

EST 323 / CSE 524: CG-HCI

Introduction – Computer Graphics

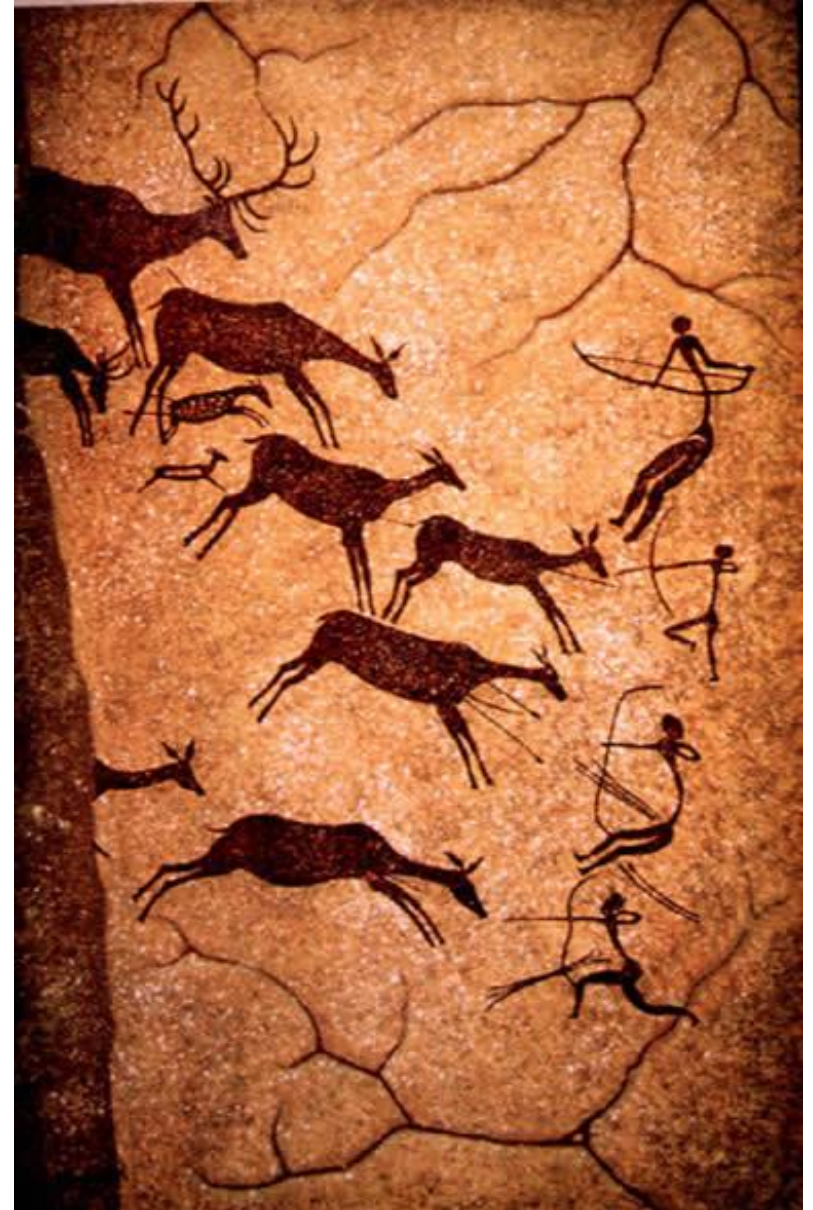
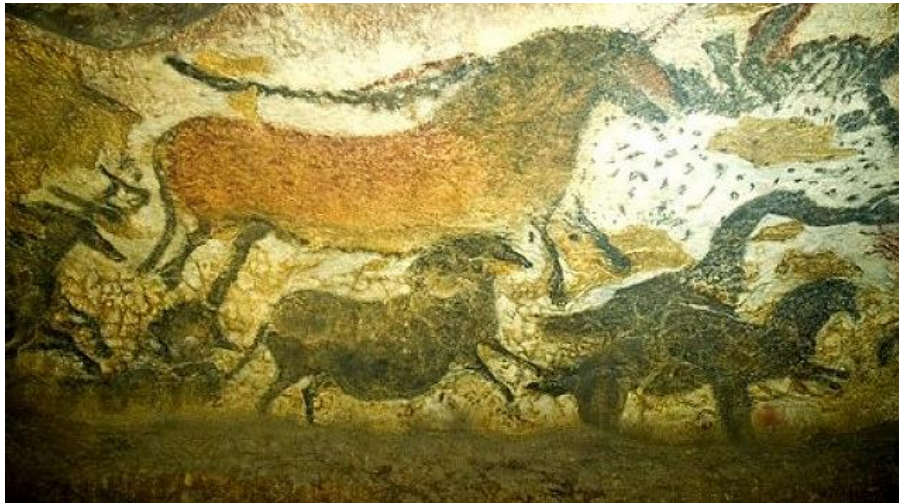
Klaus Mueller

