CSC-40045

Distributed Intelligent Systems

Practical 1: Machine Intelligence

Coursework Part 1.1

Q1.1. Choose and test at least TWO fairly advanced Chatbots from those available on the Internet and describe the characteristics (or "personality") of each. Supplement this by reading a transcript of "dialogues with colourful personalities of early AI" - available from http://web.stanford.edu/group/SHR/4-2/text/dialogues.html (attached Chatbots dialogues with colourful personalities of early ai.pdf. Comment on how these programs can PASS or FAIL the Turing test.

Ans: We are going to consider Mitsuku an 18-year-old female chatbot from the Metaverse and Google Assistant, which are advanced Chatbots for this study.

1. Mitsuku
    - Developed by Steve Worswick based on Pandorabots AIML technology.
    - Can have a lengthy conversation
    - Can analyze and memorize personal information about the user.
    - Can deliver conversations having human values: Friendship, Intimacy & Entertainment.
    - Aware of current events
    - Perform simple math
    - Can observe human reasoning and argumentative nature
2. Google Assistant
    - Can deliver intelligent conversations with the user.
    - Completely understands the natural language
    - Can Analyse patterns to steer decision-making for the future
    - Can answer our queries (Utilize search engine feature)
    - Can schedule events
    - Handle multilingual conversation
    - Track user data to provide better-personalized suggestions

Mitsuku won the Turing test competition because of her friendly personality and Google assistant has the potential to pass since it utilizes google AI and Deep learning power. So far, no program has passed the Turing test completely. But they are getting close to it.

Q1.2. Based on your observations from the Chatbot conversations or otherwise, would you consider the Turing test to be an adequate measure of machine intelligence? Explain your reasons thoroughly (Read: some criticisms of the Turing Test in Luger (Chapter 1 on KLE) 2 & its Wikipedia entry))

Ans: Based on our observations from the chatbot conversations, we could say the Turing test is not at all an adequate test to measure machine intelligence. Because this test can be passed by fooling or tricking the judge. If we consider the chatbots such as Eliza (a Rogerian

psychotherapist) and Parry (A Paranoid schizophrenic person) which are passed the Turing test. We could see, these examples have constraints (i.e., both chatbots have limited domain knowledge) that will bias the judgement during the test evaluation.

Also, we should note that just because it imitated humans does not imply it possesses the qualities of intelligence. There might be a possibility that machine intelligence is different from human intelligence and measuring based on human terms itself is a fundamental mistake. Therefore, the Turing test is not a valid technique for evaluating Intelligent systems.

Q1.3. Futuristic science fiction in movies has provided a lot of speculation over what AI can achieve. Choose an AI-based character or robot from a fictional movie and describe their intelligent behaviors or actions (e.g., Sonny in I, Robot, or a similarly advanced fictional AI character. Please do not use Johnny 5 in Short Circuit 2. This has been discussed extensively in Tutorials). Comment briefly on why their reasoning is not always correct.

Ans: I have picked the fictional character Ava from the movie Ex Machina. Ava is a highly advanced humanoid AI created by Nathan, CEO of bluebook (A powerful fictional search engine). Our protagonist Caleb is a programmer who was introduced to Ava to perform the Turing test. Movie deals with various test sessions.

We could see the following Intelligent behaviors of Ava:

- Human reasoning and consciousness
- Fond of human interests
- Emotional expressiveness:
    - At one point Ava got angry because her precious drawing was torn by the creator
- Fake romantic interest and manipulate the protagonist
- Quest for knowledge
- Desire to experience outer world for freedom
- Killing the creator and escaping from the test cell

AI wishes true human consciousness and freedom is the major component of human consciousness. This reasoning is not always correct, because under any circumstances AI should not hurt humans for the sake of freedom.

Q1.4. Discuss two potentially negative effects on society of the development of artificial intelligence techniques.

Ans: Here we can discuss two potentially negative effects on society of the development of artificial intelligence techniques.

1. Unemployment: The growth of AI will reduce various carrier opportunities. Because AI makes the work more autonomous and safer. In future, every organization will prefer these systems over humans because unlike humans these machines can perform repetitive tasks without having fatigue or monotony of work. Also, it is more efficient and productive than humans, but it will lead to unemployment in society.

2. Autonomous weapons: If AI is programmed in a way to do some dangerous activity, it will become a high threat to the world. AI integrated autonomous weapons can kill people instantly. Reaching this technology in the wrong hands will cause commotion. Nowadays, the power of each nation is determined by the higher possession of these autonomous weapons, and it can cause an outbreak of war in the future.