CE810 - Game Design 2

Evaluating Performance

Joseph Walton-Rivers & Piers Williams

Tuesday, 15 May 2018

University of Essex

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What is Player Experience?

Player experience

Collection of events that **occur** to the player **during** the game

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Collection of events that occur to the player during the game

Should be clear - it is only the events that occur because of the game that are important

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Scenario

Jeffrey is playing an online RTS game, and he is playing with a friend online against two other people.

Question

Which of these are a part of the player experience and which are not?

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All happen while the person is playing a game

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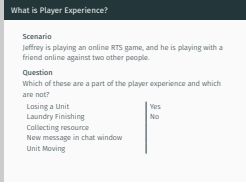

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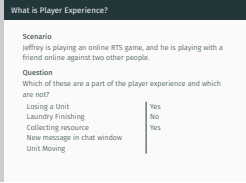

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Metrics

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Collect data on how players/bots work

Activity

What kinds of features can we collect?

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Data from humans

- High-level human experience

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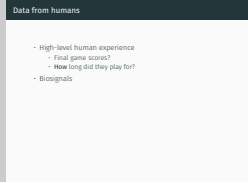

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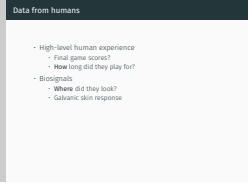

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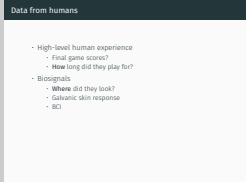

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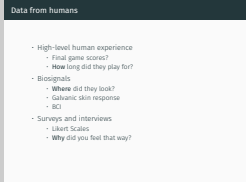

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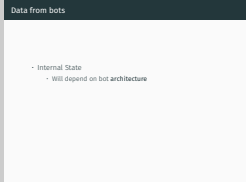

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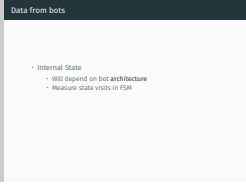

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Some things can be measured regardless of if a human or AI is playing

- How high, variation?
- Length, range of lengths
- Runaway victory?, keep changing hands? loop?
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Data from populations

- Variability of scores
- Skill-depth

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Action Sequences

Data from either

- Actions taken
- Record the sequence of button-pushes

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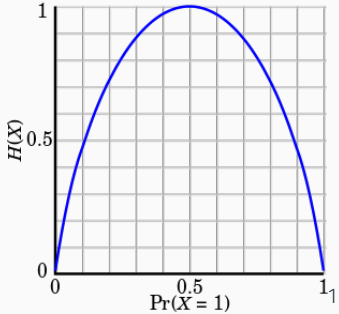
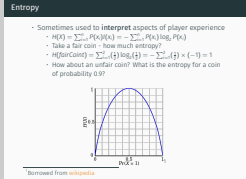


[1]Borrowed from wikipedia



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A Game Example

loc	visits	p(loc)	calc
0,0	10	0.067	$0.067 \log_2(0.067)$

loc	0	1	2
0	10	20	15
1	12	35	13
2	15	20	10

150	Total:	

A Game Example

- Some sample 2D location visit counts
- Converted into visit counts as fraction of total and then into probability of having visited that location
- Then we just perform the math as a giant summation. Computers are good at this
- Except computers are not keen on 0's

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0,1	12	0.08	$0.080 \log_2(0.008)$
0,2	15	0.1	$0.100 \log_2(0.100)$
1,0	20	0.134	$0.134 \log_2(0.134)$
1,1	35	0.234	$0.234 \log_2(0.234)$
1,2	20	0.134	$0.134 \log_2(0.134)$
2,0	15	0.1	$0.100 \log_2(0.100)$
2,1	13	0.0867	$0.0867 \log_2(0.0867)$
2,2	10	0.067	$0.067 \log_2(0.067)$
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Exercise

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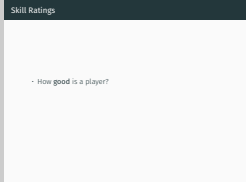
Skill Ratings

- How **good** is a player?



- And how do we represent this?
- Based on observations, was it enough? Watch F1 at one track and use those observations for another?
- Usually this is the case in games
- Does close win rates prove a lack of skill depth? No, current set of players doesn't demonstrate it. Like me and Joe playing Pool

Skill Ratings

- How **good** is a player?
- What is the **issue** with win rates?

Skill Ratings
- How **good** is a player?
- What is the **issue** with win rates?

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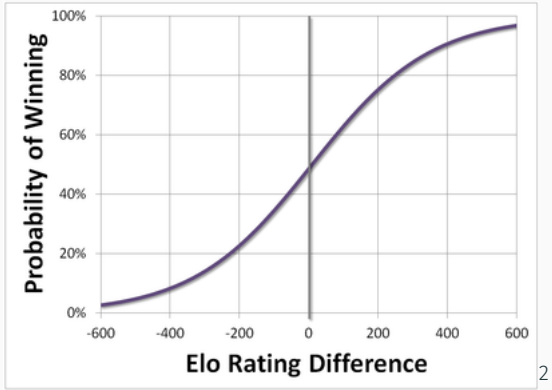
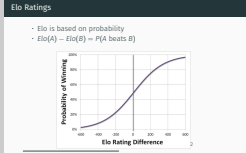


[2]

[2] Borrowed from liquipedia



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