Computer Graphics:
Introductory lecture

By: A. H. Abdul Hafez
Abdul.hafez@hku.edu.tr, ah.abdulhafez@gmail.com,
Outlines

1. What is computer graphics?
2. What is this course looking at?
   - Computer Graphics
3. Course syllabus
4. Detailed syllabus
Where do we see Computer Graphics?

- Graphs and charts
Where do we see Computer Graphics?

- Computer aided design:
  - Oriental rug pattern created with CG design methods.
  - Color coded CAD displays.
  - Outlines of body design of an aircraft.
Where do we see Computer Graphics?

- Virtual reality environment

Operating a tractor in VR environment.

Operator view of the tractor bucket

External view of the tractor
Where do we see Computer Graphics?

- Education and training

  - Color coded diagram used to explain the operation of a nuclear reactor
  - Imagery generated for a naval simulator
  - Flight-simulator imagery
Where do we see Computer Graphics?

- Data visualization

Visualization of stream surfaces flowing past a space shuttle.

Color coded visualization of stress energy density for metal plate.

Visualization of a protein structure.
Where do we see Computer Graphics?

- **Computer Arts**

  Cartoon demonstration of an artist creating a picture with paintbrush system
Where do we see Computer Graphics?

- Entertainment

Cartoon demonstration of an artist creating a picture with paintbrush system

Computer generated reconstruction of 13th century Dadu (Beijing)
The Course is Looking at!

- We look at providing the basic knowledge necessary to understand computer graphic systems.
- We aim at providing programming skills using basic computer graphics software such as OpenGL.
Course Syllabus, 1 semester CG course

1. Introduction, 1 week;
2. Graphics output primitives, 2 weeks;
   1. Point, line, curve, surface, etc.
3. Attributes of graphics primitives, 2 weeks;
   1. Color, region, texture, wireframe, fill in, etc.
4. 2D transformation, 2 weeks;
   1. Translation, rotation, scale, etc.
5. 2D viewing, 2 weeks;
6. 3D transformation and viewing, 2 weeks;
7. Visible surface and rendering, 1 week;
8. Animation, 1 week;
9. Graphical user interface 1 week;
1. **Prerequisite:** C/C++ programming, Math1 & Math2, Linear algebra.

2. **TEXT BOOKS:**

3. **REFERENCE BOOKS:**
The end of the Lecture

- Thanks for your time
- Questions are welcome