Artificial Intelligence

Simulating The Other
There's no real intelligence, just a bunch of techniques. Sorry.

Even the most advanced techniques are just tools.

More complexity means more stuff to debug.

Most important thing:

fun > realism
What is a good AI?

- Perfect? (racing, tic-tac-toe..)
- Challenging? (chess)
- Non-cheating? (civilization)

..or perhaps, you know, it should just be fun?
• How would you play?
  • Or better yet, how would a good player play?

• Can you define it as an algorithm?

• Would this be a fun opponent?
  • What can you do to make it so?
• Random is your friend.
  • Replayability.
  • Unpredictability.

• Random is not your friend.
  • Humans can detect patterns, even random ones.
    - Random can be boring.
  • Non-determinism can make debugging harder.
  • Randomness may not turn out to be fun.
"The generation of random numbers is too important to be left to chance"

-- Robert R. Coveyou

Many pseudorandom number generators are of poor quality (esp. C std lib ones)

Better ones: Mersenne Twister, WELL

http://en.wikipedia.org/wiki/Well_Equidistributed_Long-period_Linear
State machines are extremely usable.

Example; "Thief" AI

- Idle
- "Heard something"
- "I saw you"
- Attack
- "I guess it was nothing" / "Must have run away"
Fuzzy logic, genetic algorithms, neural nets.

- Can simulate more complicated intelligence.
  - Learning.
  - Adapting.

Generally harder to tweak to be fun.

Usually can be avoided, achieving the same goals with more deterministic methods.
• Fill graph (or grid) nodes.
  • Starting from point A.
  • Always filling nodes that are "closest" to target.
  • When B is reached, travel back using the cheapest route.

• Common, but not necessarily the best option.
Examples
Examples

[Chessboard diagram]

• Create an AI algorithm that plays poker.
• Algorithm should consist of several pairs of:
  • WHEN (description of situation)
  • DO (what)
• http://en.wikipedia.org/wiki/List_of_poker_hands
• http://en.wikipedia.org/wiki/Poker#Gameplay
• Regular poker, not a variant, thanks.