CS248
Interactive Computer Graphics

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Computer Science Department
Stanford University

Introduction

Plan for today

- Logistics
- Why interactive computer graphics
- Syllabus

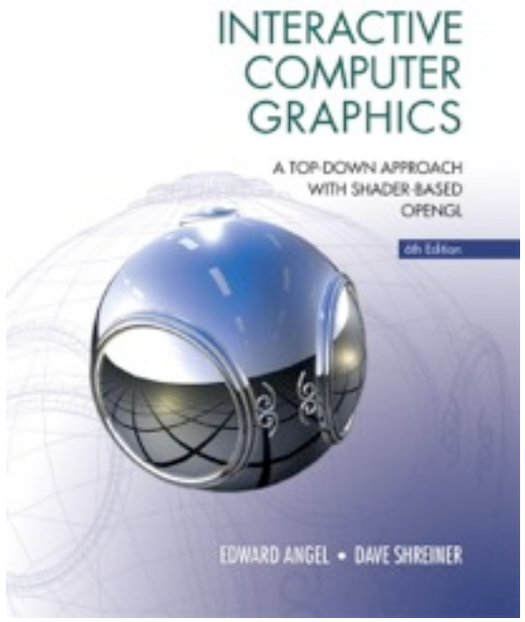
Course Logistics

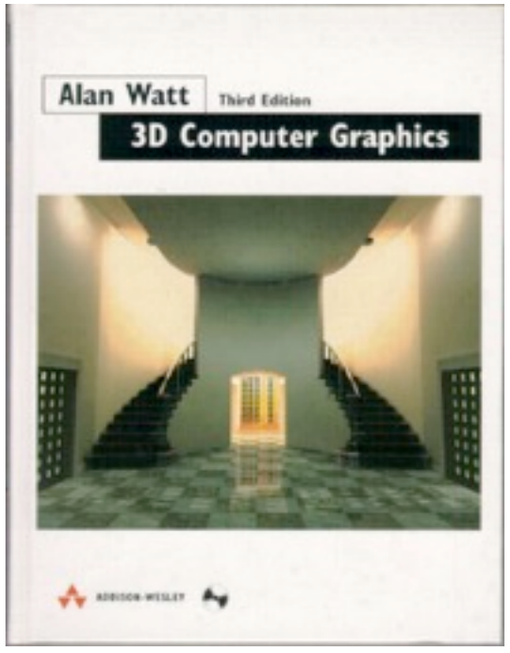
Staff and review session

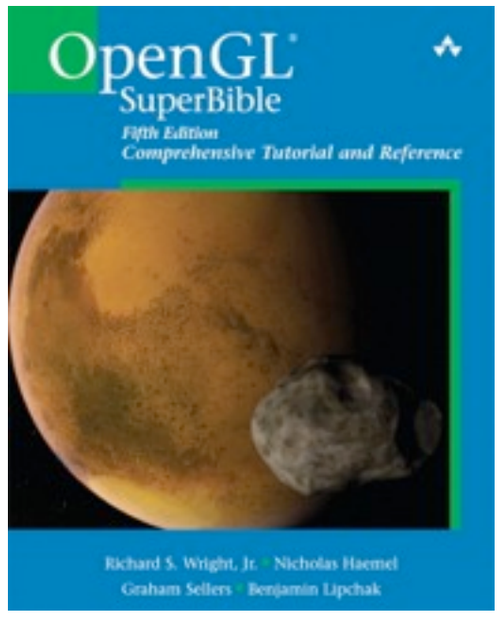
- Instructor:
  - Vladlen Koltun, Gates 374
- Course assistants:
  - Alex Chia
  - Phillip Ho
  - Alexis Haraux
  - Ben Goldsmith
- Review session: Friday 11:00-11:50, Gates B03

