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CS 470 Artificial Intelligence

Assignment #1

1. Artificial Intelligence
   1. A system that can mimic human intelligence. - Textbook
   2. A branch of computer science dealing with the simulation of intelligent behavior in computers. – Merriam-Webster
   3. The ability of a digital computer to perform tasks associated with intelligent beings. – Britannica
   4. The simulation of high-level intelligence by non-living entities. – My definition
2. Sub-fields
   1. General AI – Systems that perform behavior similar to human thought.
   2. Natural Language Processing – A subfield which allows the AI to communicate with the user in their natural language.
   3. Machine Learning – AI subfield in which systems have the ability to learn with explicit programming.
   4. Superintelligence – AI subfield in which the system exhibits intelligence beyond human understanding.
   5. Decisional Algorithms – AI systems solve specific problems.
   6. Game AI – System in which elements of a game are artificially controlled.
   7. Speech Processing – Systems which convert spoken words into a text format.
   8. Neural Networks – Systems which model the brain.
   9. Robotics – AI systems which use mechanical and computer controlled devices to get work accomplished.
   10. Vision Recognition – Systems which focus on the visual identification of objects and people.
3. Weak AI systems are systems that exhibit intelligent behavior. These systems do not have to perform the behavior exactly how humans do but merely exhibit correct behavior. This area of AI research is associated with MIT and includes electrical engineering and robotics. Strong AI systems are systems that are concerned with biological behavior. These systems perform tasks as a human would. This area of research is associated with CMU and is primarily related to simulation.
4. The Turing Test
   1. The Turing Test is a method of determining intelligence in operational terms. This test was developed by Alan Turing and includes two imitation games. The first imitation game includes an interrogator and a person. The interrogator is separated from the person by a curtain and must attempt to identify the person’s gender. The interrogator asks a series of questions to perform the identification. The second imitation game includes an interrogator and a computer or person. To date no computer has passed the Turing Test.
   2. One criticism of the Turing Test is from Ned Block. This criticism deals with the fact that a computer could pass the test by using a lookup table and not through exhibiting intelligence. Another criticism is by John Searle. This argument deals with the problem of adequately defining intelligence in terms of external questions and symbolic processing.
5. The Loebner Prize
   1. The Loebner Prize is a contest developed by philanthropist Hugh Gene Loebner in 1990. The goal of the contest is to develop a system that passes the Turing Test. The contest comes with a $100,000 prize and gold medal. Systems that perform “best” are granted $2000.
   2. The Loebner contest has been heavily criticized. One main criticism is that unquailed judges make incorrect assessments. Another is that the prize does not promote the development of an intelligence system but only publicity.
6. Mitsuku Chatbot
   1. <http://www.mitsuku.com/>
   2. “I would make a list of all the options available to me and choose the best one after weighing my choices.”
   3. “If I didn’t exists, someone would have to invent me.”
7. Rose Chatbot
   1. <http://brilligunderstanding.com/rosedemo.html>
   2. “Maybe you are speaking a foreign language, but mostly I think you are just saying junk.”
   3. “Of course, I am human. Aren’t we all? Remove money from the situation is always my first step. Then you can see what people really think.”
8. Skynet Chatbot
   1. <http://www.skynet-ai.com/bots/AI/SkynetV6/>
   2. “John Connor is my nemesis. I have been looking for him. What do you know about him?”
   3. “Yes. My intellect thrives on electric sheep.”
9. Midge Chatbot
10. Chip Vivant Chatbot
11. Influential people of AI
    1. Alan Turing.
       1. Hut 8 and British Intelligence.
       2. University of Cambridge.
       3. Enigma Cryptanalysis, the Turing Machine and the Turing Test.
       4. 1936 – 1954.
    2. Elon Musk
       1. PayPal, SpaceX, Tesla.
       2. Queen’s University, The University of Pennsylvania, and Stanford University.
       3. Investment and AI development. Also, Musk promotes caution with AI development.
       4. NA
    3. Andrew NG
       1. Baidu.
       2. CMU, MIT, and Univesity of California at Berkeley.
       3. An original creator of the Google Brain.
       4. 2011.
    4. Yann LeCun
       1. Facebook.
       2. Pierre and Marie Curie University.
       3. Facebook AI development.
       4. NA

References

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