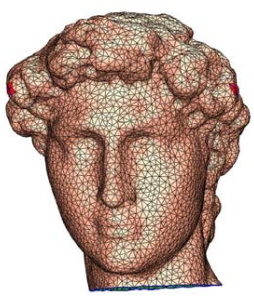
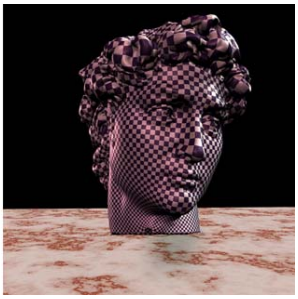
# EE 4700-2 (Fall 2009) Geometric Modeling and Computer Graphics

**Course Webpage:** http://www.ece.lsu.edu/xinli/teaching/EE4700Fall2009.htm





**Instructor:** Professor **Xin (Shane) Li**
(URL: www.ece.lsu.edu/xinli Email: xinli@lsu.edu)

**Lectures:** TUE/THU 12:10-13:30, 2150 Patrick Taylor Hall

**Course Description:**

- To provide knowledge on OpenGL, graphics modeling algorithms, techniques, and their applications;
- An introduction course on computer graphics and modeling; good programming skills and math background can easily follow it
- To teach how to design your own graphics interfaces and use C/C++ and openGL to **build/edit 3D graphic models**, **render realistic pictures**, and **generate animations**

**Prerequisites:**

- Calculus and linear algebra (vectors, matrices, …)
- Programming experience: homework and projects require substantial programming effort
  (So you are expected to know C/C++ programming and standard data structures)

**Tentative Contents:**

1. Basic computer graphics pipeline, basic OpenGL programming
2. Shape representation and modeling: how to store, represent, and render 3D geometric objects
3. Enrich the visual effects: Texture mapping, bump, normal and environment mapping, shadows and anti-aliasing
4. Broader applications in visual computing: shape deformation and morphing; collision detection; shape comparison and retrieval; animation…

**Homework and exams:**

1. One warm-up assignment, two regular homework assignments;
2. One course project (with a midterm presentation), you can pick the topic and team up for it;
3. One final exam;

**Grading and Course Project Topics:**

Please check the course webpage http://www.ece.lsu.edu/xinli/teaching/EE4700Fall2009.htm for details

**Textbook: (recommended, but not required, slides will be provided)**

"The OpenGL programming Guide", web version: http://www.opengl.org/documentation/red_book/

"3D Computer Graphics", by Alan Watt, 3rd edition, Addison Wesley 1999.