Social Computing Systems

Walter S. Lasecki

EECS 498/598, Winter 2018
(http://tiny.cc/socsClass)
Games!
(and gamification)
Genres
More Genres...
Games Don’t Have to be Complex

http://clickingbad.nullism.com/

http://www.levelgame.net/

http://progressquest.com/play/newguy.html
Example: Click Bad

Batches (purity is Deadly)
0
0 per second (net)
0 per second (gross)

COOK!

Cash Money ($0.50 ea)
$0
$0 laundered
$0 per second

SELL!

You have a nearly impossible chance of a DEA raid (0%)
You have a nearly impossible chance of an IRS audit (0%)

Game saved 11 seconds ago
Welcome to Clicking Bad, b*tch.

Storage Shed
$20 — A cheap shed with electricity

Cooks 0.2 per second; 5% risk
Games can be “Addictive”
Today

- Social gaming
- Gamification / serious games
Multiplayer Games
Cooperative Games
Competitive Games

[ something without shooting? ]
Competitive Games
In-Person Multiplayer

SPACE TEAM
Game Elements
Challenge

- Games have to be challenging!
  - Without needing effort, rewards aren’t rewarding
- But not *too* challenging
- Types of challenge:
  - Mental/sensory (puzzles, strategy games, Tetris)
  - Dexterity (reflex games, first-person games, etc.)
  - Team coordination (Space Team, recent Mario games)
  - Creativity (Minecraft, Mario Builder, etc.)
Measures of Success

- Scores
- Rankings / leaderboards
- Levels
- Achievements / badges
Status Sharing
Uniqueness

- Story/setting elements
- Gameplay elements
- Team/multiplayer elements
- In-game items / interactions
- Atmosphere
- ...

[Image of a futuristic cityscape]
Uniqueness

- Story/setting elements
- Gameplay elements
- Team/multiplayer elements
- In-game items / interactions
- Atmosphere
- ...
More About Game Design

Jeremy [Gibson] Bond’s book (*former UM prof!*):

**Intro to Game Design, Prototyping, and Development**

Other readings (also borrowed from Prof. Bond):

*Game Programming Patterns* by Robert Nystrom

*The Art of Game Design* by Jesse Schell

*Game Design Workshop* by Tracy Fullerton & Chris Swain

*Characteristics of Games* by Elias, Garfield, and Gutschera

*Fundamentals of Game Design* by Ernest Adams
Why Games?
Gaming

- Interactive storytelling (making it a sharing medium)
- Supports enjoyable (casual) interaction
- Skills practice (teamwork, dexterity, etc.)
Gaming

- Interactive storytelling (making it a sharing medium)
- Supports enjoyable (casual) interaction
- Skills practice (teamwork, dexterity, etc.)
- ... 
- Games *engage* us.
Serious Games
Techniques for Gamification

● Leveling
  ○ Numeric levels
  ○ Badges
  ○ Points / scoring

● Add an underlying story

● Aesthetic appeal (visual/art)

● Goal + challenge
  ○ E.g., puzzle, mission, etc.
Reward Are The Key

All of these are different forms of reward

... we’ll get back to this...
Games with a *Purpose*
ESP Game

What do you see?

Taboo words:
- peace
- lay

Guesses:
- sheeps...
- sheep

Provide a label for what you see…

that your partner will agree with (without being able to chat with you)
Squigl

Annotate the part described in text…

with a bonus based on how well you agree with your partner
Tag a Tune (‘Input Agreement’) 

Identify if you’re listening to the same music as your partner… based only on their descriptions of the same audio / music (‘input agreement’).
You earned 626 points

<table>
<thead>
<tr>
<th>Rank</th>
<th>User</th>
<th>Today</th>
<th>This Week</th>
<th>This Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>becleemo</td>
<td>3901</td>
<td>3187</td>
<td>3187</td>
</tr>
<tr>
<td>2</td>
<td>nopasaran</td>
<td>3187</td>
<td>3187</td>
<td>3187</td>
</tr>
<tr>
<td>3</td>
<td>amsdean</td>
<td>2402</td>
<td>2402</td>
<td>2402</td>
</tr>
<tr>
<td>4</td>
<td>mariomar</td>
<td>2269</td>
<td>2269</td>
<td>2269</td>
</tr>
<tr>
<td>5</td>
<td>eboyie23</td>
<td>1858</td>
<td>1858</td>
<td>1858</td>
</tr>
<tr>
<td>6</td>
<td>abc_523</td>
<td>1394</td>
<td>1394</td>
<td>1394</td>
</tr>
<tr>
<td>7</td>
<td>gregschoeinger</td>
<td>1256</td>
<td>1256</td>
<td>1256</td>
</tr>
<tr>
<td>8</td>
<td>echo</td>
<td>931</td>
<td>931</td>
<td>931</td>
</tr>
<tr>
<td>9</td>
<td>dipoloyweg</td>
<td>744</td>
<td>744</td>
<td>744</td>
</tr>
<tr>
<td>10</td>
<td>rprenidi</td>
<td>408</td>
<td>408</td>
<td>408</td>
</tr>
<tr>
<td>11</td>
<td>anaaontado</td>
<td>101</td>
<td>101</td>
<td>101</td>
</tr>
<tr>
<td>12</td>
<td>saltafit</td>
<td>41</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>13</td>
<td>hojeung</td>
<td>39</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>14</td>
<td>blissdish</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>15</td>
<td>mdobric</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Duolingo
Galaxy Zoo
Logged in users get to see the best stars and get credit for their work. Would you like to login?