Computer Science Department

Stony Brook University and SUNY Korea

Graphics: Has Fascinated Humans Early On

Cave Paintings: 32,000 years ago

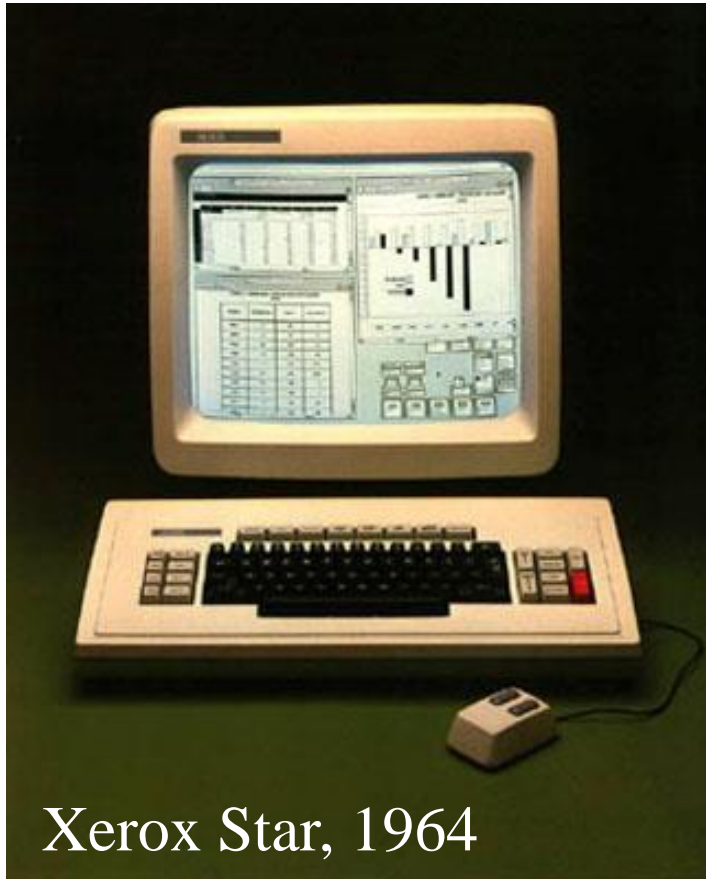
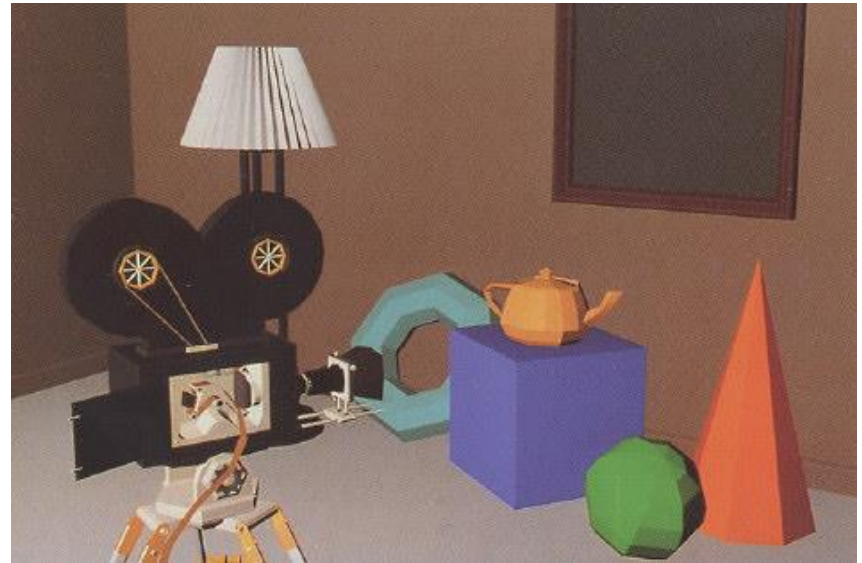


Computer Graphics: How it all began...

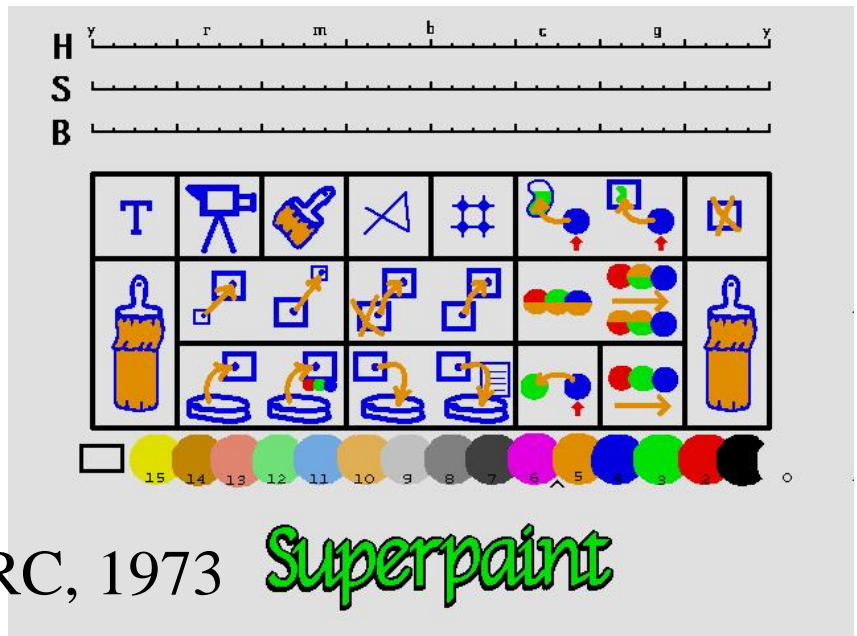
History [video 1](#)

History [video 2](#)

