CS 775
Advanced Computer Graphics

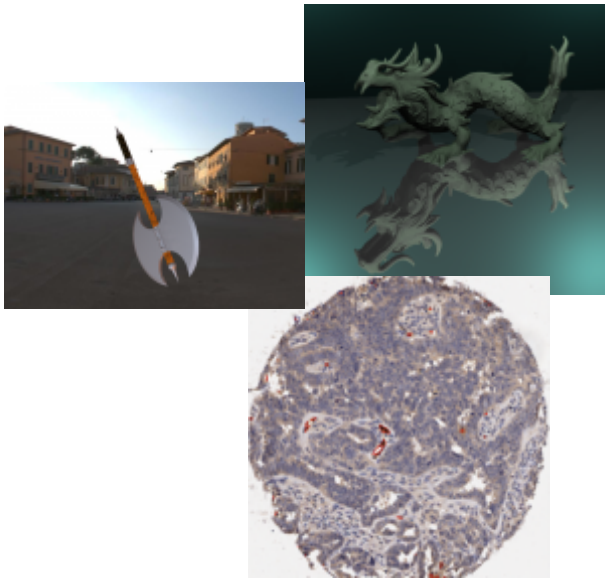
Lecture 0 : Introduction

Important Information

- Course Details
  - Slot 8, Mon and Thu, 2:00-3:30pm
  - http://www.cse.iitb.ac.in/~paragc/teaching/2018/cs775
  - cs775@cse.iitb.ac.in
- Eligibility
  - Must have done CS475/CS675
  - Supervisor Recommendation
  - Audits are not allowed

Introductions

- **Graphics @ CSE, IITB**



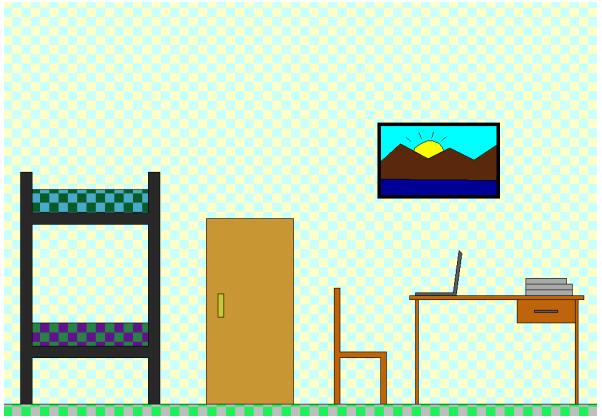
Realtime Raytracing (Sriram Kashayp and Rhushabh Ghoradia),
Hirarchical Normalized Cuts (Andrew Janowczyk),
Image based animation (Biswarup Choudhury and Ambareesha Raghothaman)

- **ViGIL** Homepage
  - http://www.cse.iitb.ac.in/graphics/

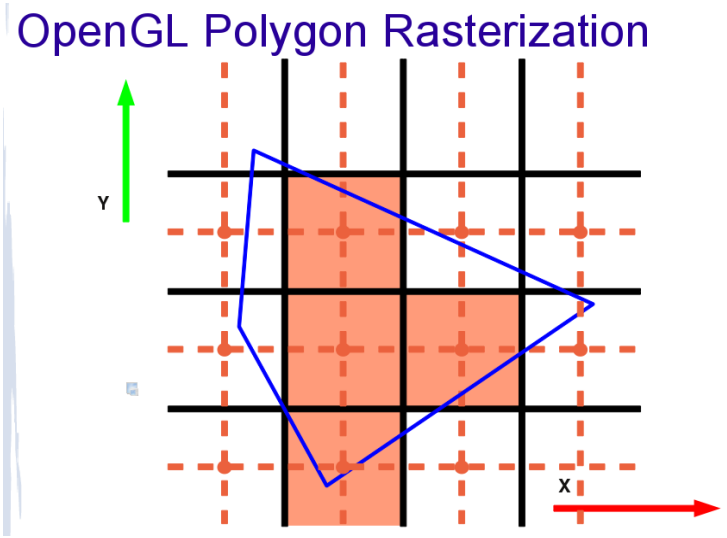
ViGIL
VISION, GRAPHICS
& IMAGING LABORATORY

