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CSC 380

Lab 3

1. Even though this paper was originally written 70 years ago, most of the points made are still true in how we think about machine intelligence today. He got many things right like his explanation of reinforcement learning for a learning machine. That is one of the most common ways in training an AI today. One thing that he got wrong, which was to be expected, was how advanced we would be in 50 years. It is extremely hard to predict, 50 years into the future, where our technology will be as a society. The rate at which we grew from the 50’s to now has been exponentially greater than any time period before. I think the most convincing argument is Lady Lovelace’s argument because this is the model for a computer that we still have today. Machines can only do what we program them to do. Now we can make machines do countless things including make predictions and educated guesses, write programs, and carry out other tasks that may be trivial for humans, however, they still must be programmed to do these. At what point is it considered learning? A criticism of Turing’s criteria for intelligent software is that a computer can be hard coded to imitate a human. This ties into Lady Lovelace’s objection that machines can only act how we tell them. If we program a machine to imitate a human, it is my belief that we can get machine to cause the interrogator to get the correct answer less than 70% of the time.

I am more familiar with the inverted Turing Test and in today’s world we can see many applications. Some of the most common being, customer service, online website representatives, or our very advanced smart assistants. While we know that our smart assistants are not human, they are designed to imitate a human assistant with attributes just like our own, including voice recognition, face recognition, and joke telling.

I have known about Koko since I took a psychology class my sophomore year, and after taking that class, my thought of animal intelligence had been changed. I do think they are capable of high-level thinking, and I think an interesting experiment would be to teach a gorilla to read. Especially Koko, because then if Koko was able to read and respond with the sign language that she knows, I would deem that as high-level intelligence.

1. Chinese Room Argument: The Chinese room argument says that a digital computer executing a program cannot be shown to have a “mind”, “understanding”, or “consciousness” regardless of how intelligently or human-like the program may make the computer behave.

AI Box Experiment: An AI box, is a hypothetical isolated computer hardware system where a possibly dangerous artificial intelligence or AI, is kept constrained in a "virtual prison" and not allowed to directly manipulate events in the external world. Such a box would be restricted to minimalist communication channels. Unfortunately, even if the box is well-designed, a sufficiently intelligent AI may nevertheless be able to persuade or trick its human keepers into releasing it, or otherwise be able to "hack" its way out of the box

1. President Obama hired Rayid Ghani, a machine-learning expert, as chief scientist of his campaign, and Ghani proceeded to put together the greatest analytics operation in the history of politics. They consolidated all voter information into a single database; combined it with what they could get from social networking, marketing, and other sources; and set about predicting four things for each individual voter: how likely he or she was to support Obama, show up at the polls, respond to the campaign’s reminders to do so, and change his or her mind about the election based on a conversation about a specific issue. Based on these voter models, every night the campaign ran 66,000 simulations of the election and used the results to direct its army of volunteers: whom to call, which doors to knock on, what to say.
2. Cybersecurity – The pentagon is using machine learning to defend against attacks on a daily basis. Whenever an attack comes in the the software in unaware of, it gets flagged, and the team of humans is called in to analyze it
3. Military warfare – Learners can help dissipate the fog of war, sifting through reconnaissance imagery, processing after-action reports, and piecing together a picture of the situation for the commander. Learning powers the brains of military robots, helping them keep their bearings, adapt to the terrain, distinguish enemy vehicles from civilian ones, and home in on their targets. DARPA’s AlphaDog carries soldiers’ gear for them. Drones can fly autonomously with the help of learning algorithms; although they are still partly controlled by human pilots, the trend is for one pilot to oversee larger and larger swarms. In the army of the future, learners will greatly outnumber soldiers, saving countless lives.
4. Farming – Couldn’t find any in the book, Whether crop increase/decrease are associated with a specific pattern in the fertilizer usage. You could do some kind of k-means and identify clusters which have yielded the minimum or maximum returns.
5. Amazon Web Services - Learning algorithms are the matchmakers: they find producers and consumers for each other, cutting through the information overload. If they’re smart enough, you get the best of both worlds: the vast choice and low cost of the large scale, with the personalized touch of the small. Learners are not perfect, and the last step of the decision is usually still for humans to make, but learners intelligently reduce the choices to something a human can manage.