Computer Graphics

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Course www: https://www.scss.tcd.ie/~ramcdonn/

Applications
Movies

Zootopia, Disney 2016

The Curious Case of Benjamin Button, 2008
Games

Life of Pi, 2012

Assassin's Creed, Ubisoft, 2015
Architectural Design

Product Design
Medicine

Scientific Visualisation
Cultural Heritage

Intro

- BA Computer Science / BAI Engineering / Maths
- CS4052
- 5 ECTS
- Michaelmas wks 1-12
  - Reading week 7-11\textsuperscript{th} November
- Schedule
  - Mon 3-4 Lecture 1
  - Tues 11-12 Lecture 2
  - Tues 12-1 Lab
Graphics

Modelling: creating, or capturing the representation of objects – most often geometrical.

Rendering: creating an image of these objects on a display device.

Animation: making objects move by describing how they change over time.

Course Topics

- An introduction to computer graphics; problem domain and applications;
- Modelling - data sources and acquisition; modelling software; representation schemes;
- Linear algebra - two and three dimensional transforms; geometric operations; hierarchical 3D transformations;
Course Topics

• The computer graphics pipeline and the OpenGL API for 3D computer graphics;
• Projection and viewing; window to viewport transformation;
• Illumination models and rendering algorithms; colour, shading algorithms (Gouraud and Phong), local and global illumination;

Assessment

• Project (20%)
  • Will be developed in increments throughout

• Exam (80%)
  • end Semester 1 (CS), end Semester 2 (BAI)