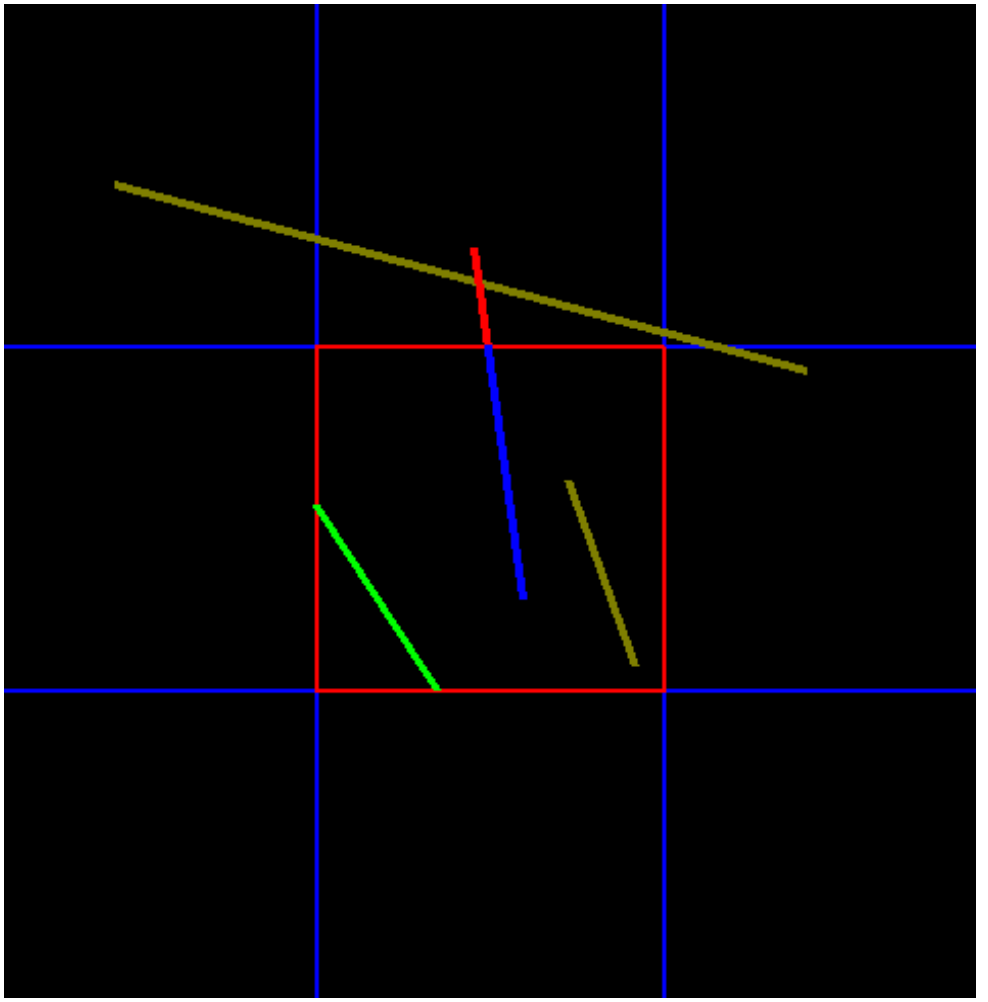
What did we do in CS475/CS675?

