CS475/CS675 - Computer Graphics

Introduction

Introductions

• Instructor
  Parag Chaudhuri
  SIA-304, Kanwal Rekhi Building
  Office hours: Fix by email, Mention [CS475]/[CS675] in the subject line

• TA
  – Pratik Kalshetti, Ph.D., CSE
  – Sukanya Bhattacharjee, Ph.D., CSE

Course Details

• Slot 12, Mon, Thu, 5:30pm-7:00pm
• www.cse.iitb.ac.in/~parag/teaching/2019/cs475
• Mailing list (CS475): cs475@cse.iitb.ac.in
• Mailing list (CS675): cs675@cse.iitb.ac.in
• Classroom: SIC-301

Eligibility

• Data Structures, Linear Algebra
• No Audits

What is Computer Graphics?

Ernest and Celestine, Les Armature, 2013

Bahubali 2, Arka Mediaworks and Tau Films, 2015
Digital and Print Media

Computational Photography

Desktop Publishing

Networked Media
Flash, Silverlight
IE, Firefox, Safari, Opera,
YouTube, Flickr, Facebook

Graphical User Interfaces

The Future?

1962

Now

Ivan Sutherland’s Sketchpad
1962

Fraunhoffer FIT
Apple iPhone
The Future?

© Twentieth Century Fox
Microsoft
Surface Hub
Wacom
Cintiq

What is Computer Graphics?

● CG is the art and science of using the computer to make images.

● Study of methods (artistic, mathematical, algorithmic, software) and systems (mechanical, electronic, hardware) to create, control and manipulate pictorial data on the computer.

What will we learn in the course?

Tentative course content

What is Computer Graphics?

● Forget the definitions!

● Remember why you are here.

And the list goes on...

● Virtual Worlds – Google Earth, Second Life, Minecraft
● Algorithm Animation
● Typesetting and font design – LaTeX, FreeType
● Digital Video and HDTV
● Drug Design
● Image and Video Search
● …
Drawing in 2D and 3D

Modelling
- Lines, Polygons
- Curves, Surfaces
- Modelling transformations
- Hidden Surfaces
- Viewing transformations

Rendering
- Shading
- Lighting models
- Texture mapping
- Ray Tracing

Animation
- Transformations
- Interpolation

Course Structure
- Lectures, notes, textbook – see course webpage
- Make sure you are subscribed to the mailing lists.
- Programming Assignments – big ones.
- Announced Quizzes (Sep 4, Oct 23), Unannounced Quiz
- MidSem Exam (Sep 16 – 20)
- EndSem Exam (Nov 11 - 22)

Evaluation
Everything is checked for plagiarism
- Cite sources if you borrow (even if from your classmates/seniors).
- Both parties get the same penalty.
- At best, you will fail the course.
Grading

- Active Class Participation – 10%.
- Assignments, Demos, Vivas – 50-60%.
- Exams and Quizzes – 30-40%.
- Very low attendance – DX grade.
- If you plan to drop after the add/drop date – tell me.

Unsought Advice

- Attend classes – just the slides and book will not be sufficient.
- Do the assignments – plan early, don’t ask for extensions.
- If you do not understand something – ASK! Ask early, ask often.
- If what I am teaching seems irrelevant – ask why it is being taught.
- If you think I am teaching something incorrect – point it out.
  - If you do it often enough – correctly – you get a bonus!

Look At the OpenGL Tutorials

- Go through, download, run tutorials 0 and 1

  https://github.com/paragchaudhuri/cs475-tutorials

Yay!

Let’s begin!