8/28/12

Major Studio 1; Project 1: "Hello, World!"
Title: Talk to Me (tentative; come up with better later)

Premise:

Ever since the creation of the first "artificial intelligence" people have been striving to create an AI that convincingly impersonates human intelligence, sufficient to pass the Turing Test for human-computer interaction. This requires analyzing the nature of human vocal interaction, recognizing patterns, and attempting to create algorithms that will allow computers to take advantage of those patterns to respond to common speech prompts in a way that simulates a human.

But is this real interaction? What does the supposed existence of patterns in human-to-human interaction say about that communication? The project explores these questions as well as the difference between creative intent and user experience in a two-pronged approach. Both take the form of a text-based typing interface in which the user interacts with a computer.

In the first, the user is presented with pre-formatted questions and responses (that represent the "correct" inputs, chosen by the creator) to present the computer; by selecting from these options, the user can carry on a scripted conversation with the computer. In contrast to those AIs designed to pass the Turing Test, this computer knows it is a computer and the dialog explores the consequences of this knowledge and what it might be a like for a computer to reflect on the nature of communication, all while conscious of the fact that all its words reflect the mind of the creator. This will also explore the nature of free will and whether human to human interaction is truly of a different kind.

In the second approach, the user is free to type anything to the computer and receives no guidance about what is "correct" and will yield a response. In fact this idea of the "correct" input is an illusion, for other than the most basic conversational inputs such as "Hello" and "How are you," this computer is not programmed to provide any response other than "Invalid input" or "I do not understand" or some variation thereof. The goal here is to emphasize the artifice of the interaction, by provoking frustration in the user at the limited "comprehension" of the computer which should stand in stark contrast to another human speaking the same language. At the same time this is a meditation on the challenges of programming a convincing AI, since very specific inputs and a great deal of variation on them must be accounted for. It is also a reflection on the gap between creation (in which the creator may make unconscious assumptions about how much the user will be able to figure out without guidance) and usage.

Bibliography:

1) (*At this first stage, the intention of the project is to create two "chatbot"-like programs.*) http://www.youtube.com/watch?v=C3xM8sHGoiQ – this clip from the 2004 movie *I, Robot* highlights a basic challenge when working with "fake" artificial intelligence, since Will Smith's character must figure out what input to give the computer in order to get the information he

needs.

2) http://en.wikipedia.org/wiki/Turing_test – a description of Alan Turing's test to see whether an artificial intelligence can pass as human in conversation by testing an actual human's ability to tell the difference between the computer's responses and those of another human.

3) http://cleverbot.com/ – an online example of a "chatbot," artificial intelligence designed to "chat," whose conversation algorithm is based on common responses derived from analyzing many online conversations.

4) http://www.npr.org/2011/09/01/140124824/robot-to-robot-chat-yields-curious-conversation – this NPR segment pits one Cleverbot against another with amusing (and revealing) results about the limitations of this technology even now.

5) http://www.radiolab.org/2008/nov/17/ – this segment of the radio show Radiolab, titled "Choice," examines free will, and how much it may be influenced by external factors. The fact that someone's choice may be influenced by the temperature of the cup of coffee he or she is holding poses serious challenges to the concept of freedom of choice.

6) http://www.radiolab.org/2011/oct/04/repeat/ – another Radiolab segment, this one titled "On Repeat," starting at the 7:15 mark presents a chilling account of a woman with short-term memory loss who, when presented with the same vocal stimuli, responds the same exact way, over and over again, suggesting interaction may be more mechanical than previously suspected.

7) http://cyberpsych.org/eliza/ – another chatbot, Eliza offers a sort of digital therapist function in which "she" redirects users' thoughts and questions back at them, prompting further discussion, if rather one-sided. Eliza also detects when no input has been provided within a certain period of time and reacts appropriately.

8) (*At this point the direction of the project shifts to become a board game version of a chatbot.*) Rules of Play (Katie Salen and Eric Zimmerman, 2003, The MIT Press) – this textbook attempts to give a theoretical account of games and game design.

9) http://www.kickstarter.com/projects/1630646578/guts-of-glory-the-boardgame – this Kickstarter page outlines a game design by Zach Gage for a board game based around competitive eating. As such it's a perfect inspiration for a board game based around another unconventional topic, like a chatbot.

10) http://www.newscientist.com/article/dn22305-mimicry-beats-consciousness-in-gamings-turing-test.html – while computers continue to fail at pretending to be human in conversations, AIs in the video game *Unreal Tournament* pass the Turing test, suggesting that behavioral emulation may have a lower bar.

11) (*The direction of the project shifts again, first to become a tile-based branching conversation game, and then to a "choose your own adventure"-style product.*) http://www.youtube.com/watch?v=ecPeSmF_iskc – this segment from the 1983 film *Wargames* features an early version of a chatbot speaking the famous line, "Shall We Play a Game?", to Matthew Broderick's character.

12) http://www.math.buffalo.edu/mad/Ancient-Africa/ishango.html – while looking for examples of old mathematical devices I found this page on the Ishango bone, which is considered the second oldest mathematical object and lists either prime numbers or a lunar calendar, depending on whom you ask.

13) http://en.wikipedia.org/wiki/Deep_Blue_(chess_computer) – computers have gotten pretty good at playing chess. In 1997, IMB's supercomputer Deep Blue defeated chess world champion Gary Kasparov two games to one.

14) *Star Wars: Knights of the Old Republic* – this 2003 PC video game from Bioware features a robot member of the party whose overt contempt for humans provides all kinds of juicy conversation morsels. I owe "meatbag" entirely to KOTOR.

15) Any <u>Choose Your Own Adventure</u> book, ever (http://www.cyoa.com/) – these innovative, childhood treasures presented second-person narratives starring you, the reader, in which each page presented a choice of actions and the choices you made determined how the story would branch. No cheating!