Pixar



Xerox Star, 1964



PARC, 1973

Superpaint

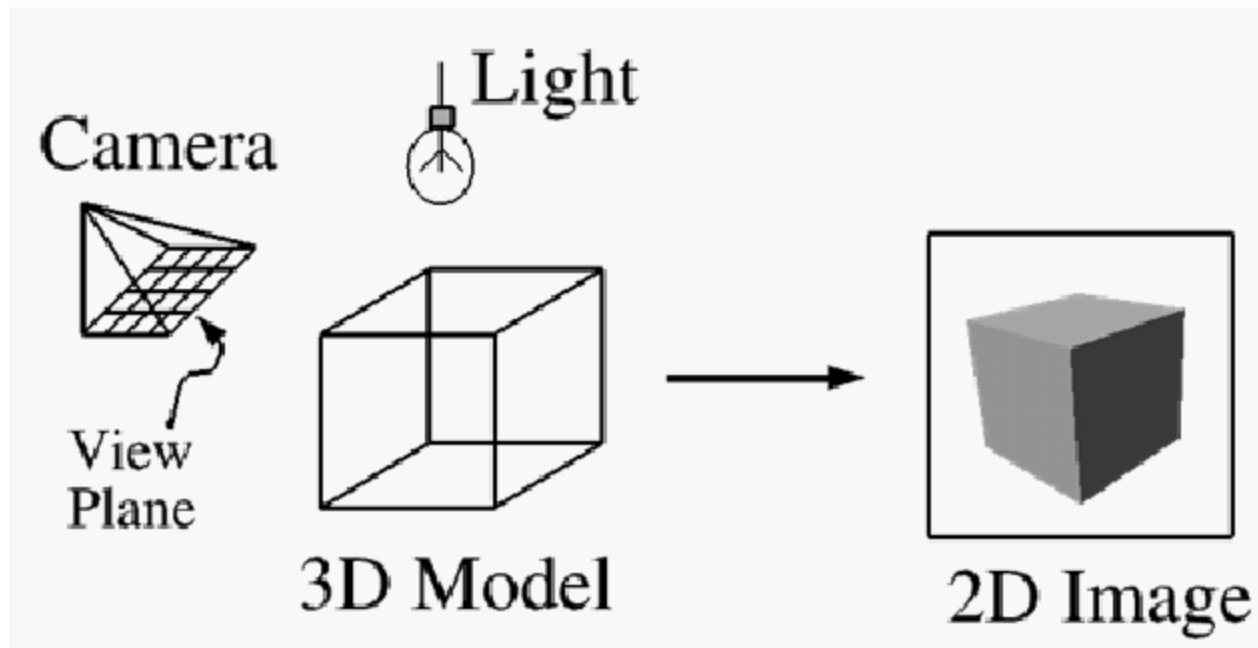
Computer Graphics: What We Will Talk About

Imaging → *representing 2D images*

Modeling → *representing 3D objects*

Rendering → *constructing 2D images from 3D models*

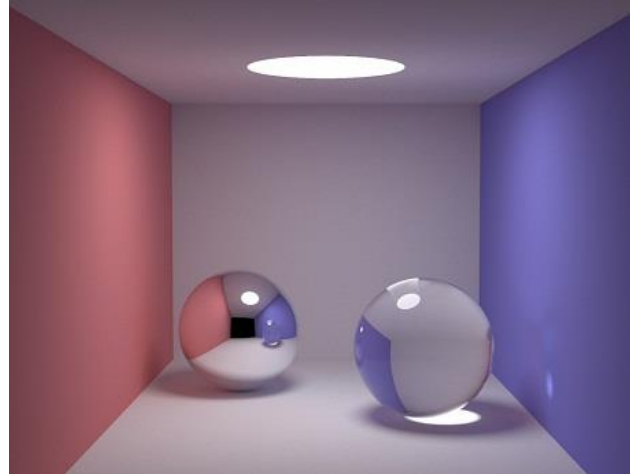
Animation → *simulating changes over time*



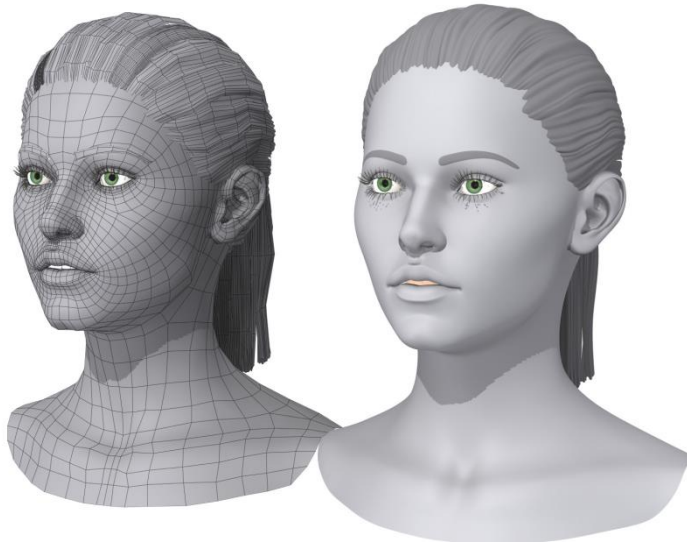
Computer Graphics: What We Will Talk About



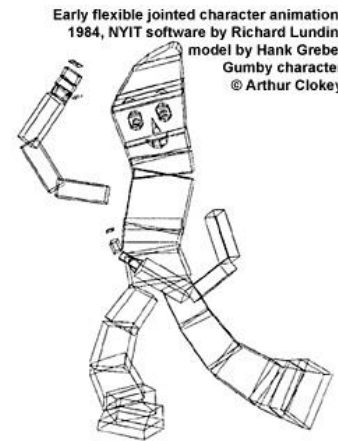
I. Image processing



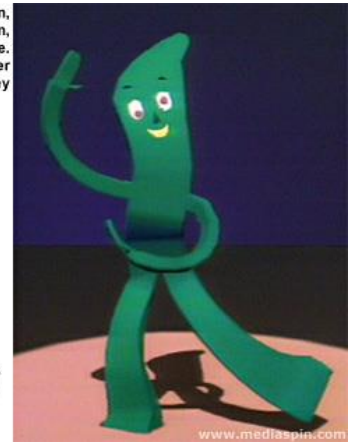
II. 3D rendering



III. Geometric modeling



Early flexible jointed character animation,
1984, NYIT software by Richard Lundin,
model by Hank Grebe.
Gumby character
© Arthur Clokey