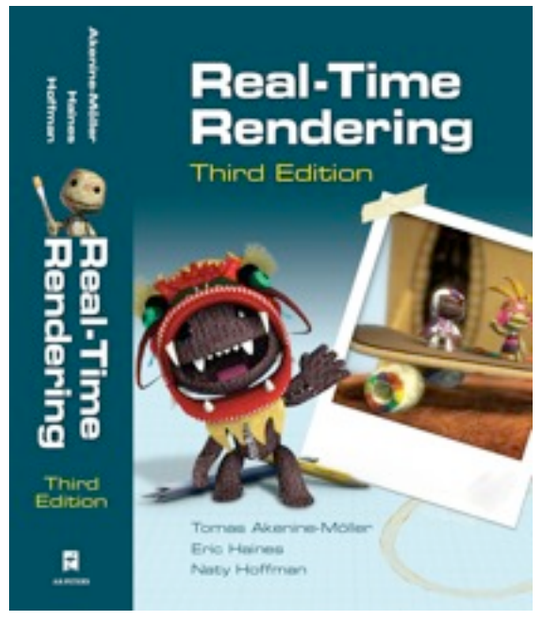
Textbooks

- Textbooks
  - Angel and Shreiner, Interactive Computer Graphics (6th ed.) - optional
  - Alan Watt, 3D Computer Graphics (3rd ed.) - optional
  - Wright et al., OpenGL SuperBible (5th ed.) - optional
  - T. Akenine-Moller et al., Real-Time Rendering (3rd ed.) - optional









Web site, Piazza, staff list

- Web site: http://cs248.stanford.edu
- Sign up for Piazza through Web site
- Staff list: cs248-admin-w12@lists.stanford.edu

Grading

- Three assignments (70%)
- Final project (30%)
- No exam

Assignment policy

- Three late days (day = 24 hours) for the quarter, no exceptions. Can **earn** late days by submitting assignment early
- No late days on final project, no exceptions

- Ok to discuss algorithms and general approaches on Piazza, but do not post code

Final project

- Build game in teams of 1-3
- Video game competition during finals week (March 20)

