Advanced Computer Graphics (4190.504)

Spring, 2002

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Course URL: http://3map.snu.ac.kr

Classroom: 302–308
Time: Tues, Thurs 13:00–14:15

1. Course Description:
   This course covers basic algorithms and systems that deal with three-dimensional modeling and processing in computer graphics and 3D games. In particular, special emphasis will be given on

   - three-dimensional modeling of flexible objects,
   - computing bounding volumes of three-dimensional objects,
   - collision-detection and avoidance among objects moving in three-dimensional space,
   - computing the Minkowski sum of free-form objects, and
   - computing the distance between two objects bounded by free-form surfaces.

   The official language of this course is English.

2. Prerequisites:
   Computer Graphics (4190.410)

3. Grade:

   - Midterm: 100 pts
   - Final: 100 pts
   - Homeworks, Quizzes & Projects: 100 pts

4. Text Book:

   - Related Research Papers and Lecture Notes, etc.

5. References:

   - Gerald Farin, Josef Hoschek, and Myung-Soo Kim, editors, *Handbook of Computer Aided Geometric Design*, Elsevier Science, Amsterdam, 2002.

Weeks	Lectures	Projects
3/4–9	Introduction	
3/11–16	3D Shape Modeling	
3/18–23	3D Shape Modeling	
3/25–30	3D Shape Modeling	
4/1–6	Computing Bounding Volumes	
4/8–13	Distance Computation	
4/15–20	Distance Computation	
4/22–27	**Midterm Exam**	
4/29–5/3	Computing Minkowski Sums	
5/6–11	Computing Minkowski Sums	
5/13–18	Collision Detection	
5/20–25	Collisiton Detection	
5/27–6/1	Haptic Rendering	
6/3–8	Motion Design	
6/10–15	Motion Planning	
6/17–22	**Final Exam**	