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)


- The Art of Game Design: A book of lenses (Paperback), *Jesse Schell*
Unity3D

- Unity3d.com
- LEARN IT, NOW!
- 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; Adjunt 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