Principles of Computer Game Design and Implementation

Lecture 2
We already knew

- The aims and learning outcomes of this module
- History of video game
Outline for Today

• Game platform
• player motivation
• game structure
• player-game model
• character archetype
• game genres
Platforms: Arcade

Mach 3
Platforms: Console

Sony PlayStation

Microsoft Xbox

Etc
Platforms: Computer
Platforms: Online (Multiplayer)
Platforms: Online (Multiplayer)

Peer-to-Peer Network

Youtube video: https://www.youtube.com/watch?v=fXgve-TfPkw
Platforms: Handheld

- Game Boy Color
- Game Boy Advance
- Game Boy Advance SP

(Museum items)
Platforms: Mobile Devices

- Modern mobile devices are more powerful than 1\textsuperscript{st} generation of game consoles
- It is relatively easy to publish your app
Why Do People Play Computer Games?
Player Motivation

- Social interaction
- Physical seclusion
- Competition
- Knowledge
- Mastery
- Escapism
- Addiction
- Therapy
- Exercise
- Creative expression

A matter of psychology research
- A learning or growth experience.
- Fantasy fulfillment and exploration
- Exercise
- A social function
- ...

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Most Importantly: Having Fun

• Physical fun
  – Sport games, quests, killing and gathering

• Social fun
  – Learn social skills, finding mates, showing off

• Mental fun
  – Puzzles, identifying, abstract thinking

Overlap in many cases
Great Game

A series of interesting and meaningful choices made by the player in pursuit of a clear and compelling goal

– Must have choice, or it is not interactive
– Must be a series of choices or it is too simple to be a game
– Must have a goal or it is a software toy
– With Sim City and The Sims players may bring their own goals
Choices

- No choice
  ![Diagram of No choice]

- Meaningless choices
  ![Diagram of Meaningless choices]

- Infinite choices
  - Cut off branches
  ![Diagram of Infinite choices]
Classic Game Structure

• A convexity
• Starts with a single choice, widens to many choices, returns to a single choice
A Series of Convexities

• Many games are chains of convexities

• Points of limited choice (A) alternate with points of many choices (B)
The “Golden Path”

• The optimum path to experience most of the game

• Keeping on the golden path
  – Characters refuse to obey
  – Internal monologue
  – Attractions on the way
Why Is This Structure So Good?

• Give the player choice but not an infinitely expanding set of choices
• Mix of some “any order” choices (B) and some in fixed order (A), blending freedom with linear storytelling
• Can be structured so players see most of the game, minimizing waste
• Can have difficulty go up in new levels
Psychological Advantages of Classic Structure

• Alternating intense learning (A) with time to practice (B) is the best way to master new skills

• Gradual learning and introduction of new skills at the heart of fun game play

• “Easy to learn, difficult to master”

• “Simple, Hot, and Deep”
Difficulty Increase Varies

A = Rapid Difficulty Increase, B = Slower Increase
Game Design

• Computer games are an art form
• Game design practices can be taught
• Design is a technical discipline like music, film, poetry
• Design is the art of making dynamic models
• There’s no ‘right’ or ‘wrong’ approach
  – But there are ‘typical’ scenarios
A Player-Game Model

- A model of the player – game relationship
A `Typical Hollywood Act’

Beginning
- Capture attention
- Introduce problem

Middle
- Provide tension
- Present obstacles

End
- Provide closure
- Resolve problem
Character Archetypes

- Hero
- Shadow
- Mentor
- Ally
- Guardian
- Trickster
- Herald
- ...

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Game Genres

To name a few

Other resources from Youtube:
https://www.youtube.com/watch?v=_F6rnWGR-w
What is a Game Genres?

Categories of games characterised by particular kinds of challenge, regardless of setting or game-world content

• Meant not to constrain your choices, but provide framework for design
Game Genres

• There are about a dozen or so different types of video games.
  – Each video game belongs to one or more of these genres.

• While games in the same genre can look vastly different, they share many of the same properties.
  – Similar design issues and problems.
  – In some cases, similar gameplay mechanics.
Action

• Typified by fast-paced combat and movement
• Spacewar, Pong, and Space Invaders helped define the genre
Action (cont’d)

• Far less cerebral than adventure games.
  – Players are looking for fast-paced action.
  – Some action games, however, also add adventure or strategic elements for a different kind of experience.
Simulation

- Simulation
  - Based on the simulation of a system
  - *SimCity* and *The Sims* are example of “God” simulations where you control the lives of a town or a family
  - *Wing Commander* and *X-Wing* are popular space combat simulation games
Strategy

• Real-Time Strategy (RTS)
  – Typically, a game in which the goal is to collect resources, build an army and combat the other player or computer
  – Popularized by Westwood’s *Dune 2* and *Command and Conquer* and Blizzard’s *Warcraft*

Real-time strategy (RTS) (*Command & Conquer: Generals – Zero Hour*)
Strategy

• Turn-Based Strategy
  – Like real-time strategy games, but turn-based
  – *Civilization*, *X-COM*, *Master of Orion*, and *Jagged Alliance* are standouts of the genre

Opponents can be computer generated, human players, or some combination of the two.
Real-Time V Turn-Based
Adventure Games

• Generally story-based games that rely upon puzzle solving to move the story along.
  – Can be text based (requiring a parser of some kind) or graphical (point and click).
  – Can be first, second, or third person.
  – Generally has a large, complex world with many interesting characters and a good plot.

• Generally not real-time games.
  – Can take as much time as wanted to take a turn; nothing else happens in mean time.
  – Action-adventure hybrids can be real-time.
Adventure Games

Zork I (Text Adventure)

Myst III: Exile (Graphical Adventure)

Tomb Raider (Action-Adventure)
Massively Multiplayer Role-Playing Game (MMORPG)

- An RPG set in a persistent virtual world populated by thousands of other players
- *Ultima Online* in 1997 was the first popular one
- *World of Warcraft* is currently the most popular one
Massively Multiplayer Online Games (MMOGs)

- MMORPG (EverQuest)
- MMORTS (Shattered Galaxy)
- MMOFPS (Planetside)
- MMOPG (Puzzle Pirates)
Genres

• Sports
  – Games that simulate the sporting experience
  – Breakouts include *John Madden Football* and *Tiger Woods’ Golf*

*NHL 2003*  
*Salt Lake 2002*
Casual Games

• Casual games are easy-to-play, short session games with little or no learning curve.
• Players are already familiar with the rules of the game and expect them to be followed here.
• Players generally want to drop into and out of these games quickly.
God Games

• Games that do not have a real goal, other than to encourage players to fool around with them to see what happens.

![The Sims](image1)
![Rollercoaster Tycoon](image2)
![Black & White](image3)
Educational Games

• Intended to teach while they entertain at the same time.
• These games are generally aimed at a younger audience than most other gaming products.
Summary

• When designing a new game you should have a good idea why it would appeal to customers and how much fun it will be
  – Choose a genre
  – Be aware of social and psychological factors why people play games
  – Offer meaningful choice
  – Follow known design patterns