Game Design Studio III (CMPS 172)
Fine-Tuning Game Controls
Upcoming Events

- Daniel Benmergui
  - Wednesday, April 18, 2012
  - E2 180, 11am

- Zynga Campus Visit and Tech Talk
  - Wednesday, April 18
  - 5pm – 7pm, Career Center Library (3rd floor bookstore building)

- Spring Job and Internship Fair
  - Tuesday, April 24, 11am-3pm
  - College 9/10 Multipurpose Room

- Stone Librande
  - Creative Director/Game Designer, EA/Maxis
  - Wednesday, April 25, 2012
  - E2 180, 11am
Upcoming deadlines

- Friday (April 13)
  - Sprint I ends
  - Sprint II begins
  - Team status reporting via report tool

- Monday (April 16)
  - Sprint I report due
  - Sprint II plan due
Reminder: Lab Cleanup

- A reminder about teams responsible for lab tidying duty

- Week 2 (this week): Hello World
- Week 3 (week of April 16): Chroma
- Week 4 (week of April 23): Chroma
- Week 5 (week of April 30): Sonar
Getting movement control right

- Several common control problems with games
  - Floaty: after receiving player input, the player avatar is non-responsive for a short period of time
    - Avatar is “floating” through space
  - Twitchy: player avatar is overly responsive to player input
    - At its worst, avatar is vibrating, reacting even to noise in reading values of the physical controls
  - Unresponsive: player avatar responds slowly, or unreliably to player input
Attack, Decay, Sustain, Release

- Controller inputs are mapped to in-game parameters
  - Example: right D-Pad arrow mapped to forward motion in Super Mario Bros.
- The magnitude of the response of a parameter to a control over time is critical to the “feel” of that control
- A framework for thinking about this time response is:
  - Attack
  - Decay
  - Sustain
  - Release

Model of Mario’s Horizontal Movement

max speed

button pressed

button released

time (sec)

1 sec

2 sec

A

S

R
ADSR

- **Attack**
  - The controlled parameter ramps up to its maximum value

- **Decay**
  - Any automatic decrease from the maximum value before reaching a steady-state value of the parameter
  - Often not present in video games
  - When present, is often a mistake

- **Sustain**
  - A steady-state value for the parameter, often maintained for as long as the player uses the control

- **Release**
  - The controlled parameter decreases back to some background state (down to no activity, no firing, etc.)

- Each of these are variables you can manipulate in creating your game’s feel
Immediate Response

- Immediate response to control
- Very short attack/release
- Example: player in Donkey Kong
- Responsive, but stiff
- Good for precise control: movement and jumping
Floaty Controls

- A longer attack phase results in a floaty, loose feel
- Sometimes floaty is good (Asteroids), but often is not
- Causes problems when players feel there is no immediate response to input
Tight, responsive

- A short attack phase makes controls feel tight and responsive
Game states

- It is often the case that a player avatar (or the overall game) will have multiple distinct states
  - Example: Mario can be on the ground (state 1), or in the air (state 2)
- The ASDL response curve can vary depending on state
  - Strength of response to left/right controls is much smaller when Mario is in the air
  - This gives you an extra degree of freedom when designing your controls
  - Two or more sets of responses mapped to the same input
Exercise #1

- Go to:
  - http://www.game-feel.com/?page_id=8
  - Download example: Demo CH13-1 (*not* -2)
  - With a few partners, play around with the various inputs until you get a Mario character that has good game feel
Exercise #2

- With your team, create one or more ADSR charts to describe the response of your player avatar
- Discuss whether this is the best ADSR curve for your game
- Be prepared to give a short presentation on this to the class