Lecture 1

Course Overview
CS/INFO 4152: Advanced Topics

- Sequel to CS/INFO 3152
  - Prereq unless you a non-Cornell Meng (or exempt)

- Similar format and structure as Intro Game Design

- Covers topics not touched in Intro Game Design

- Single semester long game project
  - At least 55% of your final grade
  - Interdisciplinary teams of 4-6 people

- Also design documents, but no labs
CS/INFO 4152: Advanced Topics

- Uses familiar the **milestone** schedule
  - Deliverables every two weeks (after week 3)
  - One extra prototype beyond 3152 schedule
  - Details on course website: http://www.cs.cornell.edu/courses/cs4152

- Games demonstrated at **Showcase**
  - Like BOOM, open to the public
  - Public reaction is part of your grade
  - Submissions posted on the GDIAC website
Course Structure

• Most of the course happens during lecture section
  • Meets three days a week (M,W,F) 11:15-12:05
  • Mixture of lectures, presentation, and discussions
  • Want course to be more interactive than CS/INFO 3152

• Lectures: Common in first half of course
  • Advanced game development topics unique to course
    (this is not going to replace a graphics course)
  • Design Focus: mechanics, user interfaces and testing
  • Technical Focus: mobile platforms, memory management
Course Structure

- **Presentations:** Every two weeks
  - In-class critique of your game by your peers
  - Part of your participation grade comes from this
  - Because of class size, held over two sessions

- **Playtesting:** Follows every single deliverable
  - Handled just as in the introductory class
  - Will expect user-test scripts for alpha and onward

- **Other Discussions:** As appropriate
  - **Example:** Code walkthroughs of architecture
The Discussion Sections

- Discussion time was biggest request last year
  - Like communication lab from CS/INFO 3152
  - Time to work on Assignments already assigned

- We have contacted your team about times
  - Groups 1-4 meet Thursday 9:05-9:55 in TBA
  - Groups 5-9 meet Thursday 3:35-4:25 in TBA

- **Catch**: You must enroll in ENGRC 4152
  - Extra credit hour for work you are already doing
  - This is *required*; it is not optional
Game Requirements

• Must be mobile game on iOS or Android
  • Develop cross-platform, but graded only on one
  • Have tried 3D games in past, but never work well

• Some form of innovative gameplay
  • Interface innovation for mobile
  • 3D game should leverage camera control

• Target public distribution
  • Mobile apps should try to get on either App Store
Mobile Game Development

- Will use our custom **C++ game engine**
  - Slight modification of Cocos2d-x 3.9
  - Made to solve many problems from last year

- We do **not** provide any hardware
  - New devices are about $200; used are cheaper
  - Just need one device for your whole group

- Either 2D or 3D is acceptable
  - Will need **OpenGL ES** in either case
Choosing a Platform

- You **must** develop iOS apps on a Macintosh
  - Only XCode can load the app on to a device
  - No longer need Apple Developer membership
  - But need membership ($100) if want multiplayer

- **Suggest** you develop Android on Windows
  - XCode cannot support Android at all
  - Visual Studio can import Android projects
  - Can also target Cocos2d-x on Windows for testing
Working in C++

• Best option for cross-platform development
  • **iOS**: Obj-C and **C++**; **Android**: Java and **C++**
  • Game developers should learn it anyway
  • Will have several lectures if it is new to you

• You should use a **professional IDE**
  • This means XCode or Visual Studio
  • Tools for analyzing memory performance
  • Eclipse is **not** a professional C++ IDE
Warning About Cocos2D

- Start of the scene graph fad
- To make design “easier”
- Adopted heavily by Unity

- Scene Graphs are nice
- Organize sprites as groups
- Aids animation design
- Parallax, transitions easy

- But Scene graph != model
- This is the Unity mistake
- I will fail your Arch Spec!
Your **group** retains all ownership
- You can commercialize it later
- You can make derivative works
- Individual ownership is your responsibility

