• Administratrivia.

• Who am I?

• What is computer graphics?

• Topics
INTRODUCTION

- Administratrivia.
- Who am I?
- What is computer graphics?
- Topics
- Web Page
- http://www.cs.cmu.edu/~15462/
- linked from my web page
TA Office Hours

TAs:
- Linus (zeyangl@andrew.cmu.edu) Monday 7p-9p
- Kristin (kasiu@andrew.cmu.edu) Tuesday 7p-9p
- Eric (edbutler@andrew.cmu.edu) Wednesday 7p-9p
- Frank (fpalermo@andrew.cmu.edu) Thursday 3p-5p
- No office hours this week.
Shirley, 2nd Edition

OpenGL Red Book

http://www.glprogramming.com/red/

For Thursday:

Red Book Chapters 1 and 2
Prerequisites (talk to us if you’re missing these!)

- 15-213: Introduction to Computer Systems
- 21-241: Matrix Algebra (matrix & vector algebra)
- 21-259: Calculus in Three Dimensions (i.e. planes, quadratic surfaces,
- Basic 3-D geometry / C++
Grading

- Homework 1 (5%)
- Homework 2 (5%)
- Project 1 (12%)
- Project 2 (12%)
- Project 3 (18%)
- Project 4 (18%)
- Midterm (13%)
- Final (17%)
Late Policy

- 3 late days that you can use for any assignment (programming or written). More than three requires a verifiable good excuse.
Cheating: Please don’t! Using code from the web is ok as long as it is a SMALL percentage of the code for written the assignment.
TECHNICAL ISSUES

- Class bulletin board:
  - cmu.cs.class.cs462
  - (ask the TAs about how to use this)
- To use the cluster:
  - SSH to one of the unix.andrew.cmu.edu
  - Execute: /afs/cs.cmu.edu/project/weh5336/SetupAndrewAccount
  - Username: <Your Andrew ID>@ANDREW.CMU.EDU
  - The execute:
    - mkdir private
    - fs sa private system:anyuser none
    - fs sa private system:campusnet none
INTRODUCTION

- Administratrivia.
- Who am I?
- What is computer graphics?
- Topics
I’m a graphics researcher. :-)  
I’ve been a professor for 5 months...  
PhD 2007 University of Washington
CONTROL OF PHYSICS
CONTROL OF PHYSICS
CROWD SIMULATION
Character Animation
REAL-TIME FLUIDS
REAL-TIME FLUIDS
Fold It!
Introduction

- Administratratrivia.
- Who am I?
- What is computer graphics?
- Topics
WHAT IS COMPUTER GRAPHICS?
- 3D Modeling / Geometry
- Simulation / Animation / Character Animation
- Lighting / Light Transfer
- Textures and Color
- Post-Processing: Image Processing
- Camera position / Optics
YES

- Gatorade is Paying Me
WHAT IS GRAPHICS?

- Shapes / Geometry / Modeling
- Animation / Character Animation / Simulation
- Light Transport
- Image Processing
WHAT ELSE IS COMPUTER GRAPHICS

