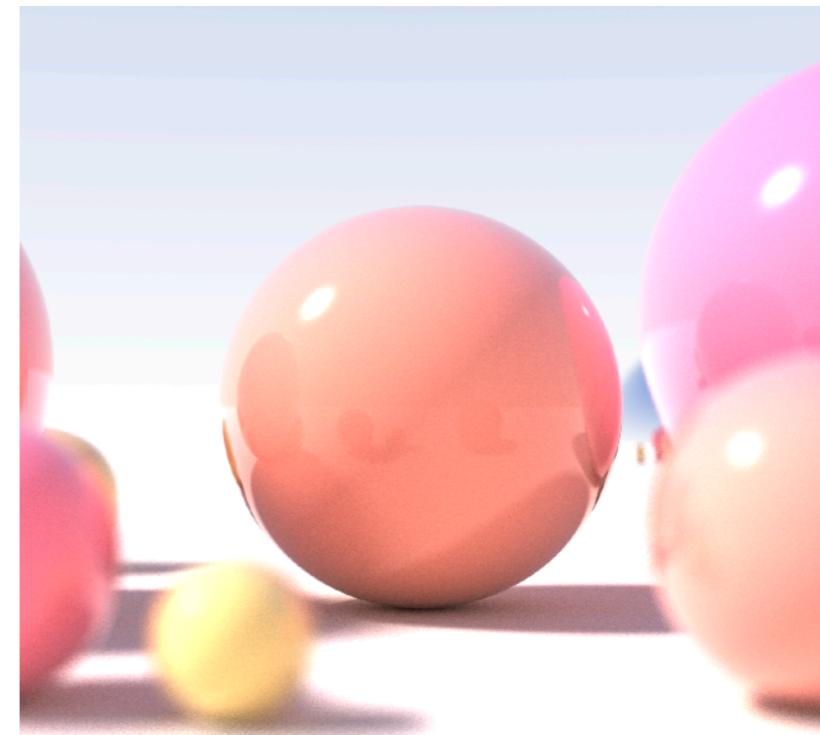
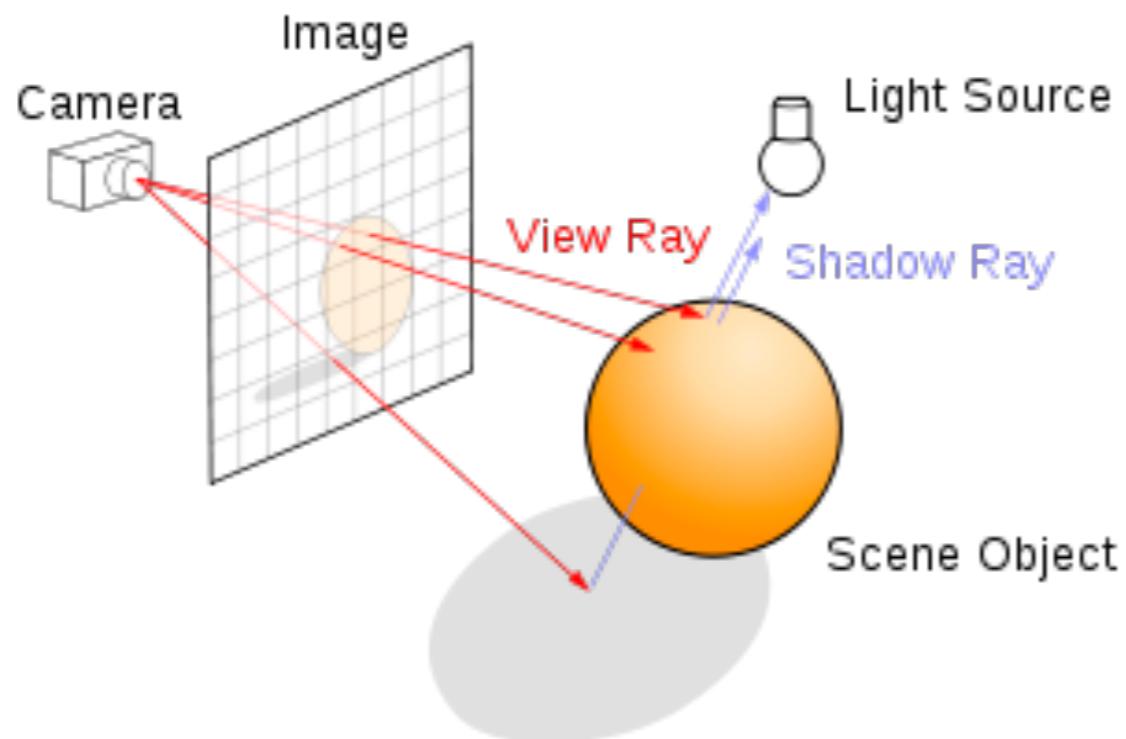