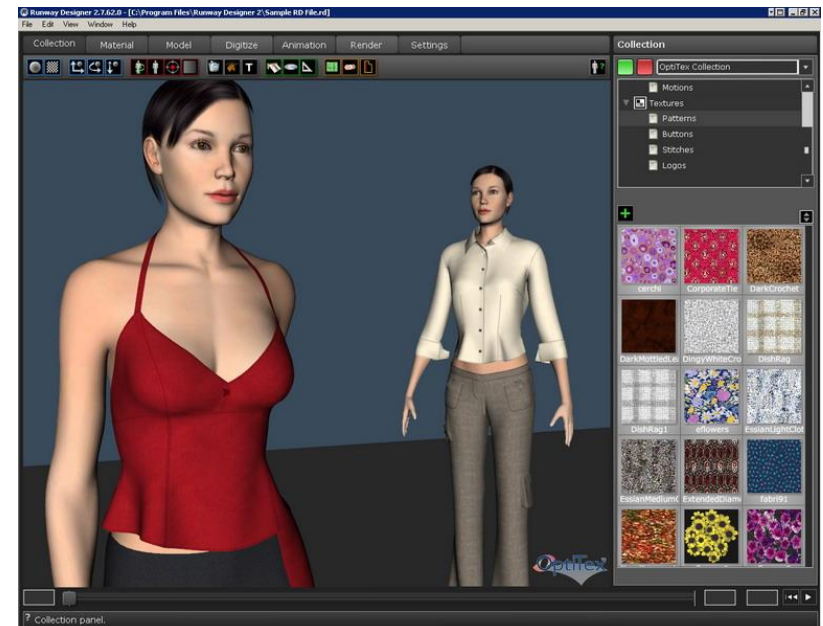
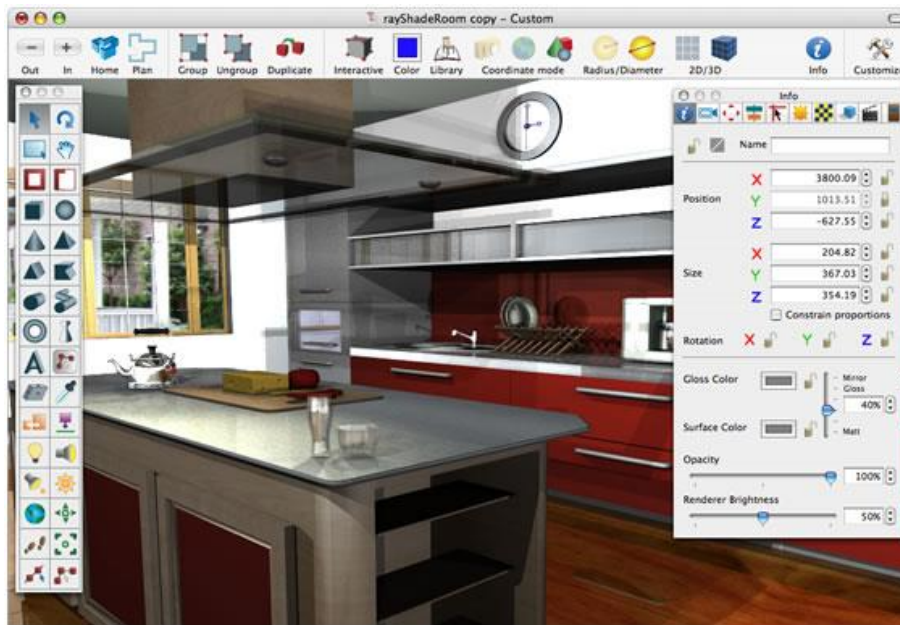
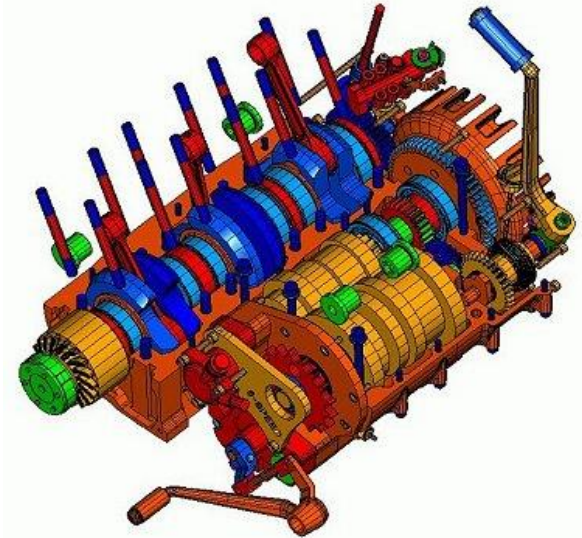
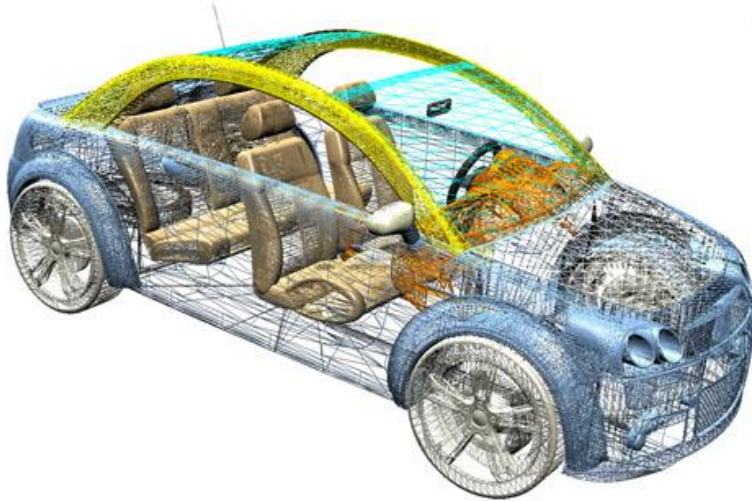


