MCS 210 - Essay: Applications of Machine Learning

1. Choose one specific application of machine learning or AI. Your essay should include the following:
    a. Describe and explain the application of machine learning.
    b. Describe the pros and cons of the application. This should include any important ethical considerations.
    c. Give your opinion on how this application should be used or change in the future. Explain the reasons for your stance.

2. Assume that the reader for your essay is another student in the class, who understands what machine learning is, but is unfamiliar with the specific application you are covering.

3. You will use ChatGPT, https://chat.openai.com to help you write this essay. In addition to submitting your essay, you will also submit the transcript of your interactions with ChatGPT. This transcript should include both the prompts you write for ChatGPT and the responses by ChatGPT.

4. When you have selected your topic, follow these steps:
    a. Ask ChatGPT to tell you about the application, and include citations. You may need to ask follow up questions to get more information.
    b. Use the citations to verify the information provided by ChatGPT. Remember that ChatGPT doesn't always provide correct information (for instance, the citations might not even exist), so be skeptical and trust your own judgement as you verify ChatGPT's response.
    c. Use Google Scholar and the library databases to search for additional resources on your topic. You must cite at least five reputable sources in your essay. This can include resources cited by ChatGPT (once you verify them), and you should find additional resources as well. You may use any standard citation format.
    d. Create on Overleaf project named MCS 210_ESSAY
    e. Write a detailed outline of your essay (without using ChatGPT) in your Overleaf project. Focus on the structure and the information you want to include.
    f. Give your outline to ChatGPT (copy/paste from PDF), and ask ChatGPT to write a 500 word essay based on your outline. Based on the results, you may revise your outline and repeat this step.
    g. Add the text ChatGPT produced to a new section in your Overleaf project.
    h. Edit the draft provided by ChatGPT. In particular, check that the draft doesn't contain any factual errors, and that your sources are correctly cited. You should also make any stylistic changes you want. If you don't like the way ChatGPT wrote something, change it. Remember that ChatGPT doesn't truly understand anything, and it has a repetitive and somewhat boring writing style. Trust your judgement as you make changes.
    i. Give your revised draft to ChatGPT, and ask it to make a final edit for grammar. Review and edit changes as needed.
    j. Update the new revised version to your Overleaf project.
    k. Create an Appendix to your Overleaf project and add the transcript of entire conversation you had with ChatGPT.
    l. Create a Bibliography to your Overleaf project and add all the sources you used.

4. When you have finished writing your response, submit your work for peer review by sharing your Overleaf project for this assignment with your reviewer. The name of your reviewer is posted in Moodle with this assignment.

5. Your reviewer will read your outline and your essay and add feedback by adding comments to your Overleaf project. You will also do this for another student.

6. After you have finished giving and receiving feedback, edit your project based on the feedback provided. If there is feedback that you do not agree with, you do not need to make the suggested changes, but you should explain why by adding your own comments. As to why you did not make a suggested change.

7. When you have finished writing your revised response, download your project from Overleaf as a .zip file and submit via Moodle.

Your final draft should include the following:

- (section 1) Your outline
- (section 2) Your essay
- (appendix) The transcript of your conversation with ChatGPT (check that you include the entire conversation).
- Reviewer name and comments in the .tex file

If you are having trouble thinking of a topic, here are some suggestions to get you started:

- Facial recognition
- Self driving cars
- Predictive Policing
- Job applicant screening
- Credit approval
- Predicting recidivism (prediction of criminal behaviour)
- Medical diagnosis
- Targeted advertising
- Medical devices
- Content recommendation (e.g., YouTube Recommendations)
- Deepfakes
- AIArt