgical
2. Military Simulation- Wargames, Simulators, Analytical Tools
3. Gaming and Entertainment- Computer Simulation Games and Park Rides
4. Terrain Modeling and Tools
5. Distributed Virtual Worlds and the Internet

Technical Subjects:

1. Computer Games vs. Simulations
2. Character Animation: Motion Capture (MoCap) vs. Inverse Kinematics (IK)
3. 3D Modeling Techniques: Polygons, Voxels, etc.
4. Virtual Reality Modeling Language (VRML) vs. Java3D
5. OpenGL vs. Direct 3D
6. Collision Detection Techniques

Application papers may address the following points:

- the gain from using Simulation
- Previous methods (alternate to Simulation)
- Different Simulation technologies used in that domain
- Example of different applications in that domain
- State of the art products
- Hardware & Software
- Gaps in today's technology and future directions

Technical papers may address the following points for each method:

- Description (hardware & software)
- Pros and Cons
- Where would you use one vs. the other
- Example of applications
- State of the art technology
- Gaps in today's technology and future directions

Format for the paper shall follow those used for papers submitted to the Winter Simulation conference (www.wintersim.org) or to the Simulation Interoperability Workshop (www.sisostds.org/siw/). Text in the body of your paper SHALL NOT be more than 10 pages. Following the text, include a reference list and an appendix containing **a copy of all articles used**. You may have as many additional pages of references and appendices as you wish.

Grading emphasis will be as shown in the class syllabus.

Papers must be submitted electronically – e-mail, floppy, and CD-ROM are all fine. Reference materials may be submitted electronically or on paper if electronic versions are not available.