IV. Computer animation

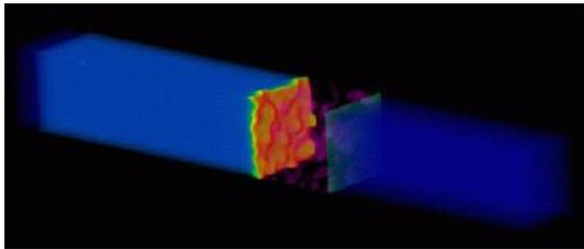
Applications: Entertainment



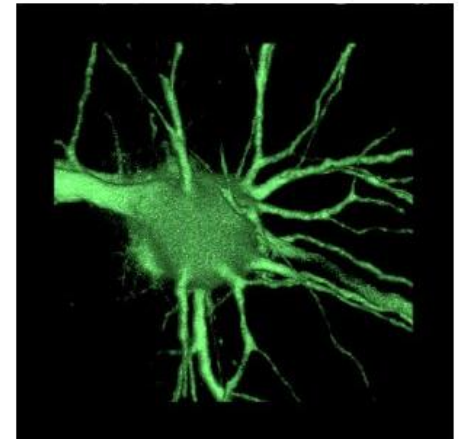
Applications: Computer-Aided Design (CAD)



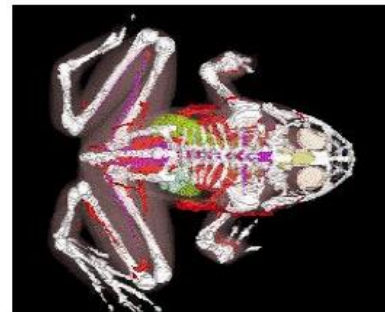
Applications: Scientific Visualization



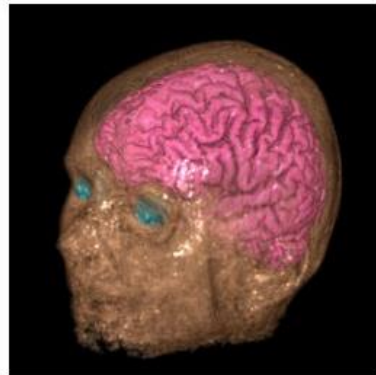
shock wave



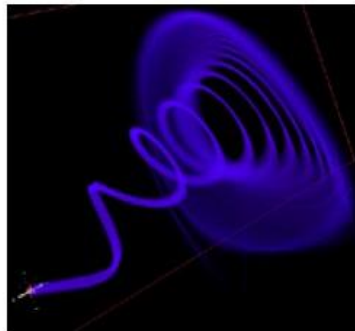
nerve cell



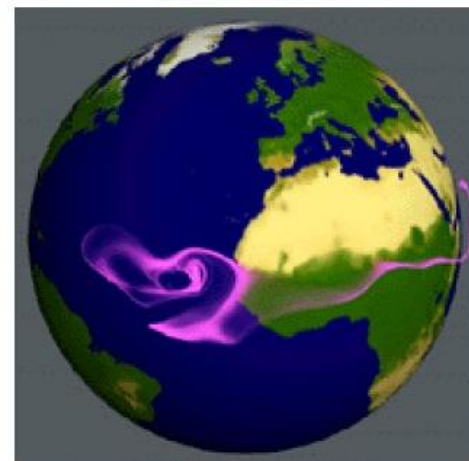
virtual frog



transparent MRI head



spiral flow



wind flow

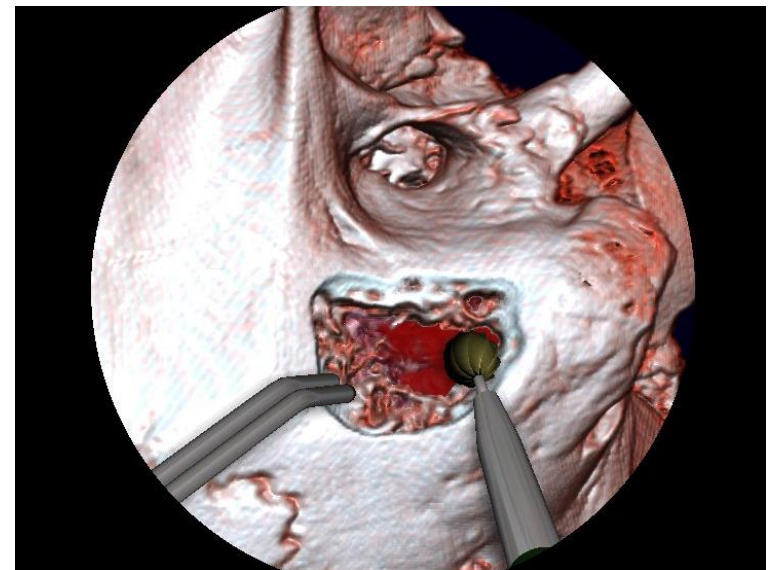
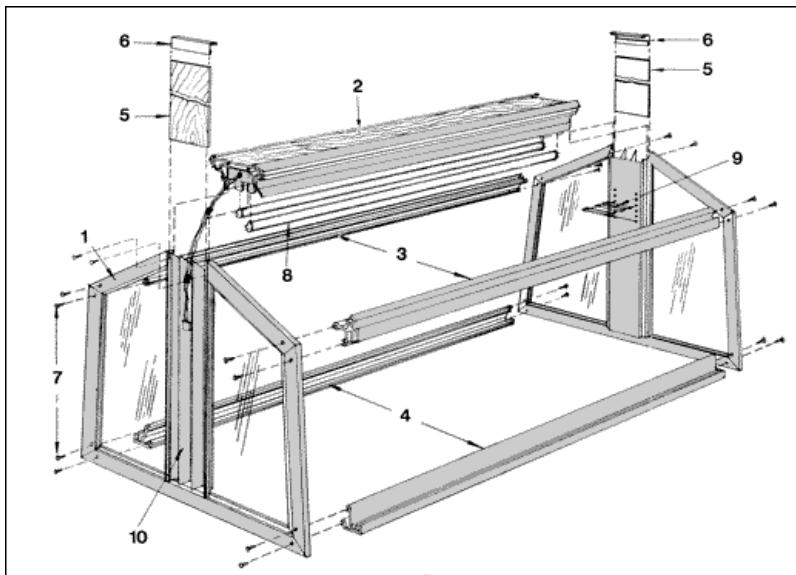


