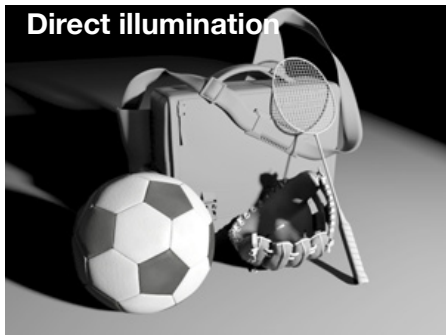


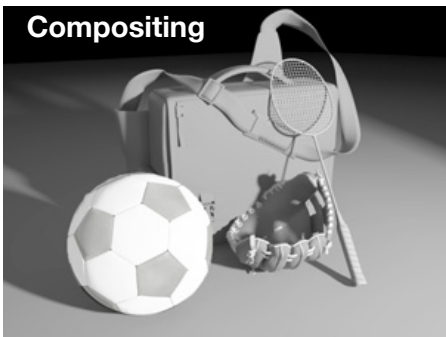
# VIRTUAL LIGHTING SESSION ONE SYLLABUS



Direct illumination



Environment



Compositing



Indirect illumination

## SESSION ONE OBJECTIVES

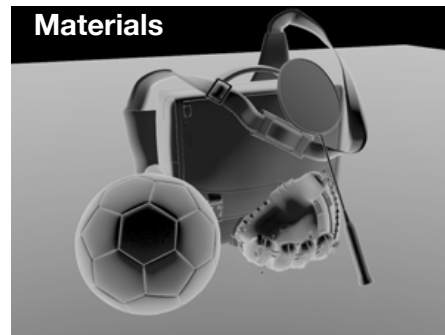
The goal for the first session is to demonstrate to students the different steps and procedures associated with the production of computer generated (CG) illumination.

I will show how digital tools connect directly to traditional cinematography concepts, making use of tools such as spotlights, flags, reflectors, and light designation: key, rim or kicker, among others. All of these apply straightforwardly to CG. Others such as f-stops or watts need some translation. In reverse, some CG concepts have no direct counterparts in traditional cinematography, such as occlusion and light-linking. This will be discussed as well.

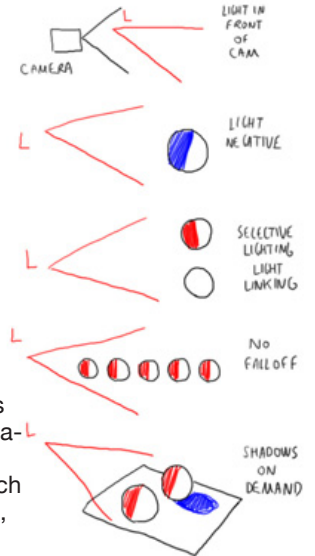
It is important to consider digital lighting as the sum of many techniques, which layered, render the final image: 1) direct illumination with computer generated light sources, 2) indirect illumination with Global illumination techniques and 3) environment lighting with information gathered during a shoot. Everything has to be created and controlled because there is no "available lighting" in CG. I will explain step-by-step and show examples from movies and commercials I have worked on in recent years.

The limitations and specificities related to the production of digital imagery will be explored, and the concept of rendering time, as being paramount, will be highlighted. I will show why and how artistry and engineering are used in harmony.

In sum, the first session will show students a tour of the premises and give them a strong foundation regarding the production of CG illumination.



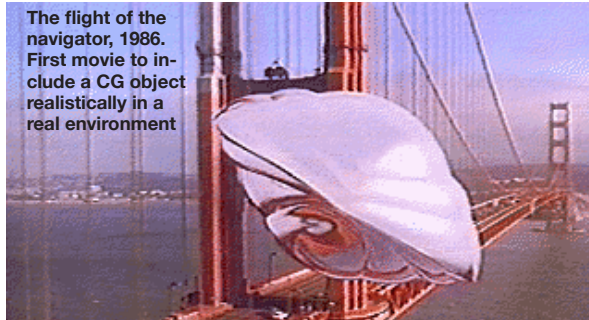
Materials



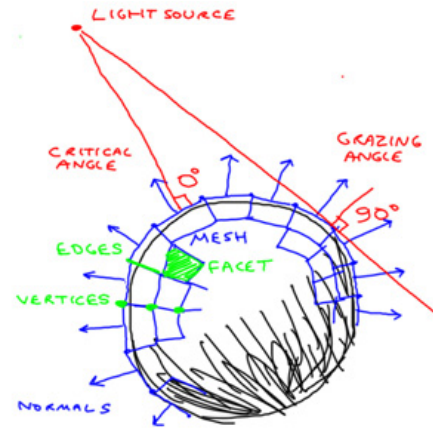
**CG lights behavior**  
They sometimes differ quite a bit from their real counterparts...

