Game Genres: Platformers

Foundations of Interactive Game Design
Prof. Jim Whitehead
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Upcoming Assignments

• Due this week
  ‣ Partially Operational Game Prototype
    ❖ Due Friday, February 15
    ❖ Need to have started your game
    ❖ Need to have at least some things working already
    ❖ Demonstration that you have spent at least 5-10 hours on your game already
    ❖ Turn in on a CD-ROM or on a flash drive
      • See course web page for more details
      • CS 80K Home Page -> Project -> Partially operational game prototype

  ‣ Progress Report
    ❖ Also due Friday, February 15
    ❖ An update on where things stand in your schedule
    ❖ Is your project completing tasks on schedule, or falling behind?
Game Design Workshops

- **Game Maker**
  - Wednesdays, 6-8pm
  - Engineering 2, room 180 (Simularium)
    - Enter on plaza level between E2 and JBE

- **RPG Maker**
  - Wednesdays, 5-7:15pm
  - Engineering 2, room 280
    - 2nd floor, on front of building, on driving circle/Communications end (right side, east end) of the building
    - Arrive by 6pm to avoid external doors locking
    - Knock on nearest door if late...

- **CS 20/C# and XNA Game Studio Express**
  - Thursdays, 4:30-7pm
  - Engineering 2, room 399 (third floor, by elevators)
Games with Designed Levels

- **Games with designed levels**
  - Monopoly (design of the game board)
  - Lemmings (design of each puzzle level)
  - Mario Bros.
  - Gradius
  - Kororinpa

- **Games with non-designed levels**
  - More precisely, the design of the level does not extend beyond setting the size of the playfield
  - Pong (always two paddles, one ball)
  - Tetris (always same size, pieces fall randomly)
  - Bejewelled 2 (always same size, semi-random piece fall)
  - Madden (always same football field)
  - Asteroids, Geometry Wars (fixed playfield, randomly spawned enemies)
Level Design

- **Level design** is the
  - conscious sculpting of a player’s game experience via
  - the construction of variable physical spaces and
  - the creation and placement of level components, such as obstacles, enemies, rewards, triggers, or other player interactables.

- That is, when engaging in level design, you are
  - Creating a player experience
  - Creating the architecture of a level
    - You consciously create the space in which action takes place
    - This space constrains or affords types of gameplay, challenge, conflict
  - Placing elements inside the level to create challenges
    - E.g., placement of platforms, goombas, coins/stars, triggers in platform games

Example of trigger: Hitting “P” causes blocks to turn into coins
Level Design for Platform Games

• What are the elements of good design for platform games?
  ‣ This is not well understood

• Need to carefully study examples of genre
  ‣ What were important evolutionary trends, and what do they tell us about the design of platform games?
  ‣ Can think of platform games consisting of utterances in a design language
    ❖ Following this analogy, what are the phrases, or idioms, that frequently occur
    ❖ That is, what are the design elements from which you can construct platform games?

• Will perform a design retrospective of platform games in this lecture to start answering this question
  ❖ A complete answer is still an ongoing area of research

Examples of timed platforms (left, Super Mario World) and flexible platforms (above, Yoshi’s Island), two distinct design elements in platform games.
Essence of a Platform Game

- Jumping
- Platforms (floors)

That’s it!
- Well, OK, It must be possible to control jumps, fall from platforms, or miss jumps
  - Games where jumping is completely automated fall outside of genre (Legend of Zelda, Ocarina of Time)

Beyond these, very few unifying elements
- As the Wikipedia article on platform games states, “Not a pure genre”
- Very frequently coupled with elements of other genres
- Shooter elements in Contra  RPG elements of Castlevania:
Donkey Kong: First Platformer

• Created by Nintendo in 1981
  ‣ First game by Shigeru Miyamoto
• Combined jumping over obstacles and jumping over gaps
  ‣ A prior game, Space Panic (1980) does not include any jumping, but does have discernable platforms
• Limited to single screen of play
  ‣ Hardware too limited to support scrolling
• Aside
  ‣ Universal Studios sued Nintendo for King Kong copyright infringement (Universal City Studios, Inc. v. Nintendo Co., Ltd.)
  ‣ Turns out Universal didn’t actually own the copyright
  ‣ Worse, they had previously won a lawsuit claiming King Kong was in the public domain!
Discussion

• Demonstration of Donkey Kong

• What are the important design elements of Donkey Kong
  ‣ What makes this a great game design?

• What are some of the important thematic elements of Donkey Kong?
  ‣ What cultural elements does the game tap into?
  ‣ What are some of the background assumptions in the game?
Important Design Elements

• Characters
  ‣ There actually are some!
    ❖ Compare with Pong, Space Invaders, Asteroids which have none
    ❖ Pac-Man is only other existing game with discernable characters
  ‣ Donkey Kong is a recognizable, cartoon character
    ❖ Has a face and body language
  ‣ Princess is recognizable stereotype
  ‣ Even the fireball has eyes!