Drawing in 2D and 3D



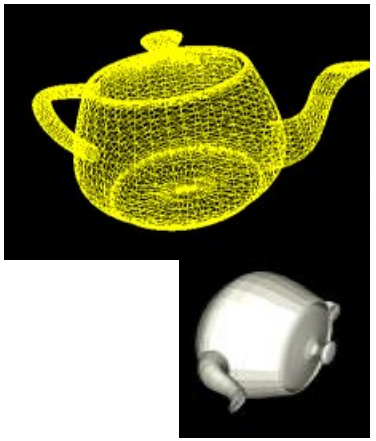
Aniruddha Vemula and Rohan Prinja, CS475/CS675, 2013



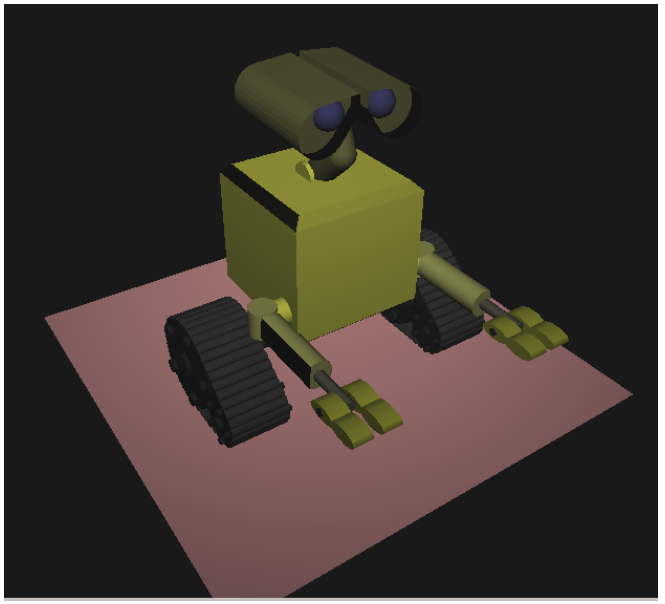


Sarbartha Sengupta, CS699 Individual Project, 2010

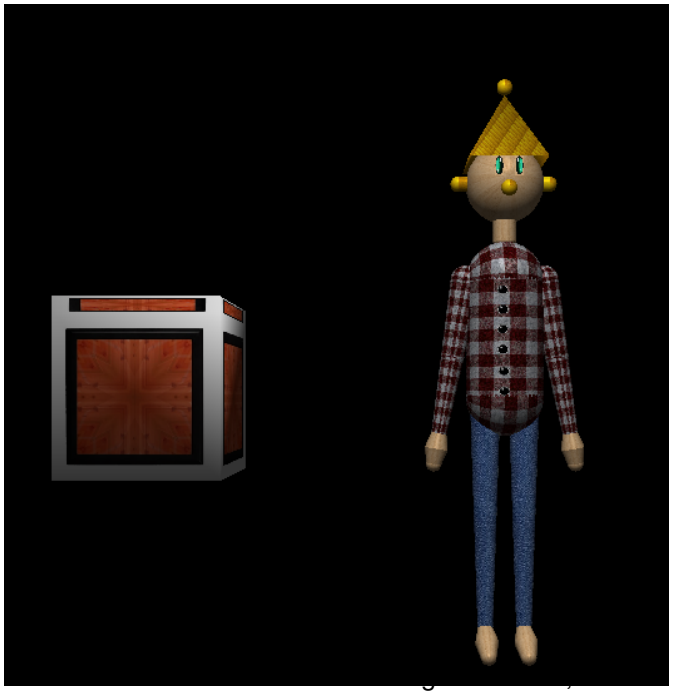
Modeling



- Curves and Surfaces
- Meshes
- Modeling Transformations
- Viewing Transformations
- Visibility and hidden surfaces