Type of star: Dwarf
Apparent visual magnitude: 15.5
Temperature: 5691 (K)
Radius: 0.7x Sol

DAYS FROM BEGINNING OF THE QUARTER
Planet Hunters
Find planets around stars. Lightcurve changes from the Kepler spacecraft can indicate transiting planets.
Get Started

Snapshot Serengeti
Go wild in the Serengeti! We need your help to classify all the different animals caught in millions of camera trap images.
Get Started

Sunspotter
Sorting out sunspots. Help us organize images by complexity to better understand the Sun's magnetic activity.
Get Started

Cell Slider
Analyse real life cancer data. You can help scientists from the world's largest cancer research institution find cures for cancer.
Get Started

Seafloor Explorer
Help explore the ocean floor. The HabCam team and the Woods Hole Oceanographic Institution need your help!
Get Started

Space Warps
Help astronomers find elusive gravitational lenses to help us understand the universe.
Get Started

Snapshot Supernova
Help in the hunt for supernovae, live!
Get Started
Today (recap so far)

- Social gaming
  - Supports enjoyable, casual interaction between groups of people

- Gamification / serious games
  - Help solve real tasks using ideas from games that make interaction more enjoyable
Reward Are The Key

All of these are different forms of reward

... we’ll get back to this... Now.
Intro to Game Theory

(Just enough to impress your friends at parties)
What is game theory?

**Definition**: “the study of mathematical models of conflict and cooperation between intelligent rational decision-makers”

**Translation**: The study of *rational* motivation.

- A “rational” player seeks the biggest reward
Examples of a Social Computing “Games”
Coordination in Games

**Cooperative**: Contracts / communication allowed

- *Contract* = “we’re 100% committed to what we claim”

**Non-cooperative**: There is uncertainty in others claimed response
**More Game Properties**

**Simultaneous / Sequential**: Are decisions made at once or seq.?

**Temporal setting**: Is the setting discrete or continuous?
  - If continuous, is feedback (R) “separable”?

**Length**: Is the game played for 1 round, or 50? 1 minute or 10 days?
More Game Properties (Cont.)

**Perfect/imperfect info**: Do players know everything that is happening?

**Symmetry**: Are all players rewarded the same as each other?

**Zero-sum / non-zero-sum**: Does 1 player winning mean another loses?
Prisoner’s Dilemma

● 2 people arrested: A and B

● Police offer:
  ○ Rat out your friend, we’ll arrest them, you go free. They’ll get 10 years.
  ○ If no one says anything, we charge you with a minor crime (~1 year)
  ○ If we get evidence on both, you each get 5 years.

● What do you do as the suspects?
What is the “Game” Configuration?
Cooperative/Non-Cooperative
Simultaneous / Sequential
Discrete/Continuous (separable?)
Length
Perfect/imperfect info
Symmetry
Zero-sum / non-zero-sum
What is the “Game” Configuration?
What does a solution look like?

A decision or policy. How do we get there?

- Compare outcomes
- Pick the best one

Ex: Prisoner’s Dilemma

<table>
<thead>
<tr>
<th></th>
<th>Reveal</th>
<th>Hold Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>(5yr, 5yr)</td>
<td>(10yr, Free)</td>
</tr>
<tr>
<td>P2</td>
<td>(Free, 10yr)</td>
<td>(1yr, 1yr)</td>
</tr>
</tbody>
</table>
What does a solution look like?

A decision or policy. How do we get there?

- Compare outcomes
- Pick the best one

Ex:

Prisoner’s Dilemma

<table>
<thead>
<tr>
<th></th>
<th>Reveal</th>
<th>Hold Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 Reveal</td>
<td>(5yr, 5yr)</td>
<td>(10yr, Free)</td>
</tr>
<tr>
<td>P2 Hold Out</td>
<td>(Free, 10yr)</td>
<td>(1yr, 1yr)</td>
</tr>
</tbody>
</table>

What does a solution look like?

A decision or policy. How do we get there?

- Compare outcomes
- Pick the best one

Ex:

Prisoner’s Dilemma

<table>
<thead>
<tr>
<th></th>
<th>Reveal</th>
<th>Hold Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 Reveal</td>
<td>(5yr, 5yr)</td>
<td>(10yr, Free)</td>
</tr>
<tr>
<td>P2 Hold Out</td>
<td>(Free, 10yr)</td>
<td>(1yr, 1yr)</td>
</tr>
</tbody>
</table>