MRI head

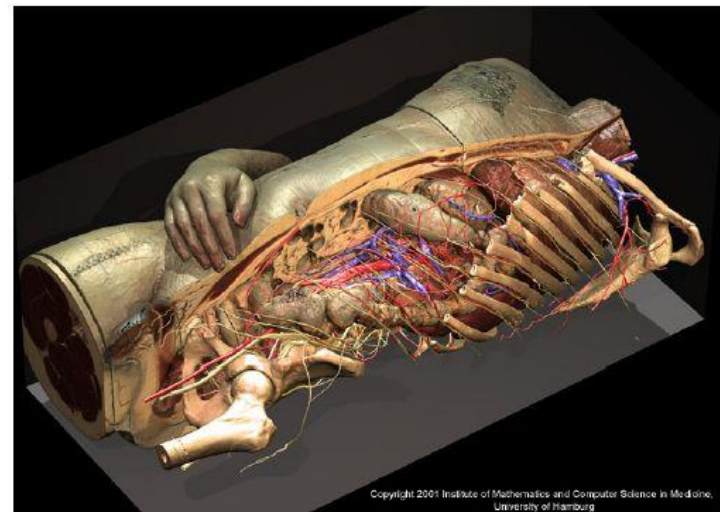
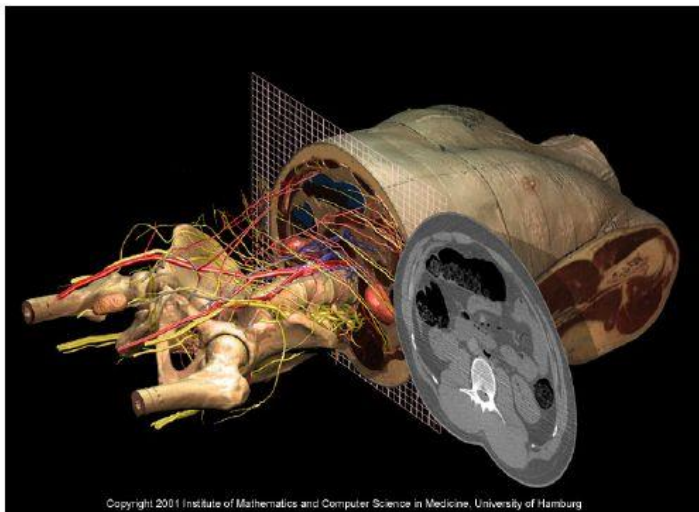
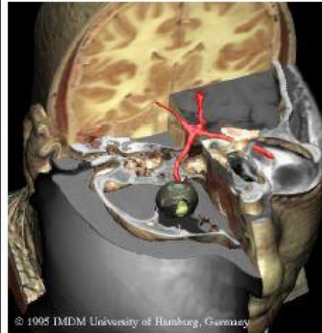
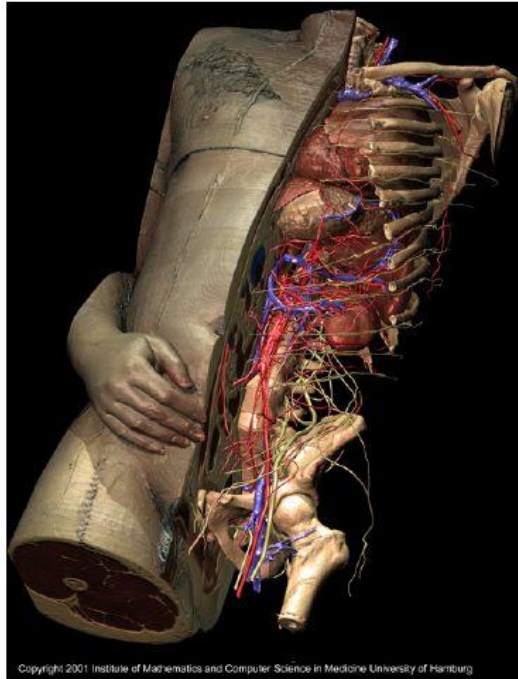
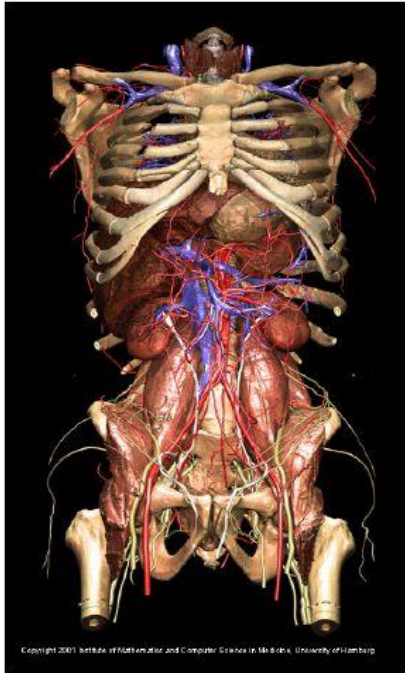