Scientific Visualization

Illustration

NPR / Art

Computational Photography

Virtual Life

and much more....
INTRODUCTION

- Administratrivia.
- Who am I?
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<td>[HOMEWORK 1 ASSIGNED]</td>
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<td>03/02</td>
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<td>Advanced Texturing / GLSL</td>
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<td>03/03</td>
<td>Radiosity</td>
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<tr>
<td>05/03</td>
<td>[MIDTERM EXAM]</td>
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<tr>
<td>10/03</td>
<td>Spring Break [No Lecture]</td>
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<tr>
<td>17/03</td>
<td>Photon Mapping &lt;KRISTIN&gt;</td>
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<td>Cloth + Implicit Integration</td>
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<td>07/04</td>
<td>[PROJ 3 DUE]</td>
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<td>Fluids</td>
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<td>Image Processing</td>
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<td>14/04</td>
<td>Image Based Rendering</td>
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<td>16/04</td>
<td>Spring Carnival [No Lecture]</td>
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<tr>
<td>21/04</td>
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<td>23/04</td>
<td>Guest Lecture: Jean-Francois Lalonde</td>
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<td>Visualization</td>
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<td>30/04</td>
<td>Non-photorealistic Rendering</td>
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<tr>
<td>05/05</td>
<td>Final Exams (through 05/12)</td>
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</table>
01 Tues 01/13 - Introduction
02 Thur 01/15 - OpenGL Lecture 1
03 Tues 01/20 - [PROJ 1 ASSIGNED]
03 Tues 01/20 - OpenGL Lecture 2
04 Thur 01/22 - Math for Computer Graphics
05 Tues 01/27 - Transformations
06 Thur 01/29 - Viewing
07 Tues 02/03 - [PROJ 1 DUE]
07 Tues 02/03 - [HOMEWORK 1 ASSIGNED]
07 Tues 02/03 - Texture Mapping
08 Thur 02/05 - Shading
09 Tues 02/10 - [HOMEWORK 1 DUE]
09 Tues 02/10 - [PROJ 2 ASSIGNED]
09 Tues 02/10 - Advanced Texturing / GLSL
10 Thur 02/12 - Curves and Splines
11 Tues 02/17 - Polygon Meshes and Implicit Surfaces
12 Thur 02/19 - Raycasting
13 Tues 02/24 - [PROJ 2 DUE]
13 Tues 02/24 - [HOMEWORK 2 ASSIGNED]
13 Tues 02/24 - Raytracing
14 Thur 02/26 - Spatial Data Structures
15 Tues 03/03 - [HOMEWORK 2 DUE]
15 Tues 03/03 - Radiosity
16 Thur 03/05 - [MIDTERM EXAM]
17 Tues 03/10 - Spring Break [No Lecture]
18 Thur 03/12 - Spring Break [No Lecture]
19 Tues 03/17 - [PROJ 3 ASSIGNED]
19 Tues 03/17 - Photon Mapping <KRI<STIN>
19 Tues 03/17 - Animation and Mocap
20 Thur 03/19 - Animation and Mocap
20 Thur 03/19 - Keyframing
21 Tues 03/24 - Keyframing
21 Tues 03/24 - Differential Equations
22 Thur 03/26 - Differential Equations
22 Thur 03/26 - Particle Systems
23 Tues 03/31 - Particle Systems
23 Tues 03/31 - Cloth Systems
24 Thur 04/02 - Cloth + Implicit Integration
24 Thur 04/02 - Cloth + Implicit Integration
25 Tues 04/07 - [PROJ 3 DUE]
25 Tues 04/07 - [PROJ 4 ASSIGNED]
25 Tues 04/07 - Fluids
26 Thur 04/09 - Fluids
26 Thur 04/09 - Image Processing
27 Tues 04/14 - Image Based Rendering
27 Tues 04/14 - Image Based Rendering
28 Thur 04/16 - Spring Carnival [No Lecture]
28 Thur 04/16 - Spring Carnival [No Lecture]
29 Tues 04/21 - Guest Lecture: Alyosha Efros
30 Thur 04/23 - Guest Lecture: Jean-Francois Lalonde
31 Tues 04/28 - [PROJ 4 DUE]
31 Tues 04/28 - Visualization
32 Thur 04/30 - Non-photorealistic Rendering
33 Mon 05/04 - Final Exams (through 05/12)
SYLLABUS

Introduction
- 01 Tues 01/13 - Introduction
- 02 Thur 01/15 - OpenGL Lecture 1
- 03 Tues 01/20 - **[PROJ 1 ASSIGNED]**
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- 14 Thur 02/26 - Spatial Data Structures

Indirect Illumination
- 15 Tues 03/03 - **[HOMEWORK 2 DUE]**
- 15 Tues 03/03 - Radiosity
- 16 Thur 03/05 - **[MIDTERM EXAM]**
- 17 Tues 03/10 - Spring Break [No Lecture]
- 18 Thur 03/12 - Spring Break [No Lecture]
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- 19 Tues 03/17 - Photon Mapping <KRISTIN>

Light
- 20 Thur 03/19 - Animation and Mocap
- 21 Tues 03/24 - Keyframing
- 22 Thur 03/26 - Differential Equations
- 23 Tues 03/31 - Particle Systems
- 24 Thur 04/02 - Cloth + Implicit Integration
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- 25 Tues 04/07 - **[PROJ 4 ASSIGNED]**
- 25 Tues 04/07 - Fluids

Animation
- 26 Thur 04/09 - Image Procesing
- 27 Tues 04/14 - Image Based Rendering
- 28 Thur 04/16 - Spring Carnival [No Lecture]

Geometry
- 29 Tues 04/21 - Guest Lecture: Alyosha Efros
- 30 Thur 04/23 - Guest Lecture: Jean-Francois Lalonde
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We will have full class votes!

Four Projects:

- OpenGL
- GPU Programming
- Ray Tracing
- Photon Mapping
PROJECT 1: OPENGL
PROJECT 2: GPU PROGRAMMING
PROJECT 3: RAY TRACING
PROJECT 4: PHOTON MAPPING
LET'S HAVE FUN
Experiment Volunteers Needed

watch 3 animated movies (30s each)

let us track your eye-motions

answer a set of questions

get $10

takes place this week, Tue-Fri, on campus: sophie.joerg@cs.tcd.ie