SBSE as Gaming

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How many gamers in the audience?
Average Gamer (‘11 study)*

- 37 years old, has been playing for 12 years :)
- Adult woman 37% > boys of 17 or younger
  13% of entire game playing population
- 55% play on portable devices

What is meta-heuristic?

- A systematic framework that facilitates trial and error
  - trial: neighbourhood, crossover & mutation, etc
- error: fitness comparison
What is video gaming?

An entertainment product & service where the (enjoyment) value can be influenced by users through direct feedback (Wikipedia)

How do you learn to play video games?

- Read the manual (if there is any)
- Trial and error
Can we dress up SE problems as games by means of SBSE?
Gamification

- Use of game play thinking and mechanics to solve problems and engage audiences (Wikipedia)

- Some claim that this is strong enough motivator that can be used for social movements

- But I am not talking about badges...
Solving game = solving real problems?

- Play racing game to solve instances of TSP?
- Play Tetris-like puzzle to solve instances of test suite optimisation?
- Can we define sets of mappings from real world problems to playable video game format?
Interactive GA

Computer

GA Loop

fitness

Human
Optimisation Game

Computer

fitness

GA Loop

Human
No set method

Mimicry: you pretend to be something

Agon: logical problem solving

Alea: random gambling

Illinx: you experience something firsthand
Challenges

- Game usually requires a well defined, achievable goal: solutions to real world problems are not known in advance

- Enjoyment is a hard thing to measure
Why involve human?

- We already *try* to do so anyway (Interactive GA, incorporating domain knowledge, etc)
- We may learn interesting details about human-based problem solving skills
- Voluntary, cheap computing resource
Proof of Concept(?)

TwistYourIguana: a Wii-mote input controller for Iguana test input generator

- Converts input generation of an integer pair into a spatial puzzle
- The objective is to get rid of the red bar from the screen