Ray Tracing

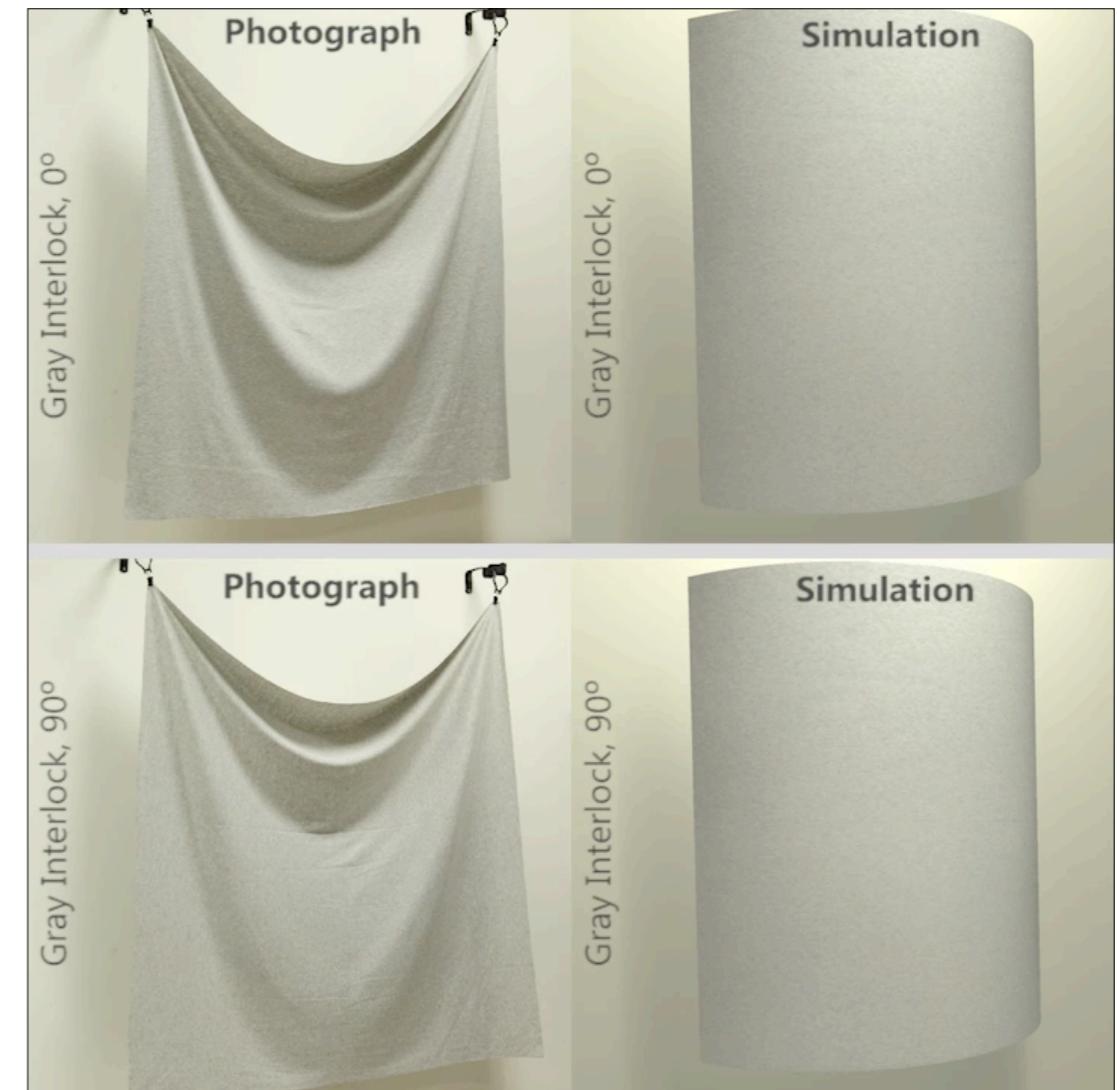
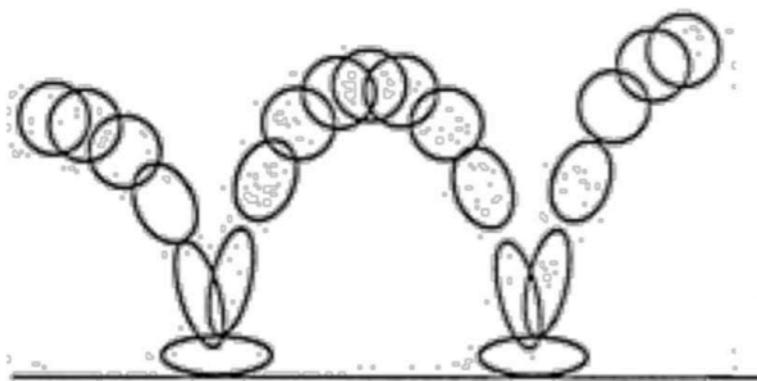
- Shoot rays from the camera through each pixel
 - Calculate **intersection** and **shading**
 - Continue to bounce the rays till they hit light sources
- Gold standard in Animations / Movies (Offline Applications)