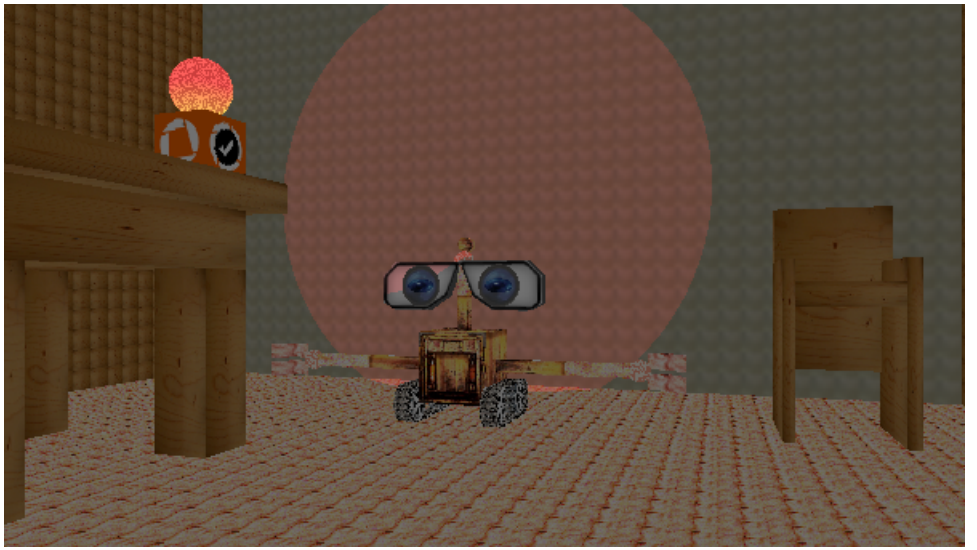
Pratik Patodi and Safeer C, CS475/CS675, 2011



