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

S. Rusinkiewicz, Princeton U
Computer Graphics: What We Will Talk About

I. Image processing

II. 3D rendering

III. Geometric modeling

IV. Computer animation
Applications: Entertainment
Applications: Computer-Aided Design (CAD)
Applications: Scientific Visualization

- shock wave
- virtual frog
- nerve cell
- wind flow
- MRI head
- transparent MRI head
- semi-transparent tomato
- spiral flow
Applications: Training
Applications: Education
Applications: E-Commerce
Applications: Computer Art
Textbook

Text book
Shirley/Marschner