[https://en.wikipedia.org/wiki/Ray_tracing_\(graphics\)](https://en.wikipedia.org/wiki/Ray_tracing_(graphics))

Animation / Simulation

- Key frame Animation
- Mass-spring System



https://cs184.eecs.berkeley.edu/sp18/lecture/simulation/slide_010

GAMES101 is NOT about

- Using OpenGL / DirectX / Vulkan
- The syntax of Shaders
- We learn Graphics,
not Graphics APIs!
- After this course,
you'll be able to learn these
by yourself (**I promise**)

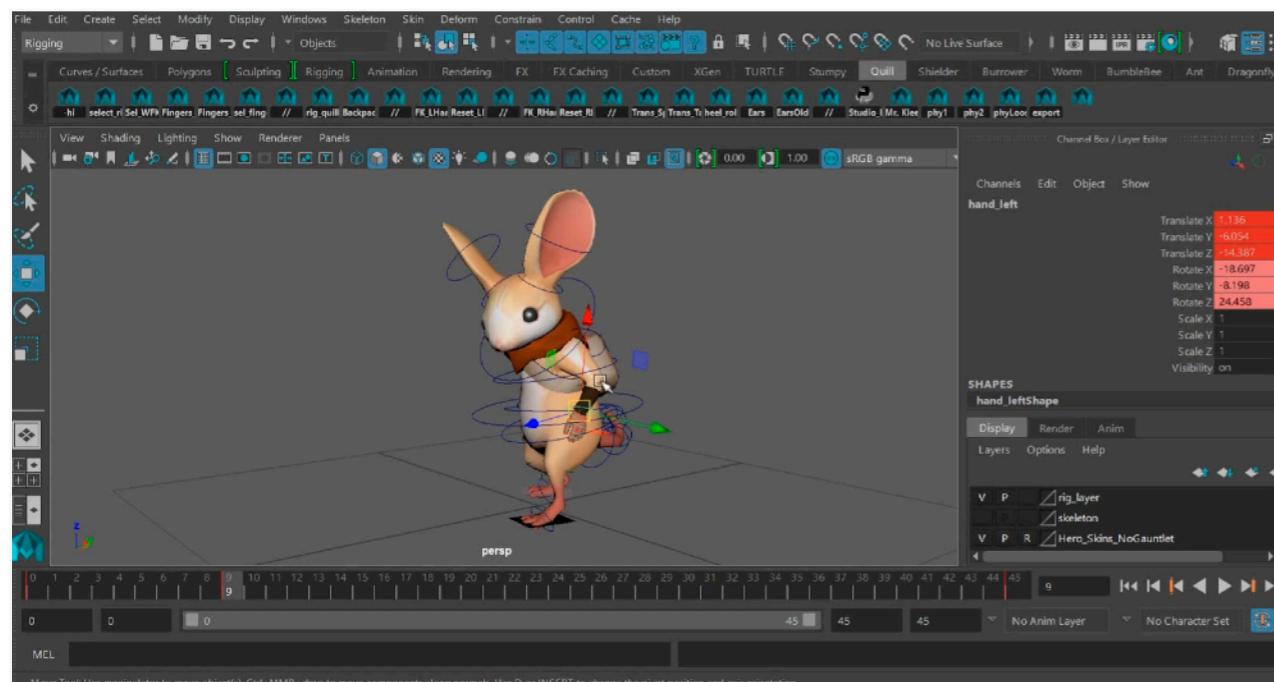
~~Name~~
gluPerspective — set up a perspective projection matrix