• Clear Goal
  ‣ Opening animation (arcade version) clearly tells story of what needs to be done
    ❖ Rescue the Princess!
Important Design Elements

• **Simple core game mechanic**
  ‣ Run and jump
  ‣ Grab the occasional powerup (hammer)

• **Levels**
  ‣ Distinct levels allow the designer to carefully craft the user experience
  ‣ Mostly fixed patterns of spawned barrels, with some limited AI for the fireball
  ‣ Very few prior games had any discernable level design
    ▶ Berzerk had distinct levels, as did Phoenix
  ‣ Compare with Space Invaders, Pac-Man, Asteroids, Pong
    ▶ Either no level design, or a single level design

• **Push**
  ‣ Fireball encourages player to keep progressing through level
Thematic Elements

• Explicitly gendered setting
  ‣ Protagonist is male
  ‣ Princess is female
    ❖ And needs to be rescued
  ‣ Mirrors King Kong movie

• Narrative
  ‣ Opening animation for each level tells (limited) story of the creation of the structure of the level
    ❖ Donkey Kong runs away from player to top of screen
  ‣ Landscape narrative
    ❖ The set of platforms and obstacles, and the progression through them
    ❖ Player can “read” these elements, and see that they tell a limited kind of story
    ❖ In Donkey Kong, it appears you’re in a construction site of some sort
      • How can you tell? You “read” the presentation of platforms (girder like structure) and the kinds of obstacles presented (barrels and fireball)
Screen-at-a-Time Scrolling

• Pitfall! (1982)
  ‣ Adapted platformer genre to home consoles (Atari 2600)

• Large gameworld, navigated by going from screen to screen
  ‣ Consoles not powerful enough to support scrolling

• Breakthrough for the time
  ‣ Over 4 million copies sold

• Demonstration
Full Scrolling

• Pac-Land (1984)
  ‣ First influential scrolling platformer
• Super Mario Bros. (1985)
  ‣ First console game with smooth scrolling levels
• Wonder Boy (1986)
Design Elements of Scrolling Platformers

• **Large Gameworld**
  ‣ Gives players sense of exploring large, expansive world
  ‣ Camera follows player as they explore

• **Bright cartoon graphics**
  ‣ Creates sense of more whimsical gameworld
  ‣ Creates creative space for more silly game elements
    ✷ Mushrooms, walking turtles, Goombas

• **Varying challenges**
  ‣ Early games: jumping, climbing, jumping on top of critters “hop and bop”
  ‣ Shooting (Mega Man)
  ‣ Collecting items
Second Generation Side Scrollers

• Sonic the Hedgehog (1991)
  ‣ Speed, baby, speed!
    ❖ Blazingly fast progression among areas of the world
    ❖ Combined with jumps, permitted new style of gameplay
  ‣ Also introduced
    ❖ Loops, collecting rings, springboards
  ‣ Easy to see how this game was a break from previous scrollers
  ‣ Important in Sega vs Nintendo marketing
Benefits of 2D Platformer Gameworld

- Many of the mechanics in 2D platformers were ideally suited for 2D gameworlds
  - Jumping
    - Only have to worry about x position and time, not x, y and time.
  - Simple camera
    - Keep the player more or less centered
    - No need to worry about direction
  - Simple controllers
    - D-pad and a few buttons
  - Level design is more simple
    - Only have to worry about 2D spatial layout of items
• Moving platformers to 3D creates number of design challenges
  ‣ In 3D, can often just go around obstacles
  ‣ Path through world more difficult to control
  ‣ Jumping is more complex
  ‣ Camera angles require more thought
  ‣ Requires more complex control pads
• Took awhile to get right
  ‣ Several transitional games
  ‣ Early, but not influential
    ❖ Alpha Waves (1990), Geograph Seal (1994)
  ‣ Jumping Flash! (PS1, 1995)
    ❖ First mainstream 3D platformer
  ‣ Bug! (Saturn, 1995)
Super Mario 64 (1996)

• Establishes conventions for the genre
  ‣ Stabilization occurs around this style of game

• Design aspects
  ‣ Free exploration of 3D environment
  ‣ Explore level to find collectable pieces
  ‣ Jumping puzzles (though fewer of them)
  ‣ Hub model
    ❖ Central world
    ❖ Other worlds accessed off of it
  ‣ Intelligent camera
    ❖ Ongoing challenge getting this right
Recent Platformers

• More recent platformer series
  ‣ Ratchet and Clank
  ‣ Jak and Daxter
  ‣ Psychonauts

• Steady blurring of lines between platformers and action adventure genres