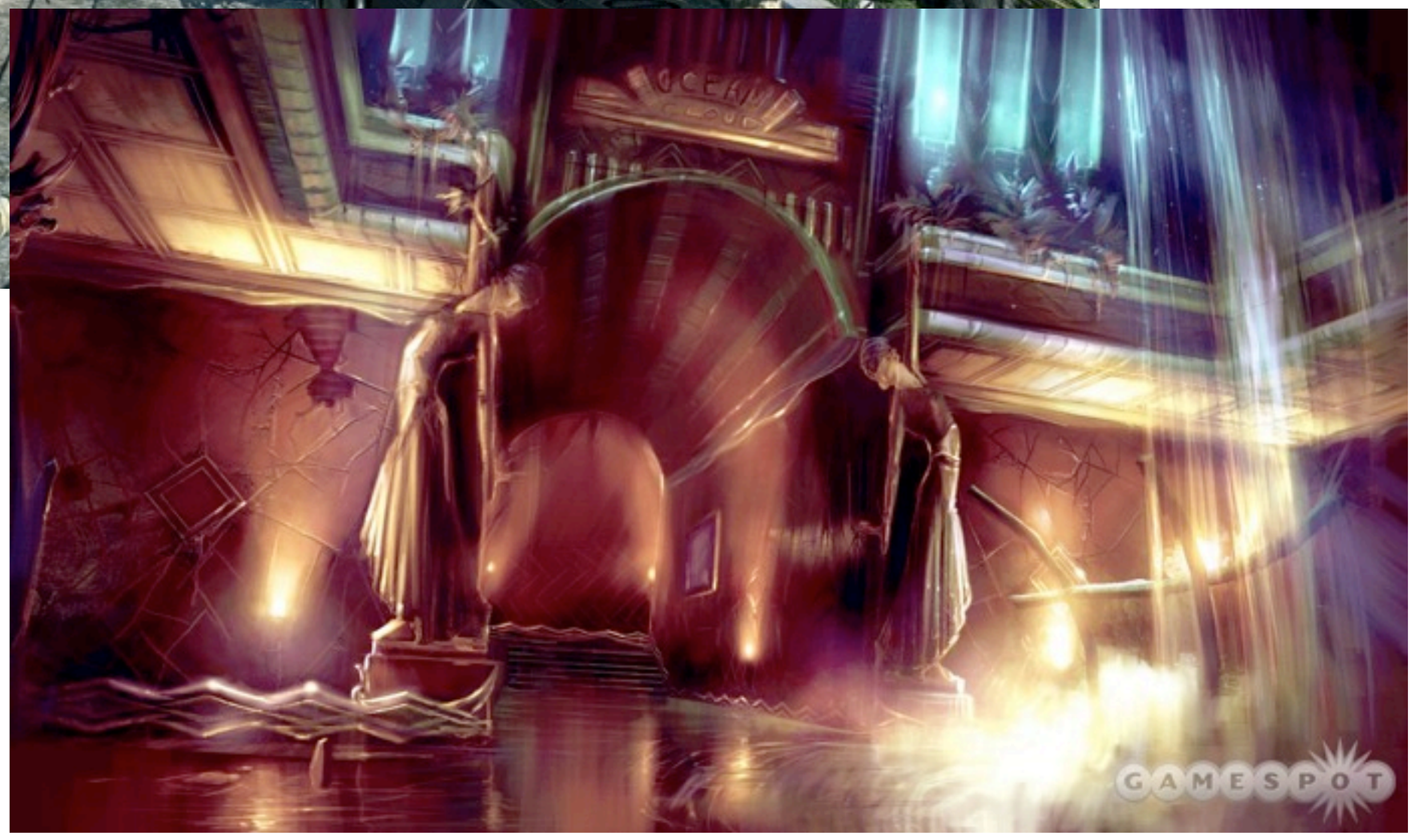
Why Interactive Computer Graphics

Interactive computer graphics

- Entertainment
- Social life
- Education
- Art and creative expression
- Design and architecture
- Training and simulation
- Medicine
- Augmented reality

