Foundations of Interactive Game Design (80K)

week two, lecture one
Today

- Announcements
- A new plan for this week’s tutorial
- Core mechanics, again
- Mechanics, dynamics, aesthetics
- Some game history
- Some game genres
Porter Video Game Festival

April 9th
12 PM – 12 AM

Games:
Super Smash Brothers Brawl/Melee
Street Fighter 4
Burnout
Mario Kart & Diddy Kong Racing

If Kinect is available; Dance Central
Volunteer Opportunities

- Help set up & tear down equipment
- Judge the tournaments
- Run the front desk in checking in contestants and equipment

- We also badly need TVs (flatscreens), consoles, games, and controllers!

- Email volunteers@portervgf.org if you wish to help us out!
This week’s tutorial
platformers and hidden object games: delayed
This week’s tutorial

Concepts covered include variables and properties — get as far as you can
More on mechanics
Core mechanics of *Super Mario Bros.*

- Walking
- Running
- Jumping!
- ... across gaps, onto enemies, for coins, to activate surprises, to destroy blocks, to kill enemies on blocks, into pipes...
- Rules: touching an enemy (without landing on them) or falling past floor is death
Platformer genre

Precise walking, running, jumping are still core mechanics today
Core mechanics of **Doom**

- Moving forward and back along depth plane in a *first person* perspective
- Moving side to side (sidestepping or *strafing*) along depth plane
- Turning
- Shooting where you are looking
- Gathering health and armor boosts
- Rules: damage from enemies, environment
First Person Shooter genre
Precise navigation and shooting are still core mechanics today
Core mechanics of Tetris

- Rotating pieces
- Dropping pieces
- Making complete lines to clear them
- Rules: unpredictable new pieces fall from top as soon as previous reaches bottom, speed increase, reaching the top is death
Tile Matching genre

Following match rules is still a core mechanic today, but often matches follow color

Obviously that was not possible on a computer without color display...
Core mechanics of Poker

• Shuffling (randomizing) cards & giving fixed number to each player — maybe # shared

• Betting based on partial information of random situation (only own hand is known) in turns, possibly folding

• Getting (& perhaps giving up) cards, in turns

• Betting/folding in new partial info state

• Revealing hands, fixed rank of combinations

• Non-Rule: The importance of acting!
What kind of game is Poker?
Is it a game of chance, acting, or reason?

- Random cards
- Hidden and limited information, but more for player who goes last each turn
- Bluffing and other pretending
- Reasoning about hands of others (fixed, non-repeating set of cards, seeing behavior)
- Playing the long-term numbers, not the individual hand
Dynamics of poker

- A lot of luck — and maybe a lot of acting and reasoning
- The luck leads to peaks and valleys — getting punished & punished for good play, then rewarded & rewarded for bad play
- Game exploits our non-logical behavior (behavioral economics). Novice players lose more the more hands they win — weighing frequent small gains over large losses
Aesthetics of poker

- A wild ride on moment to moment chance
- combined with the absolute need to stay focused on reasoning about the current situation to improve long-term odds
- while you try to mis-signal other players and get them caught up in emotion
Aesthetics of poker

• The aesthetics are about the interplay of cool reason, human emotion, and the random world

• It’s three kinds of fun mixed together!

• Frank Lantz: One of the roots of formal game theory, which taught us that nuclear war is unwinnable

• Poker maybe saved the world!
Mechanics, dynamics, and aesthetics

From Malcolm Ryan’s slides for a lecture given with Robin Hunicke, Ben Smith, and Ethan Kennerly

based on ideas of Marc "MAHK" LeBlanc
What’s missing?

“Rules”

“Fun”
This is what sets games apart…
Games As Software

“Rules” → “Play” → “Fun”
Games As Software

“Rules” → “Play” → “Fun”

Code → Process → Requirements
A Design Vocabulary

Mechanics → “Play” → “Fun” → Requirements
A Design Vocabulary

Mechanics → Dynamics → “Fun” → Requirements
A Design Vocabulary

Mechanics → Dynamics → Aesthetics
The MDA Framework

Mechanics → Dynamics → Aesthetics
Definitions

**Mechanics**: The rules and concepts that formally specify the game-as-system.

**Dynamics**: The run-time behavior of the game-as-system + players.

**Aesthetics**: The emotional responses evoked by the game dynamics.
The Designer/Player Relationship

Designer

Mechanics → Dynamics → Aesthetics

Player
The Player’s Perspective

Mechanics → Dynamics → Aesthetics

Player
The Designer’s Perspective

Mechanics ← Dynamics ← Aesthetics

Designer
A piece of game history

We’ll cover more over time
Genre: emulation of tabletop games

Now usually “casual games” (like Solitaire)
Genre: Sports Games

emulating non-tabletop games
Spacewar! demo

Keyboard controls:

a s d f
k l ;'
Spacewar!

- There were earlier computer/video games. But they simulated non-computer games: Checkers (1952), Tic-Tac-Toe (1952), Ping Pong (1958)

- In *Spacewar!* we see a vocabulary of computer games first emerge: navigation, projectiles, simulated gravity

- Huge influence on future games (e.g., Atari founder Bushnell’s *Computer Space*, 1971)
Spacewar!

- *Spacewar!* was also a feat of technology (tech demo for PDP-1) and open source
- *Spacewar!* also shows games as media — science fiction (don’t forget Sputnik) not traditional game simulation
- *Spacewar!* also is an important social game — called first multiplayer, spread in lab culture led to “*Spacewar!* Olympics” via *Rolling Stone*
Notice anything?

The first games all come from universities and national labs
Remember *Pong*?
Pong started the arcade boom
More Thursday!