

CS4455/6457: Video Game Design and Architecture



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Topics

- Video Game Design and Architecture
- Themes:
 - Some things about elements of games
 - Formal elements, dramatic elements, balance, rules
 - Design fun experiences that *feel* good
 - The core of a game
 - Game technology
 - 3D graphics, audio, physics, AI, game engines etc.

My Learning Objectives for You

- Game Architectures
 - How games and game engines work
- Interactive Programming
 - Creating Compelling and Fun Interactive Experiences
 - That “Feel” Good
- Getting comfortable throwing prototypes away
- And some game design along the way

Annoying Warnings

- You are responsible for anything we talk about in class. If you miss class, talk to classmates.
- I've had too many complaints about students distracting others by goofing around on laptops. So: **NO OPEN LAPTOPS** in class, unless we ask you to take them out
 - If you like to take notes on your laptop, fine. But, I may ask you to show me what you are doing, at any moment
- No recording device, without permission
 - If you use Livescribe, etc., let me know
 - You may **NOT** record any video
 - You must **NOT** share **ANY** recording (pics, audio) with anyone outside the class

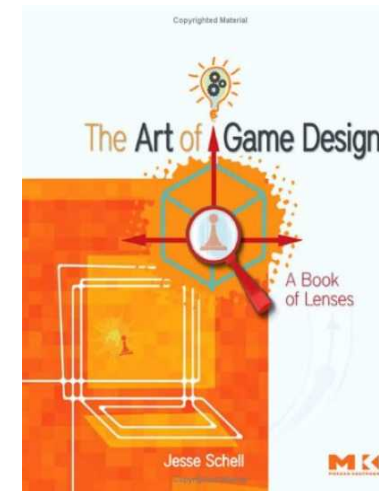
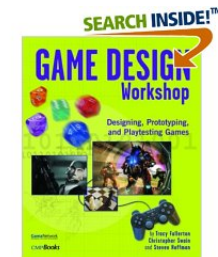
Text: Game Feel

- Steve Swink
- Focused on how to create experiences that feel good to play

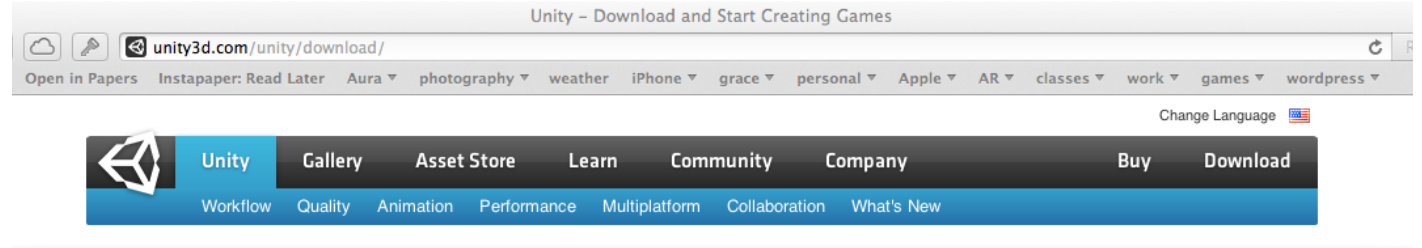


Texts (optional)

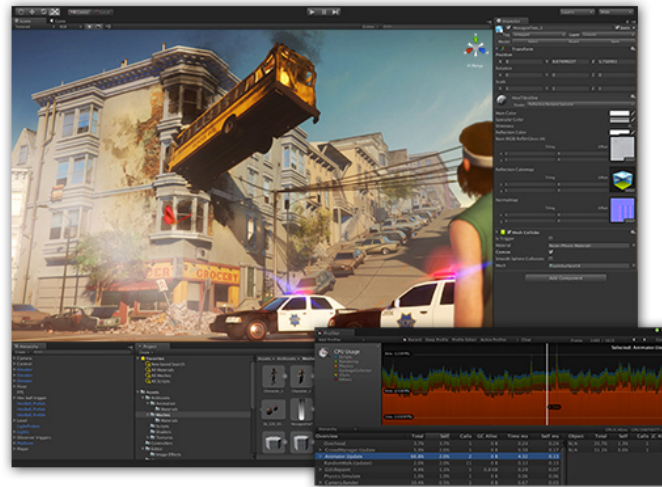
- Game Design Workshop, Second Edition: A Playcentric Approach to Creating Innovative Games (Paperback), *Tracy Fullerton, Christopher Swain, Steven Hoffman (1st Edition: : Game Design Workshop: Designing, Prototyping, and Playtesting Games)*
- The Art of Game Design: A book of lenses (Paperback), *Jesse Schell*



Unity3D



- Unity3d.com
- LEARN IT, NOW!



The free version of Unity for OS X. Includes publishing support for iOS, Android, Windows Store, Windows Phone, BlackBerry, desktop and Web, and a 30 day trial of Unity Pro (with Pro publishing for iOS, Android, Windows Store, Windows Phone and BlackBerry).

[Download Unity 4.2](#)

[Looking for an older version?](#)

[System Requirements](#)

[License Comparison](#)

[Release Notes](#)

[Developing on Windows?](#)

- Leverage forums, IRC, tutorials, examples, wikis, etc.
- You need to install it on your laptop!
 - DGML has Pro

Introductions

■ Instructor

- Blair MacIntyre
- blair@cc.gatech.edu



■ Augmented and Mixed Reality (“interactive 3D in the world”), AR/MR Games

- Associate Professor, Coc/IC; Adjunct Professor, LMC
- Design of MR/AR experiences (3D in the world)
- Background in math, CS, 3D graphics
- PhD research in distributed interactive 3D software design

Some Games

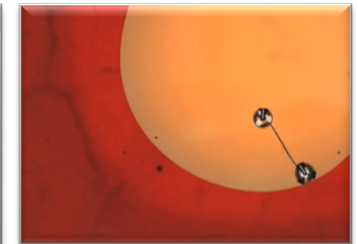
- From my lab and company

- Nerdherder
- Rock'em Sock'em Robots



- From some previous classes

- Cure
- Matics



Useful Background Knowledge

- PROGRAMMING! This is NOT a design class
- CS Classes
 - Computer Graphics
 - Artificial Intelligence
 - Networking
 - Human-Computer Interaction
 - Software Engineering
- Visual Arts
 - 3D Modeling
- Music and Sound Design

What you will do

- Think about games
- Think about what makes a game feel good, and play well
- Make 4 prototype games
 - Individually, < 2 weeks per prototype
- Create a game
 - In a small team, last 6 weeks

Class Structure and Grading

- <http://ael.gatech.edu/cs4455f13>

Final Group Project

- Design and build a game “toy”
 - Unity3D appropriate for all types of games!
- Everyone must make a **significant** technical contribution
 - EVERYONE WRITES CODE

Group Project

- Build a team
 - Teams of 3
- Build a game
- Should include some subset of complex tech
 - 3D game
 - Non-completely-trivial AI
 - Network (2 player)
 - Physics
 - Audio

Resources

- Know what's going on!
 - Grades on Tsquare
 - Announcements, syllabus and schedule on blog
 - Please check often
- DML/Mac Lab
 - Lots of software (Unity3D, Maya, Creative Suite)
- Free models, cheap models
 - Don't spend a lot of time modeling!
- Audio Libraries

One More Thing: Game Jams

- VERY worthwhile if you want to learn how to build games!
- <http://www.ludumdare.com>
- <http://globalgamejam.org>
- <http://gafallgamejam2013.eventbrite.com>