**«Despite its novelty, the digital revolution builds upon long standing, if sometimes misunderstood, tradition in the arts»**

**Timothy Binkley, 1997**



The flight of the navigator, 1986. First movie to include a CG object realistically in a real environment



**SEMINAR DETAILS**

**1 - Introduction - Hour 1**

What is CG lighting? How is this form of lighting different, but very similar, to real lighting. How do computer graphics build on traditional knowledge. Quick history of the techniques and methods used for creating CG imagery will be presented. Lighting in production and workflow: the role of the lighter, lead lighter, lighting supervisor and technical director.

Department structure: modelling, effects, animation, shading, lookdev, lighting, compositing, rendering.

**2 - Lighting demo - Hour 2**

Fred's demo: lighting in Maya step-by-step. The classic use of the 3 points lighting technique applied to CG, the use of indirect lighting and the associated costs. CG lights in-depth: spotlights and area lights. CG glossary, terms and definitions.

**3 - Immersion - Hour 3**

Imaging environment: capturing it and using it in production. How to "settle" cg assets in a photoreal environment?

Explanation of relationships between lighting and the environment. Lighting is not just about "lights", it is about other concepts such as shading, rendering and compositing.

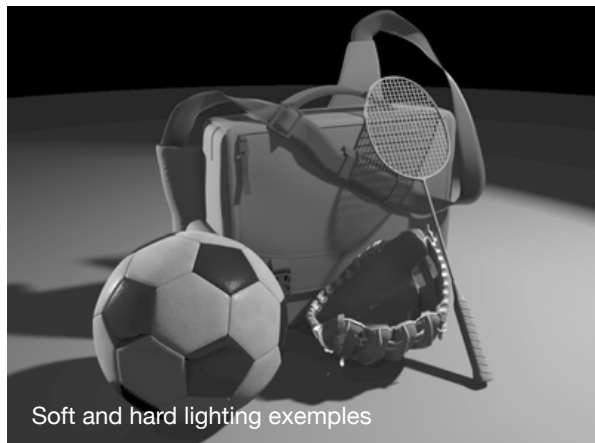
**4 - Lighting, shading and compositing - Hour 4**

Shading is the ensemble of techniques used to define material descriptions called shaders. Shaders are list of layered instruction defining the color of a pixel. The interactions between lighting and shading are computed in the rendering phase when we compute the visual result as an image. Shaders are made from layers of visual information that can be broken down and split in passes. These passes will be re-assembled in compositing. Students will be guided to understand the close relationships described, as well as how all these specialized departments contribute to the final product.

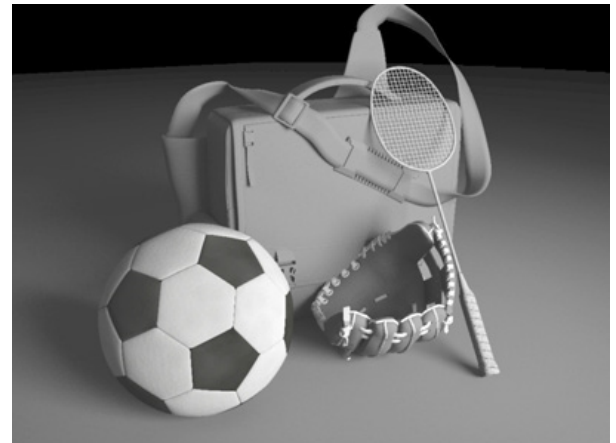
Fred's demo: Maya and Nuke. Lighting and rendering layers and passes, why this is paramount in the film and commercial workflow.

**"I'm just somebody who wants to make movies. You don't need to be technological to understand how to use technology"**

**Georges Lucas**



Soft and hard lighting exemples



**Comparisons**

We will study the different CG lighting tools at our disposal and how they relate to their real-world counterparts

PURPOSE	STUDIO	CGI
Passive indiffuse fill from reflexive screens. Not suitable for shadows.	Reflectors, 	Square or rectangles polygons with white, or super white surface shader used with final gathering. <b>CG+</b> : can go beyond white, make polys invisible and not creating shadows nor reflections.