

CSc 59866

CAPSTONE I

Prof. George Wolberg
Dept. of Computer Science
Spring 2007
MW 11:00am - 1:45pm

In this project-based course, students are grouped into teams to work on projects of practical importance in digital image processing, computer graphics, and computer vision. The capstone course will last two semesters. In the first semester, we will study key principles in these imaging fields. The second semester will focus on implementation of exciting real-world problems. Available project topics include:

- image processing algorithms for enhancement, reconstruction, antialiasing, and visual effects
- music visualization (as in iTunes or Winamp)
- computer graphics algorithms such as (non)photorealistic rendering
- 3D surface reconstruction and visualization from range scans
- video processing algorithms
- other topics based on the interests of the students and professor

In the first semester, after fundamental principles are introduced, each team chooses one topic, performs research, and specifies deliverables, milestones, and work plan. In the second semester, each team continues their project with detailed design, implementation, integration, testing, and evaluation. The project is delivered with full documentation at the end of the second semester.

Programming can be done in C/C++ or Java. High-level C++ GUI toolkits such as Qt (www.trolltech.com) will be introduced so that students can integrate their work directly into a professional graphical user interface. The OpenGL graphics API will be introduced so that students can implement high quality graphics rendering using the same tools that are currently in use by producers of video games and computer animations. Background in image processing, computer graphics, or computer vision is helpful but not necessary. The course material will be entirely self-contained.

More course info can be found at:

www-cs.ccny.cuny.edu/~wolberg/capstone