Call of Duty: Modern Warfare 2

Bioshock 2



Images from gamespot.com

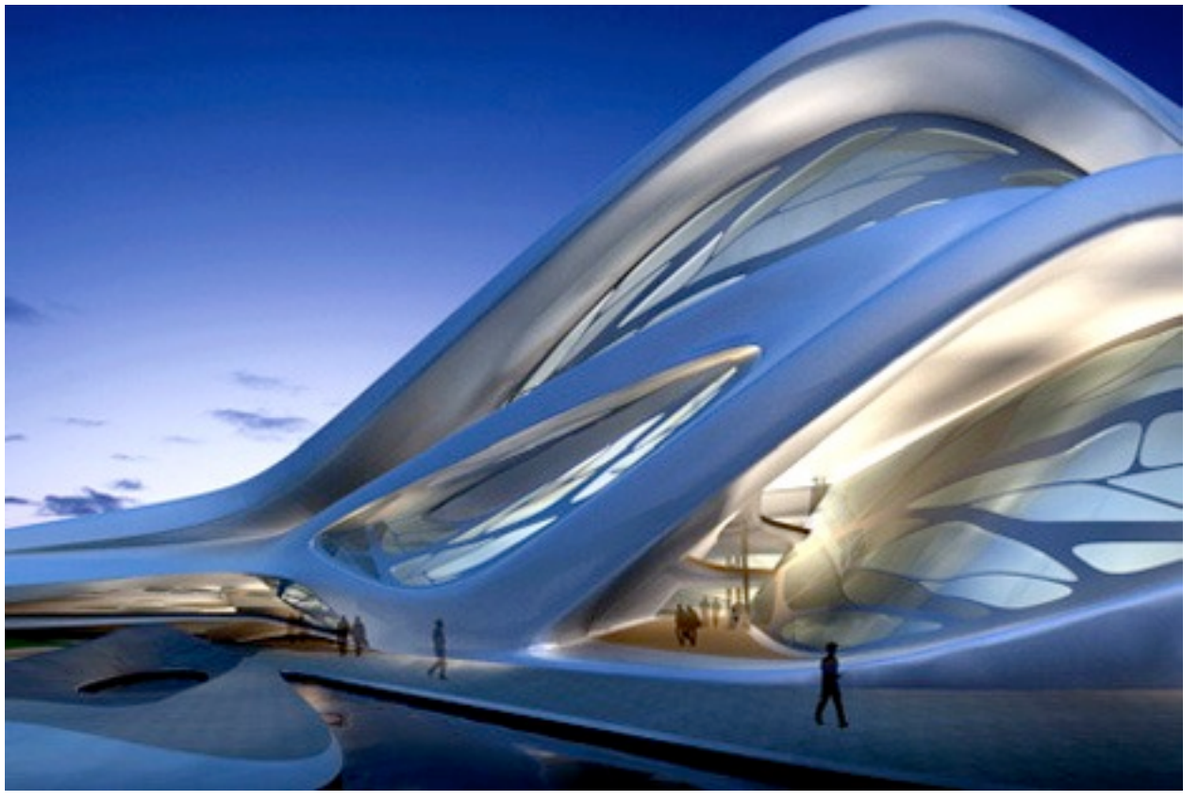
Assassin's Creed 2

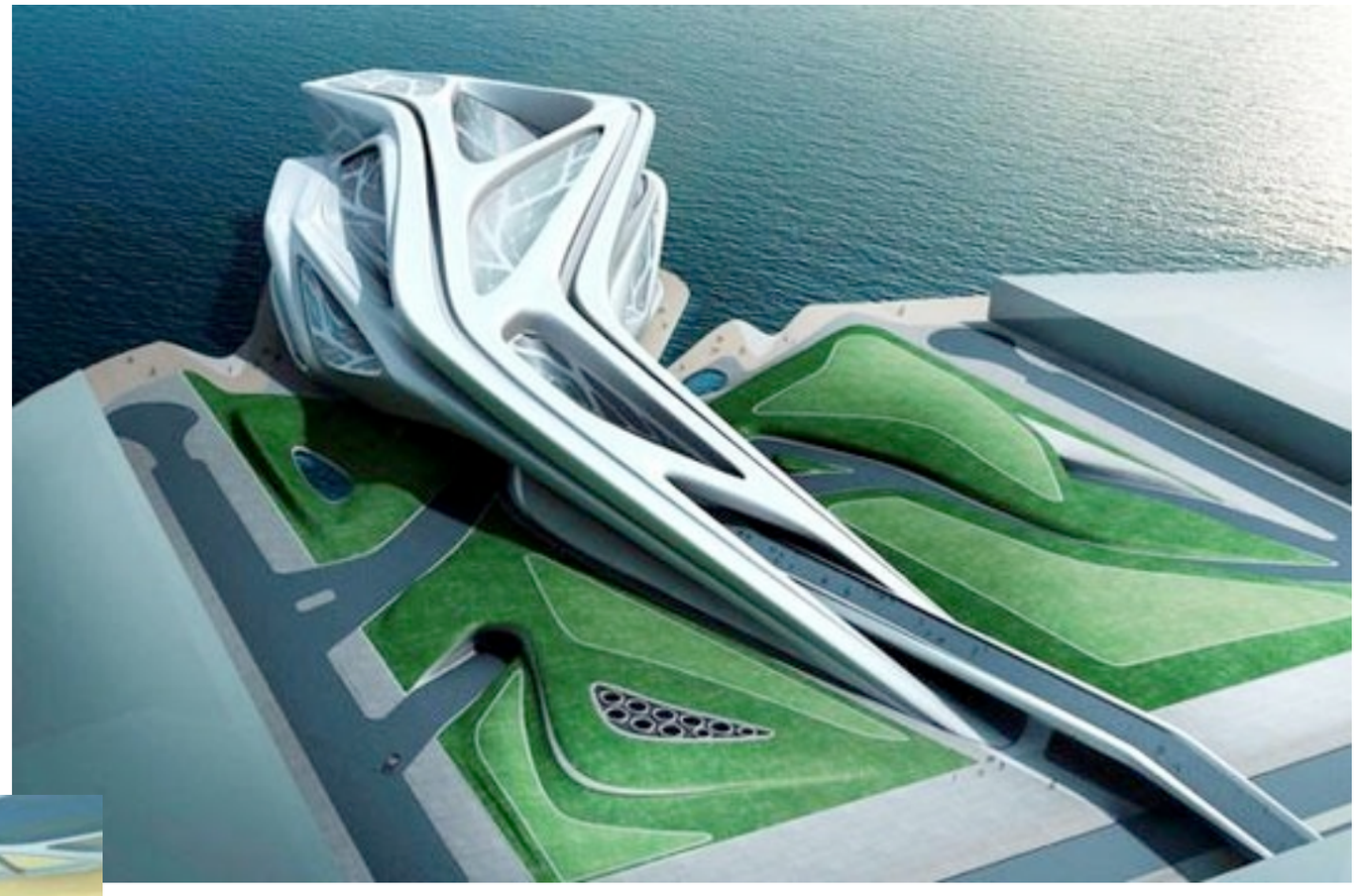
Dragon Age: Origins

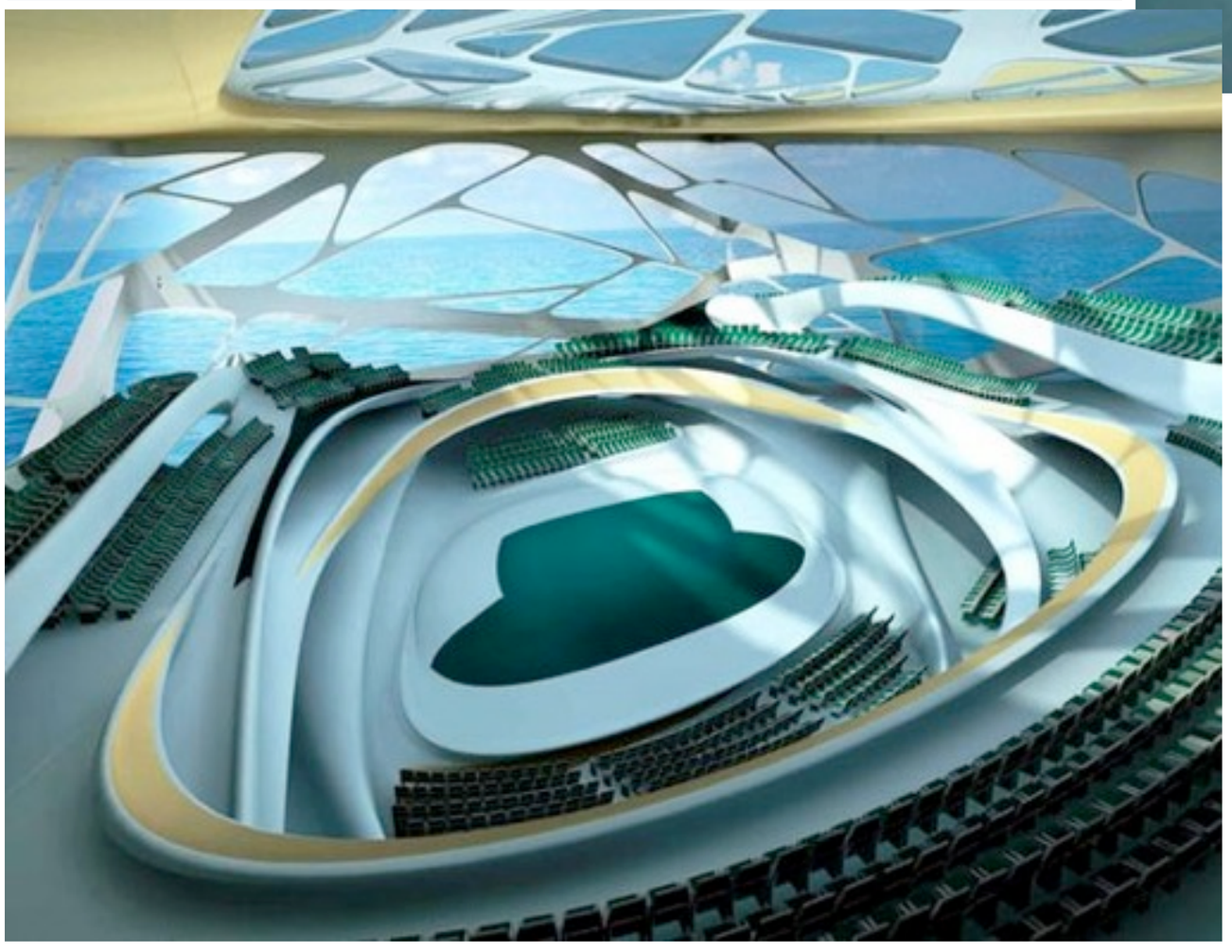
Images from gamespot.com

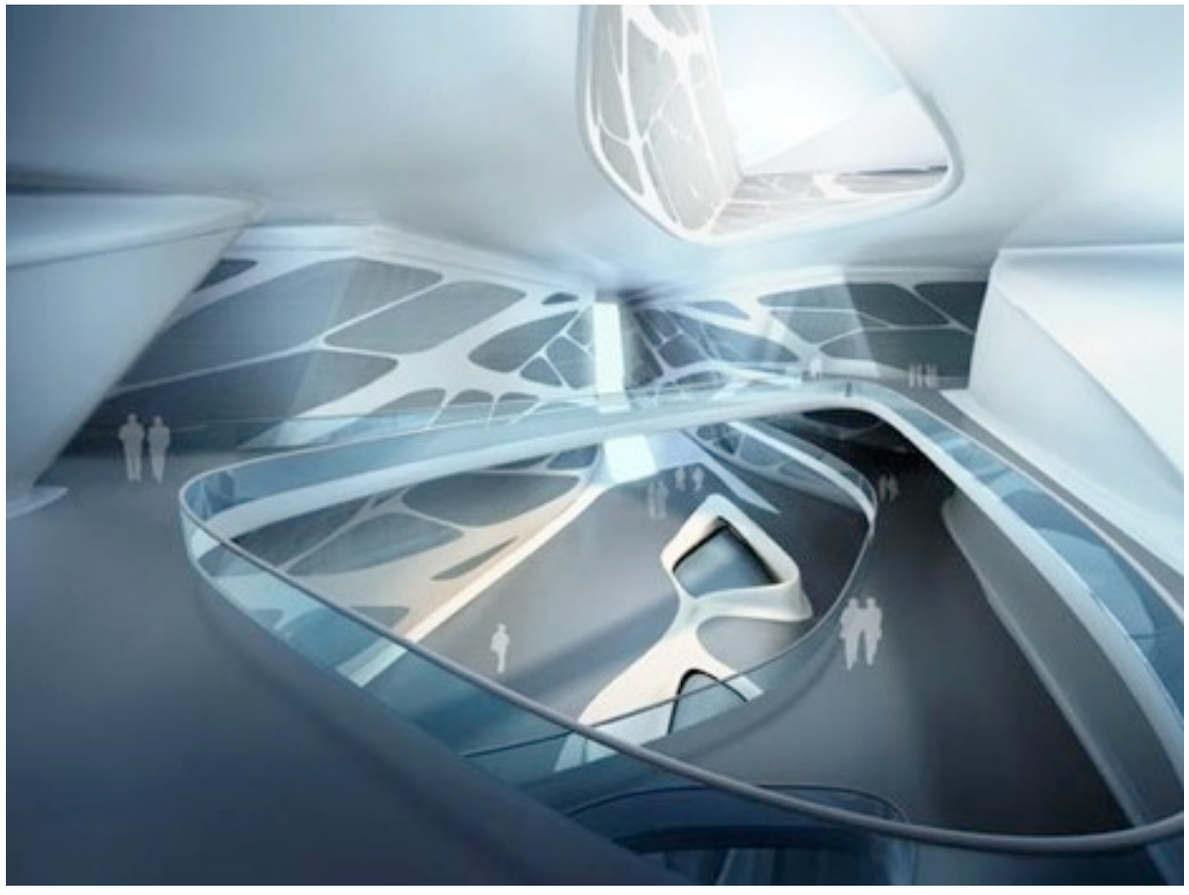