~~C Specification~~

```
void gluPerspective(GLdouble fovy,  
                    GLdouble aspect,  
                    GLdouble zNear,  
                    GLdouble zFar);
```

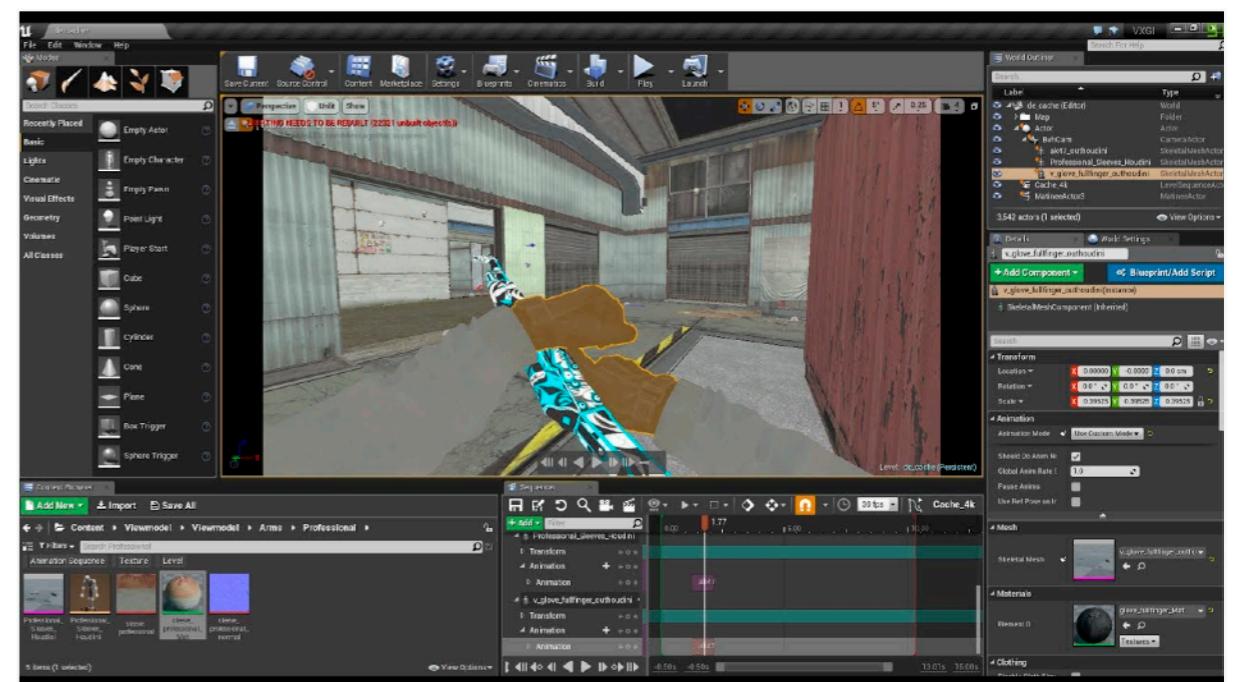
GAMES101 is NOT about

- 3D modeling using Maya / 3DS MAX / Blender, or
VR / game development using Unity / Unreal Engine
(where can I learn them?)



Modeling character animation in Maya

[<http://tutorials.cgrecord.net/2017/08/17-minute-animation-process-in-autodesk.html>]



CSGO PoV Cam set up in Unreal Engine

[<https://www.youtube.com/watch?v=3TQ18SmQSw0>]

GAMES101 is NOT about

- Computer Vision / Deep Learning topics, e.g. XYZ-GAN
(where can I learn them?)