semi-transparent
tomato

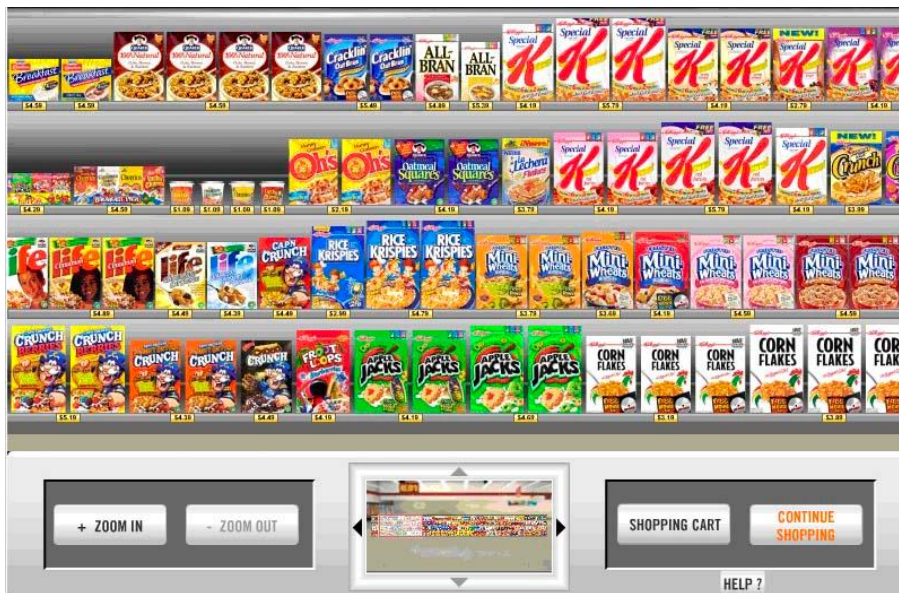
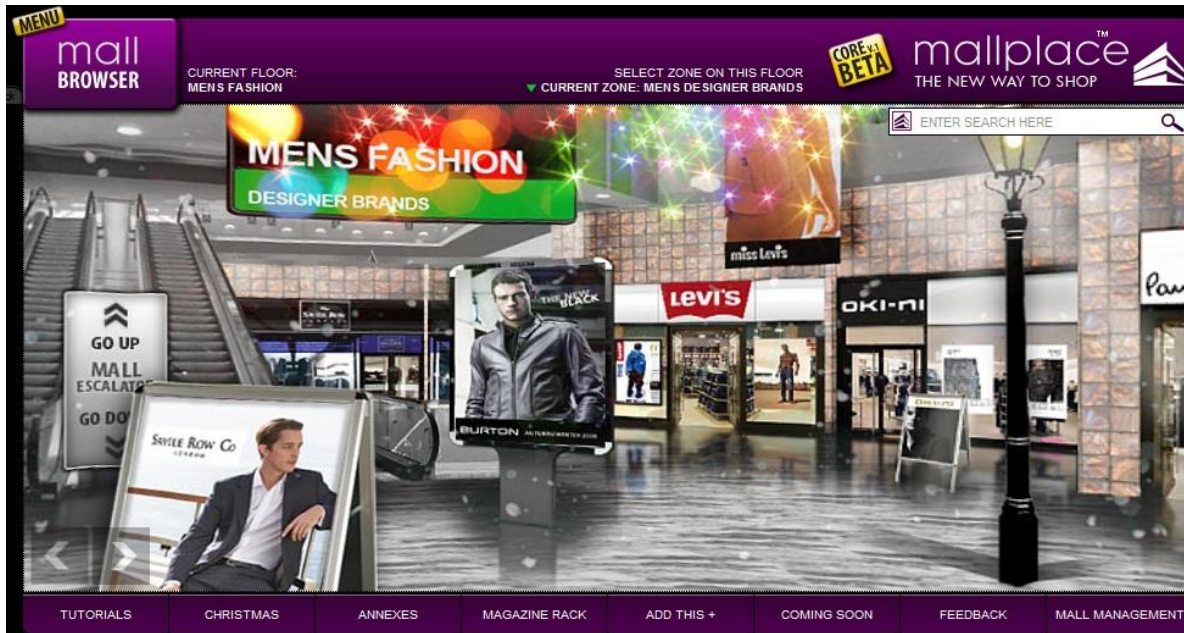
Applications: Training



