Computer Games Laboratory
Prototyping
Prototyping

Recommended Reading:
Chapter on Prototyping
Prototyping

Why a prototype?

- “Creating a game without a prototype is like shooting a movie without a script.”
- Adds more to a game than a script or document: e.g., interactivity & exploration
- Facilitates fast iteration on the game idea and core mechanics
Prototyping

Something fast and cheap that allows you to answer a specific question about your game: “Is your game idea fun?”

- Not something that eventually morphs into a game
- Not something using the same technology as the production code
- Not meant to impress others
- Rather some form of scientific exploration
Prototype

Only fundamental mechanics (formal elements)
Considers player(s) and the computer
Rough approximation of artwork and features
Focus on gameplay, abstract from
Part of the production process
Extensible, instrument for radical changes
Purpose

Do not create a prototype to show something about the game
  ● Rather validate or disprove some concept
  ● Low effort

Test idea early on, before spending lots of effort on implementation

Prototypes don’t generate ideas, they validate them

Find upsides and downsides

Avoid expensive coding efforts & mental restrictions from code

Experiment, persuade and inspire …
Purpose

Define **core gameplay elements** in purest form

Test game mechanics and user experience

Learn whether core mechanics hold interest of players

Investigate balance of rules (too restrictive, too loose, too few, too many)

Discover play patterns and emergent behavior specific to your game

Does not need to be a complete game by itself
A good question is **concise** and can be answered in a fairly **unambiguous** way

Ask yourself where you need understanding
- Not necessarily full game
- Focus on central gameplay component(s)

Can be about game design, or any other aspect of the game
- How to make things look heavy by coloring
- Can I control a pen via my phone
- Does this sound bring me into the mood, etc.

Do not try to ask for a good game idea via a prototype

Decompose a big problems into smaller tractable ones
Measure the quality of a prototype

Find relevant characteristics:
- Interactivity
- Robustness
- Usability
- Beauty
- Performance
- Agility
- etc. ...

Evaluate quality/cost per characteristic

quality

suck

ok

good

cool

awesome

cost
Prototyping techniques

“Paper” / Physical prototypes
- Good for testing game mechanics
- quick to produce
- cannot convey game experience and action

Storyboard and animatics
- Captures user experience
- useful for communicating ideas

Software prototypes

Hardware prototypes (i.e., manufacturing processes)
Physical prototypes - Step 1: Foundation

Restrict yourself to the fundamentals
Don’t try to be too detailed
Look for the easiest, cheapest way to get it
“Whatever works” …

Design the basic game objects and mechanics
• Cards, paper, pens
• toys, game pieces, lego
• etc.
Physical prototypes - Step 1: Foundation

Example: first-person shooter
Core gameplay: simultaneous action
Accomplish with action cards
Physical prototypes - Step 2: Skeleton

Prioritize what is most essential and refine
- Number of spaces player can move
- Procedures for turning
- Hit and miss rules for shooting

Build upon foundation with structure to support essential parts of game
- Scoring system
- Hit points
Physical prototypes - Step 3: Formal Details

Add rules and features for a fully functional fun game

Focus on most important formal elements
• Is objective interesting and achievable
• Is player interaction ideal
• Are there missing rules

Test each rule individually to determine if it is critical or not
• Hit percentage, health scoring,…
Physical prototypes - Step 4: Refinement

You have a playable system

Play, tweak, play, tweak, play, tweak,…

Question smaller and smaller details

Especially: Is the game fun?

Add new features one at a time
Questions?