Image from Wikimedia Commons

Walt Disney Concert Hall, Frank Gehry





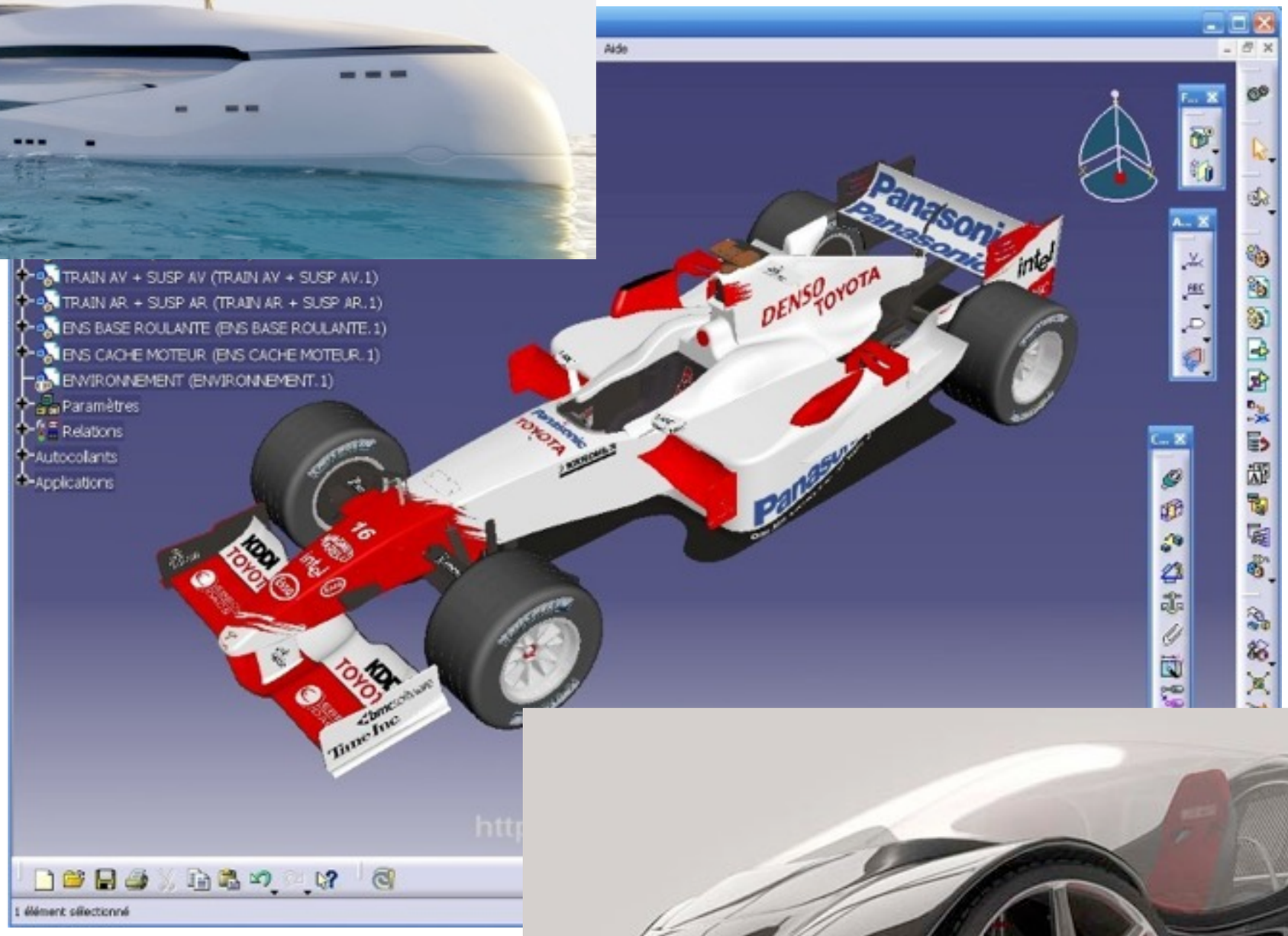




Images from archinomy.com

Abu Dhabi Performing Arts Centre, Zaha Hadid

Oculus yacht by E. Kevin Schopfer,
image from designshoot.com

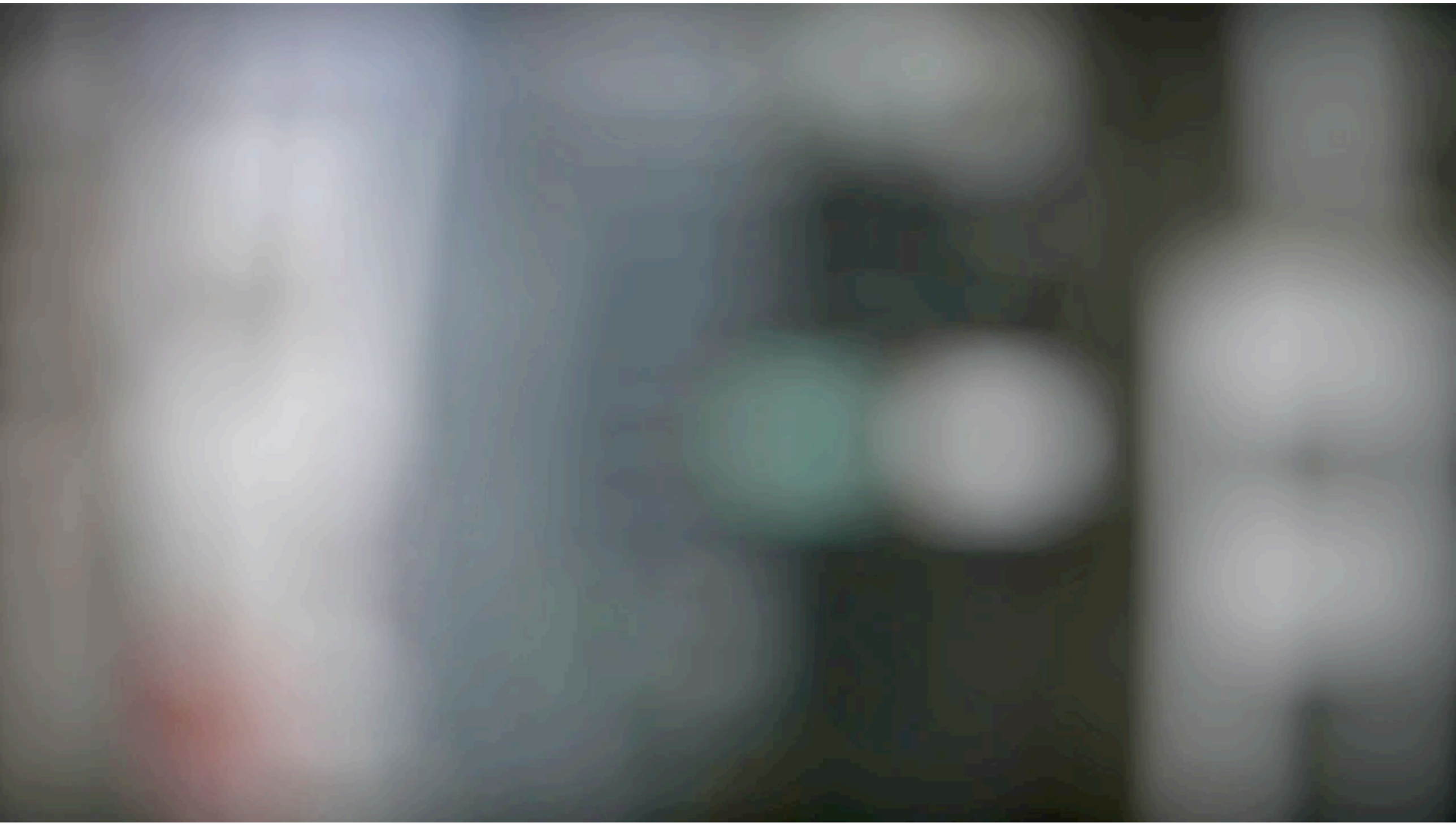


CATIA by Dessault Systèmes

Hawk concept car by Alex Hodge,
image from designshoot.com

Images from www.damienjonesart.com

Damien Jones sculpture



AMD/ATI Ruby demo for RV770

NVIDIA Ocean demo

ARMA II gameplay - http://www.youtube.com/watch?v=5HZ0ubja-34

Flower™ - Official Trailer - http://www.youtube.com/watch?v=nJam5Auwj1E

HP - Roku's Reward - http://www.youtube.com/watch?v=vCCyfkGKL_w

Cisco - The Future of Shopping - http://www.youtube.com/watch?v=jDi0FNcaock

Course Content

Three key components

Modeling

Rendering

Animation

Syllabus

- Introduction, modeling, the graphics pipeline
- (Research topics)
- Transformations, viewing, rasterization
- Lighting and shading, texture mapping
- Advanced rendering, graphics hardware

Syllabus

- Animation introduction, particle systems, rigid-body simulation
- Topics in animation and modeling

Questions about the course?