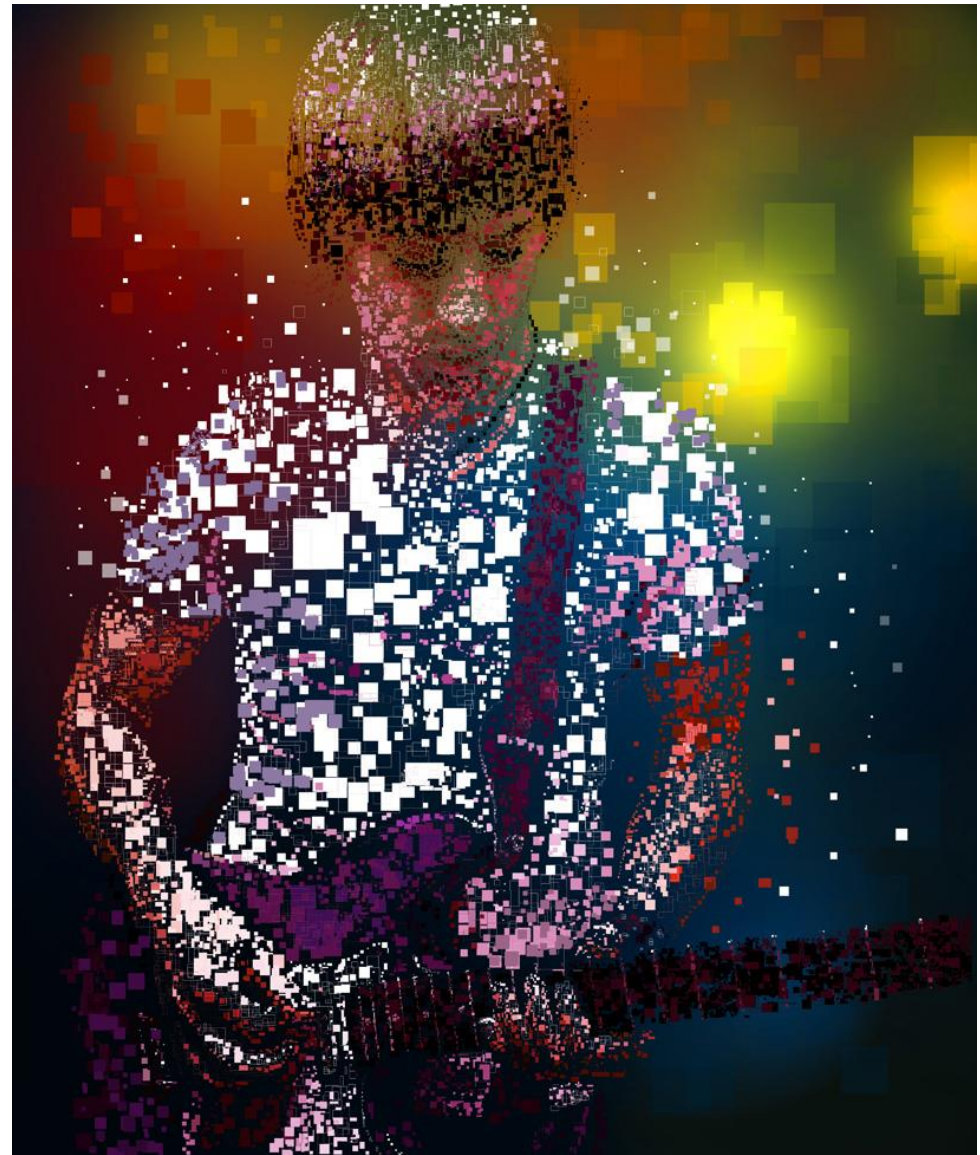
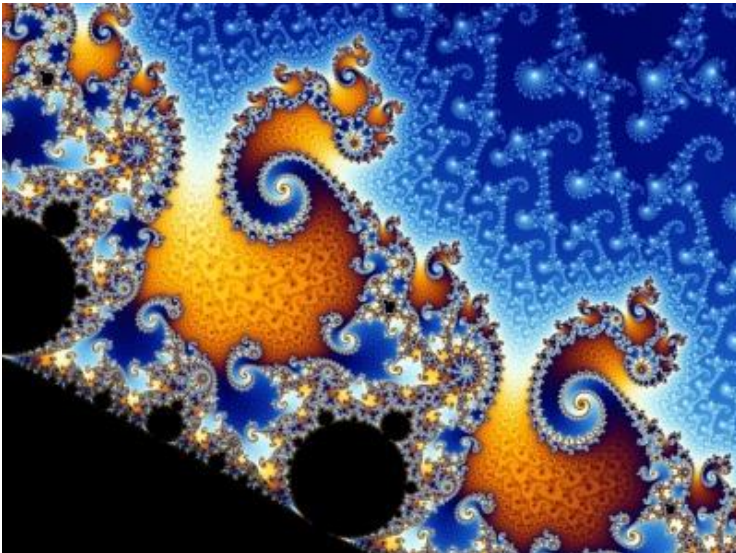
Applications: Education



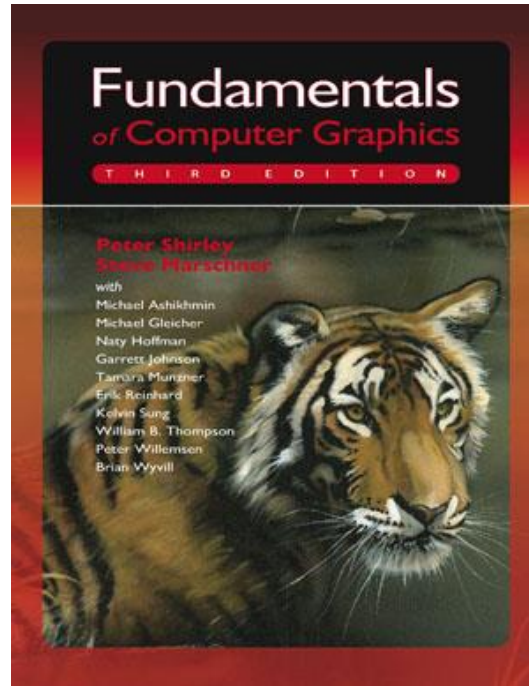
Applications: E-Commerce



Applications: Computer Art



Textbook



Text book
Shirley/Marschner