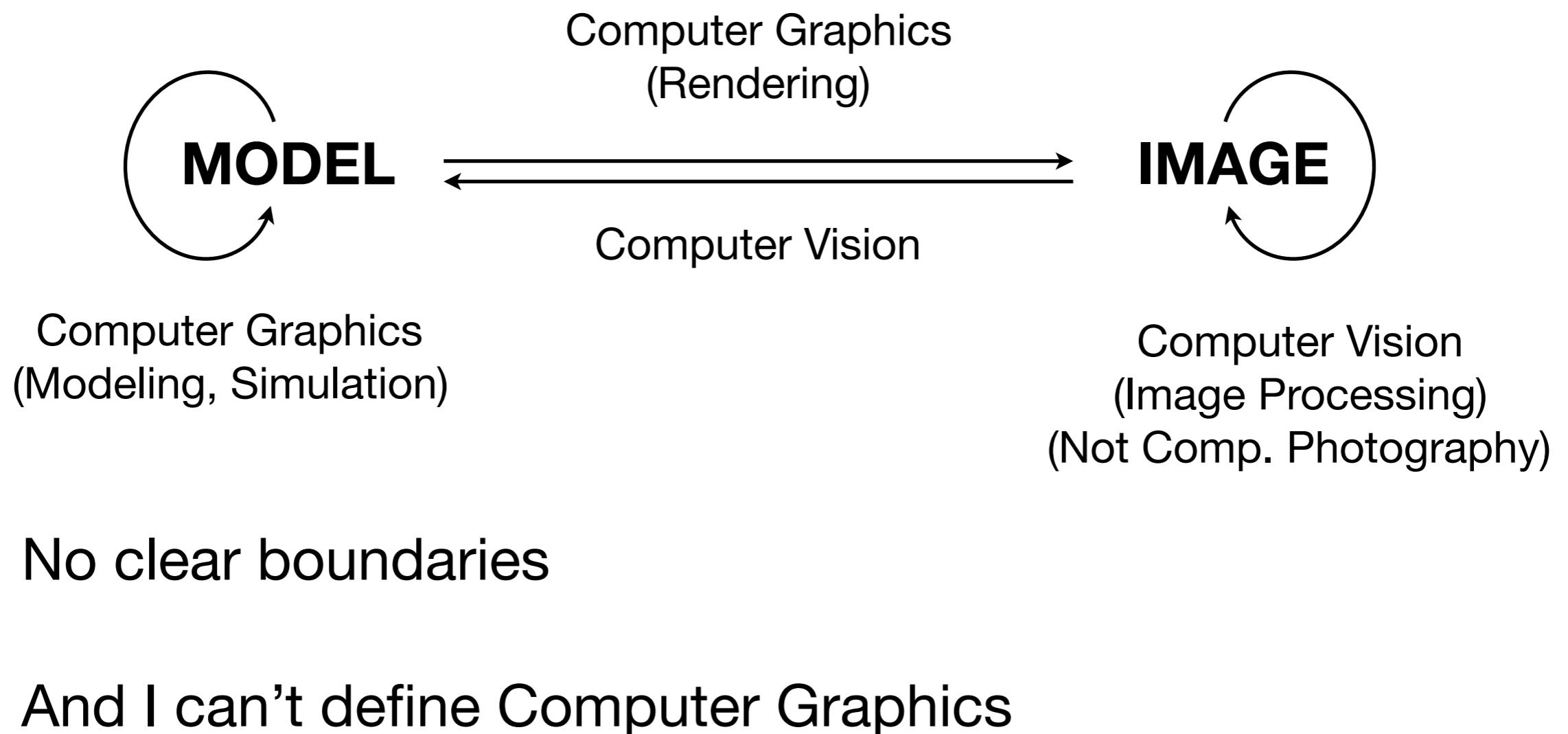
Semantic Segmentation

<https://modeldepot.io/oandrienko/icnet-for-fast-segmentation>

GAN 2.0: NVIDIA's
face generator (both are fake)

Differences?

- Personal Understanding



Questions?

Today's Topics

- What is Computer Graphics?
- Why study Computer Graphics?
- Course Topics
- Course Logistics

General Information

- Modern Course
 - Comprehensive but **without hardware programming!**
 - Pace / contents subject to change
- Course Website
 - <http://www.cs.ucsb.edu/~lingqi/teaching/games101.html>
 - Has all the needed information
 - Syllabus, slides, reading materials, etc.



Course Website

- Course slides and (pre)-reading materials

Week	Date	Topics
1	Jan 7	Overview of Computer Graphics [PDF]
	Jan 9	Vectors and Linear Algebra Reading: Chapter 2 (Miscellaneous Math) and Chapter 5 (Linear Algebra)