Priyanka Patel and Lekha Muralidharan, CS475/CS675, 2013

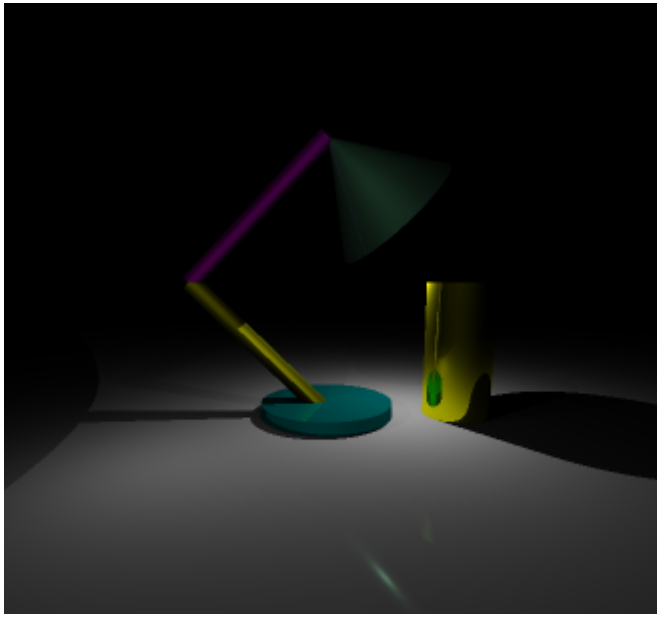
Rendering

- Shading
- Lighting models
- Texture mapping



Jai Mashalkar and Ahana Pradhan, CS475/CS675, 2011

Varshith Sreeramdass and Goka Harshith, CS475/CS675, 2017



Prashant Sachdeva and Yashoteja Prabhu, CS475, 2009

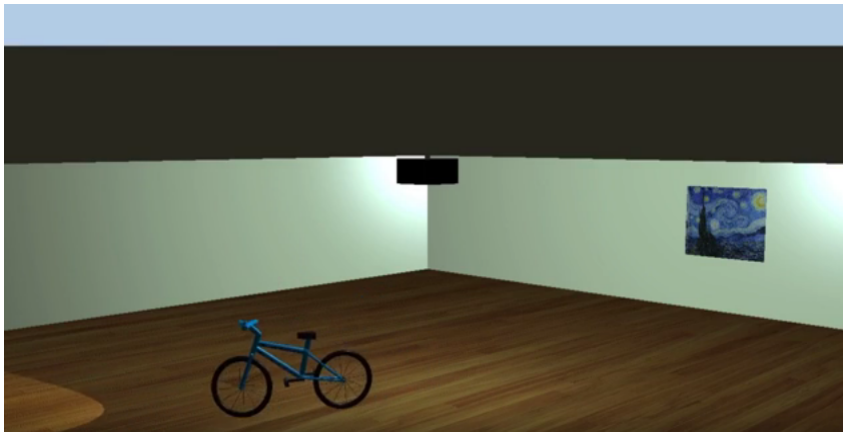
Animation

- Transformations
- Keyframed

Rhishabh Shah and Purav Gandhi, CS475/CS675, 2017

Vamsidhar Yeddu and Kartik Pranav, CS475/CS675, 2014

Anubhav Sharma and Sadagopan N S, CS475/CS675, 2015



Siddhant Ranade, CS475M, 2016

What will we do in CS775?

Tentative Course Content

- Global Illumination
  - Rendering Equation
  - Radiosity
  - Monte Carlo Methods
  - Photon Mapping
- Character Animation
  - Motion Capture, Kinematics, Skinning
  - Motion Editing
  - Motion Graphs, Motion Fields
  - Physics-based Characters

Despicable Me, Illumination Entertainment 2010

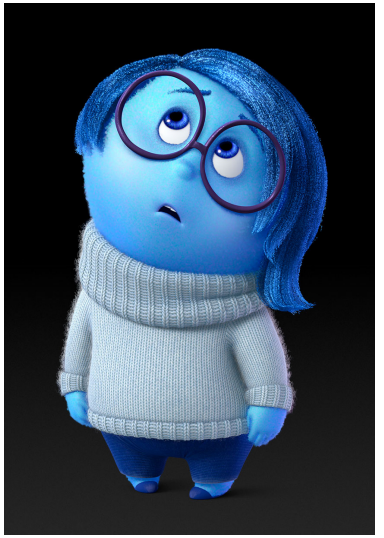
Tentative Course Content

- Physics-Based Animation
  - Mass-Spring Systems, Cloth
  - Fluids
- Augmented/Virtual Reality
- Project Presentations
  - Read a research paper
  - Present it to the class
  - Implement/Extend it

Despicable Me, Illumination Entertainment 2010

Evalutaion Timeline

- Quiz 1 : January 24
- MidSem: February 24 – March 1
- Quiz 2 : March 21
- EndSem: April 23 – May 7
- Programming Assignments : 1 or 2
- Project



Inside Out, Pixar, 2015

Project Evaluation

- Written Proposal
- Presentation
- Peer reviews
- Demos

You need to turn in 4 marks (integers) on a piece of paper that will be provided to you in two categories A and B. Each time you write down the marks, write a one line comment justifying them.

Project Evaluation: (Total out of 15 marks)

1. Did **you** understand the problem and ideas presented?

   (While answering this try to gauge whether the problem being tackled was explained clearly and the insight behind the solution communicated to you.)

   Max marks: 10 (with 10 being the highest, best possible mark)

2. Was a proposed methodology for the project implementation outlined? Did the presentation say what part of the paper will be implemented and what may be the possible end result?

   Max marks: 5 (with 5 being the highest, best possible mark)

Person Evaluation:

1. How well do you think the presenting member of the group understood the paper?

   Max marks: 10 (with 10 being the highest, best possible mark)

2. How well do you think the non-presenting member of the group who answered the questions understands the paper?

Logistics

- All assignments and project to be done in groups of two. Decide your groups by next week.
- Strict submission deadlines with 25% marks degradation with each late day.
- 5% weightage for attendance and class participation.
- 50%-45%, between assignments+projects and exams.
- Lecture slides/notes will appear on the course page.
- Subscribe to the mailing list. Keep track of mails.
- No prescribed book. Supplimentary reading material will be provided as necessary.

Class and Course Etiquette

- Be punctual – Please come on time.
- Be alert - Question the teacher.
- Be honest - Do not copy/cheat/plagiarise.
- If you borrow, always cite your sources.
- And most importantly,

  have fun learning the subject!

Up! © Disney/PIXAR 2009

Asterix © Uderzo and Goscinny

Suggestions?