But Cornell gets a non-exclusive license
- Non-commercial use of final version submitted
- We can post this version on our website
- We claim no other rights to your game
## Semester Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Form Groups</td>
<td>1/30</td>
</tr>
<tr>
<td>2</td>
<td>Group Charter</td>
<td>2/6</td>
</tr>
<tr>
<td>3</td>
<td>Concept Document (Project Kickoff)</td>
<td>2/13</td>
</tr>
<tr>
<td>4</td>
<td>Nondigital Prototype</td>
<td>2/17</td>
</tr>
<tr>
<td>5</td>
<td>Gameplay Specification Milestone Proposals</td>
<td>2/27</td>
</tr>
<tr>
<td>6</td>
<td>Gameplay Prototype</td>
<td>2/29</td>
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<tr>
<td></td>
<td>Content Repository</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Architecture Specification</td>
<td>3/12</td>
</tr>
<tr>
<td>8</td>
<td>Technical Prototype</td>
<td>3/14</td>
</tr>
<tr>
<td>9</td>
<td>Document Revisions</td>
<td>3/26</td>
</tr>
</tbody>
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**Pre-Production**

**Development**
## Semester Schedule

<table>
<thead>
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<th>Week</th>
<th>Event</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Week 10</td>
<td>Alpha Release</td>
<td>4/4</td>
</tr>
<tr>
<td></td>
<td>Code Walkthroughs Level Design</td>
<td>4/16</td>
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<tr>
<td>Week 11</td>
<td>Closed Beta Release (Feature Complete)</td>
<td>4/18</td>
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<tr>
<td>Week 12</td>
<td>App Store Proposal</td>
<td>4/30</td>
</tr>
<tr>
<td>Week 13</td>
<td>Open Beta Release (Open Playtesting)</td>
<td>5/2</td>
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<tr>
<td>Week 14</td>
<td>Final Portfolio Postmortems</td>
<td>5/9</td>
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<tr>
<td>Week 15</td>
<td>GDIAC Showcase</td>
<td>5/20</td>
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Group Management

- Every group has a **project leader**
  - Final say in all *design decisions*
  - Coordinates designers and programmers
  - Responsible for milestone reports

- Every group has a **lead programmer**
  - Responsible for the *code architecture*
  - Responsible for maintaining code base
  - Delegates coding tasks to others
Help Outside of Class

- Must meet as a group for 1/hour a week
  - Pick a regular time and place
  - Submit as part of your group charter
- Will serve as a form of “office hours”
  - The instructor will come if invited
  - Use for “just-in-time” instruction
  - Algorithms/techniques unique to your group
- Will also be using Piazza this semester
Grading Policy

• Mixture of group and individual grades

• Group grades are same for all group members
  • Group Game Grade (25%)
  • Course Documents (30%)
  • Class presentations (5%)

• Individual grades distinguish group members
  • Individual Game Grade (30%)
  • Participation and Reports (10%)
Game Grade

- Group grade reflects the game quality

<table>
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<th>Criteria</th>
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<td>A</td>
<td>Bug-free, Fun-to-play</td>
</tr>
<tr>
<td>B</td>
<td>Complete and playable</td>
</tr>
<tr>
<td>C</td>
<td>Complete but unplayable</td>
</tr>
<tr>
<td>D/F</td>
<td>Serious delinquencies</td>
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- Individual grade represents contribution

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<th>Grade</th>
<th>Criteria</th>
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<tr>
<td>&gt; Group</td>
<td>Visionary, group MVP</td>
</tr>
<tr>
<td>= Group</td>
<td>Good attitude, hard worker</td>
</tr>
<tr>
<td>&lt; Group</td>
<td>Produce negative work</td>
</tr>
<tr>
<td>D/F</td>
<td>Abandon the group</td>
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ENGRC Grading

- ENGRC section also has a grade
  - New requirement by school of engineering

- All grades except the game grade
  - Course Documents (70%)
  - Class presentations (15%)
  - Participation and Reports (15%)

- Typically higher than course grade
Using CATME for Reports

http://www.catme.org
This Week

- Set up your **Cocos2D-X** build environment
  - Download SDK and set it up for your IDE
  - Download demos from the course website
  - Use Piazza if you are having problems

- Lectures on **game mechanics**
  - Reviewing what you forgot from CS/INFO 3152
  - Augmented with advanced topics next week
  - Getting you ready for the **Concept Document**
Next Week

- **Pitch Session** next Wednesday, Friday
  - 5-10 minute “elevator pitch” for your game
  - Practice with short, concise description
  - Practice, feedback for Concept Document

- **Group Charter** due at end of the week
  - We are going to be a bit more involved about this
  - Want rules of how you interact with each other

- **Concept Document** due in two weeks
  - Slightly different format from Intro course