600.435: Artificial Intelligence

Homework Assignment 1

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Since the advent of computers humans have tried to expand their knowledge by creating new technology that can supplement their intelligence to do things they cannot. This quest of humans to create new intelligence has obviously caught the attention of makers of popular media like authors and film makers. From my early childhood I've been enthralled by shows like Small Wonder, The Jetsons etc. Movies, TV and print media have all played a major role in piquing the public's interest in the fascinating world of artificial intelligence.

In this essay I will be writing about how artificial intelligence is portrayed in two movies: Her (2013) and Big Hero 6(2014). Both movies portray artificial intelligence in completely different manners.

In the movie Her the artificially intelligent agent (Samantha) is in the form of an operating system with the capabilities to learn and adapt as required by the user. For example, based on the user's input the sex and voice style of the agent is chosen. There is no physical form of the agent (though she often mentions a yearning for it). It is shown through various instances that the agent has the ability to browse through available resources to come up with an answer, for example when asked if the agent had a name it choses one for it from the various names it encounters.

The main objective of the designers though not explicitly mentioned, is to have an interactive, evolving operating system that can better help its users achieve better results. It also unifies the OS in the user's mobile phone and computer.

The involvement of the artificial intelligence reveals several things about human nature. Apart from the obvious desire to innovate and improve the quality of human life, it also reveals the human desire to be with likeminded, compatible people (or in this case an AI agent). It reveals that no matter how much people evolve their quest to find companionship in people who please and appreciate them will always be there.

The main problem raised by the movie is whether a human can actually be replaced by an artificially intelligent agent. The protagonist of the movie is shown falling in love with his artificially intelligent agent (he abruptly ends a date with a human to go back to his OS). This is until he realizes that others too are in possession of the same technology. So the reaction of the agent to his feelings may have been more to satisfy his requirements than its own feelings towards him because obviously though it tries to prove the contrary the agent does not actually possess emotions. In the agent's own words it is also in interaction with thousands of other users and in love with hundreds of them. What if all the users who said that they loved the agent are the ones that she claims to love. The AI behaved as it was designed to behave. But, this betrayal by the agent might make the user incapable of a normal human relationship. I think another issue posed here is if it is realistic for the user to expect from an AI agent what he would've expected from a human partner. Is it ethical for the AI agent to abandon the human user for more interesting interactions with other Operating Systems and humans? I also think that the humans preferring the AI agent over a human would lead to problems like isolation from other fellow human beings and may affect his interactions with other human beings.

As a side note, I would also like to mention an artificially intelligent, foul-mouthed game playing agent who is capable of interacting with the player and react to situations based on specific responses by the player.

In Big Hero 6, the artificially intelligent agent (Baymax) is meant to be a healthcare robot to help diagnose people and provide medical help. It is capable of interacting with people to know more about their ailments and help them. It is also capable of adapting and learning new things through interactions, for example, when one of the protagonists teaches the agent new expressions ("You gave me a heart-attack"), how to fist bump etc. It also immediately downloads relevant databases for new ailments like how to treat personal loss. The physical appearance of the agent is like that of a marshmallow, it has light weight carbon-fiber skeleton, hyper-spectral cameras, Lithium ion batteries and other actuators. It also has the capability of inflating and deflating itself to fit through smaller spaces (probably to be used in disaster situations like providing medical attention to people trapped in earthquake rubble). The agent mainly works on the programmable chips that can be inserted into the robot.

The main objective of the designer was to provide better healthcare for people because the agent would be better equipped to scan people for all their healthcare need at once and in a much shorter time than using traditional methods. However, in the hands of the designer's brother it is mainly used in an attempt to exact revenge on the person responsible for the designer's death. When a second chip containing skills like karate etc. is added to the agent it has advanced combat capabilities. However, once the healthcare chip is removed the agent becomes capable of attacking the very humans it was created to help.

This clearly reveals that artificial intelligent agents are programmed to be the way they are and can do a lot of damage in the hands of the wrong people. This also reveals the human tendency to put their own narrow interests ahead of the greater good.

The movie also shows simple reflex micro-bots that follow the instructions of a synchronized headband. They do not have any intelligence of their own other than the ability to align to what instructions they receive. These were originally designed to help in construction etc. But, were instead stolen by the villain and used for revenge against people who he thought killed his daughter.

The main problem that this movie shows is how to control people from using the agent for their own goals? Another problem is that an Artificially Intelligent agent can be re-programmed to serve purposes other than what it was originally meant to. It can cause large-scale destruction and endanger the very lives it was meant to save. Is it ethical for the human to expect the robots to do their dirty work that they themselves are unable to do? I would also like to point out that they designer should not have made the chip port accessible to all because that's just calling for trouble.

In conclusion, in both the movies the users of the AI use it for purposes other than what it was originally intended for. Also in both movies the agents allowed such event to occur. While in Her the user is left emotionally damaged, in Big Hero 6 the robot is ultimately restored to its original purpose. Using the agent for purposes other than what they were originally meant for can have unexpected and often negative results. Hence, when dealing with artificial intelligence it is essential to keep in mind the purpose of the agent and not to humanize it beyond that

purpose. Also the designers should ensure that the agents cannot be used for other (extended) purposes.