Administrative

IMGD 4000

Topics

• Background
• Admin Stuff
• Motivation
• Objectives
• Class material!

Professor Background
(Who am I?)

• Mark Claypool (professor, “Mark”)
  – Computer Science
  – Interactive Media and Game Development
• Research interests
  – Multimedia performance
  – Congestion control (protocols, AQM)
  – Wireless networking
  – Network games

Student Background
(Who are you?)

1. Year?
2. Major?
3. Background?
   a. IMGD3000
   b. Soft Eng. (CS3733)
4. Platform of Choice?
   a. Windows
   b. Mac
   c. Other
5. Expertise (low, medium, high)?
   a. C/C++
6. Familiarity with UE4 (low, medium, high)?
   a. C/C++

NUTS AND BOLTS

• http://www.cs.wpi.edu/~imgd4000/d16
• Class: Mo, Th 2-3:50pm (SL 105)
• Lab: We 2-2:50pm (IMGD Lab - FL222)
• TA: Caitlin Malone
  – Office hours, email, grading
• SA: Benny Peake
  – Office hours, email, Lab
• SA: Chaima Jemmali
  – Office hours, email, Lab
• Office hours:
  – On Web page
  – Or by appointment
• Email
  – claypool@cs.wpi.edu (me)
  – imgd4000-staff@cs.wpi.edu (me + TA + SA)
  – imgd4000-all@cs.wpi.edu (class + staff)

Text Book

• None
• Online documents for UE
• Programming books
**Class Topics**

- Game Engines
- Decision Trees
- Basic Physics
- Steering
- Advanced Pathfinding
- Advanced Camera Control
- Network Games
- Scripting
- Game Audio
- Novel Input Controls

**Assumed Knowledge**

- Functional programming (e.g., CS 1101 or CS 1102).
- Object-oriented design and programming (e.g., CS 2102).
- Systems programming concepts (e.g., CS 2303).
- Software engineering (e.g., CS 3733).
- Basic technical game development skills (e.g., IMGD 3000), including:
  - Game engine architecture
  - Iterative technical game development process
  - Scene management
  - Input controls
  - Simple AI

**Grading**

- Quickstart 5%
- Project 1 10%
- Project 2 10%
- Project 3 10%
- Game Project 45%
- Mid-term 10%
- Final 10%

*(Details on each, next)*

**Quickstart**

- Get up to speed on UE4
  1. Setup UE4
  2. Work through guides
     A. Editor
     B. Programming
     C. First Person Shooter
  3. Extend on your own
     — 10%

**Projects 1 - 3**

- Expand technical game development knowledge and skills
  — In UE4
- Specific technical skills
  — Behavior tree
  — Advanced pathfinding
  — Force-based steering
  — Camera control
  — Networking
  — Advanced physics
- Blueprints (scripting) and/or C++
- Done solo
- Done about 1/week for weeks 2-4

**Game Project**

- Game from scratch
  — In UE4
- Of your own design (game, art, tech)
  — With constraints
- Done in teams
  — 2 Tech (IMGD 4000)
  — 2 Art (IMGD 4500)
- All term
  — Start second day of term, end final day of term
Exams

• Mid-term
• Final
  – Non-cumulative
• Closed book, closed note, closed friend
• Test important concepts not adequately demonstrated by team-programming alone

Slides

• On the Web (usually before class)
• PPTX and PDF
• Caution! Don’t rely upon slides alone! Use them as supplementary material
  – (come to class)

Timeline

• On the Web page
  http://web.cs.wpi.edu/~imgd4000/d16/timeline.html
• Tentative, but may help you plan
• Shows Tech (IMGD 4000) and Both (IMGD 4/500 and lab sessions)
• Items in CAPS → you turn something in
• Items in lower → internal milestones only
  – But strongly encouraged!

Why This Class?

Goals
• Participate effectively as tech game developers in interdisciplinary teams
• Become proficient in new game engine
• Expand technical game dev skills
• Be conversant with important advanced and emerging tech concepts

Objectives
• Team 2 tech and 2 art, make game with milestones, game engine, source control
• Develop C++ and scripting code for Unreal Engine applying new technical skills learned
• Individually tested on knowledge of important technical game dev.

Why Else This Class?

• Fulfill WPI IMGD requirements
  – Effectively, tech track students must take IMGD 4000
• Get ready for MQP
  – Whether in UE4 or another engine
• Learn UE4
  – Only one engine, but popular and powerful
• Become better programmer
  – Programming is critical
  – The more you do, the better you get
  – IMGD Tech students need to be the best programmers (esp. C++)
• Make a game
  – Potential portfolio piece (with polish after class)
• Fun!