KBAI

Homework 3 (Spring 2021)

Answer the following prompts in a maximum of 6 pages (excluding references) in JDF format. Any content beyond 6 pages will not be considered for a grade. 6 pages is a maximum, not a target; our recommended per-section lengths intentionally add to less than 6 pages. This length is intentionally set expecting that your submission may include diagrams, drawings, pictures, etc. These should be incorporated into the body of the paper.

If you would like to include additional information beyond the word limit, you may include it in clearly-marked appendices. These materials will not be used in grading your assignment, but they may help you get better feedback from your classmates and grader.

Question 1: ~2 pages

In the lectures, we use two analogies to discuss analogical reasoning: the analogy between solar systems and atoms, and the analogy between storming a castle and zapping tumors.

Another common example of analogical reasoning involves comparing the inner workings of brains, including their neurons and action potentials, with the inner workings of ant hills, including their tunnels and ants.

Research this analogy a bit: Googling "human brains and ant hills" will get you enough results to go on. Then, **develop** a simple model of each of these systems. Then, **discuss** what analogically may transfer from one model to the other: at what level of abstraction can we draw an analogy between ant hills and human brains? Finally, briefly **comment** philosophically on how far that analogy can be taken: is an anthill conscious? Why or why not?

Question 2: ~2 pages

In *Why Free Will is Real* by Christian List, List argues that for an agent to have free will, it must have three capacities:

- The capacity to act intentionally;
- The capacity to choose between alternative possibilities; and
- The capacity to control one's actions.

First, **state** whether you believe free will exists in human beings. You should briefly justify this statement, but you need not go into detail; the purpose of this is to set up the following questions.

If you argue that free will does exist in humans, then **argue** whether it is possible for artificially intelligent agents to also exhibit free will. If it is possible, what would it take for an artificially intelligent agent to meet the above three criteria? If it is not possible, which of the above three criteria could artificially intelligent agents never meet?

If you argue that free will does not exist in humans, then **argue** whether it is possible that an artificially intelligent agent should be considered deserving of equal rights as a human. If it is possible, what would it take for an artificially intelligent agent to be considered semantically comparable to a human? If it is not possible, what fundamental issues would prevent artificially intelligent agents from ever being considered comparable to humans?

In either case, your argument should not be strictly opinion-based; you should **propose** your own working definitions of free will, intentionality, and control, and develop your arguments about the potential humanness of AI agents from those definitions.

Submission Instructions

Complete your assignment using JDF, then save your submission as a PDF. Assignments should be submitted to the corresponding assignment submission page in Canvas. You should submit a **single** PDF for this assignment. This PDF will be ported over to Peer Feedback for peer review by your classmates. If your assignment involves things (like videos, working prototypes, etc.) that cannot be provided in PDF, you should provide them separately (through OneDrive, Google Drive, Dropbox, etc.) and submit a PDF that links to or otherwise describes how to access that material.

This is an individual assignment. All work you submit should be your own. Make sure to cite any sources you reference, and use quotes and in-line citations to mark any direct quotes.

Late work is not accepted without advanced agreement except in cases of medical or family emergencies. In the case of such an emergency, please contact the Dean of Students.

Grading Information

Your assignment will be graded on a 20-point scale coinciding with a rubric designed to mirror the question structure. Make sure to answer every question posted by the prompt. Pay special attention to bolded words and question marks in the question text.

Peer Review

After submission, your assignment will be ported to Peer Feedback for review by your classmates. Grading is *not* the primary function of this peer review process; the primary function is simply to give you the opportunity to read and comment on your classmates' ideas, and receive additional feedback on your own. All grades will come from the graders alone.

You receive 1.5 participation points for completing a peer review by the end of the day Thursday; 1.0 for completing a peer review by the end of the day Sunday; and 0.5 for completing it after Sunday but before the end of the semester. For more details, see the participation policy.