ENSF 611 - Assignment 1 Christian Valdez (30065766)

Question 1

AI/ML and data analytics have become central to the tech bubble. As AI usage grows, ethics guide its responsible use, mitigating risks and harmful outcomes. Consistent with IBM's perspective on AI, ethical considerations include data responsibility, privacy, fairness, explainability, robustness, and transparency [1] and [2].

Question 2

After watching the video, I was surprised by the facial analysis model's results. As the comments highlighted, "computers are only as smart as their programming." The developers might have trained the model with a limited range of skin tones or the image processing might not account for varied lighting.

I learned several lessons from this:

1. AI ethics is crucial. Models released to the public should be fair, robust, and transparent.
2. Proper software testing is vital. The model should undergo thorough automated and user testing.
3. AI ethics challenges have persisted. Despite the video being six years old, the issue remains relevant [4].

Question 3

Another example of algorithmic bias in society comes from an internal tool developed by Amazon [4]. Amazon discontinued its AI recruiting tool after discovering it discriminated against women. The tool searched the web for potential candidates and assigned them a rating from one to five stars. However, the algorithm consistently undervalued women's CVs for technical positions, such as software development roles. The tool was trained on decades' worth of CVs. Because of the historical male dominance in tech roles, the algorithm favored male candidates. Moreover, the AI tool used its own predictions to improve its accuracy, which entrenched a pattern of sexism. This highlights how algorithms can inadvertently perpetuate bias and discrimination.

I chose this example of algorithmic bias as I am set to graduate at the end of the winter semester with the aim of securing a job in tech. I was intrigued by the internal tools tech giants like Amazon develop to enhance their workflows. Clearly, introducing a biased model was counterproductive.

I'm relatively new to the machine learning arena. I've recently learned about the importance of having a balanced amount of labeled data for training. Since most engineers historically hired were male, the model trained predominantly on male-labeled datasets, leading to algorithmic bias. Thus, one potential solution could involve ensuring a balanced dataset. Several iterations would be necessary to refine the model until its accuracy is optimal [5].

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Question 4 (Bonus)

One of my favorite applications for ChatGPT is in generating test cases and reviewing code. I paste a function and request edge cases and unit tests to bolster its robustness. Additionally, I enlist ChatGPT to annotate my code with comments and docstrings. These practices not only accelerate coding but also reduce fatigue.

I believe that companies monetizing results from ChatGPT should compensate for copyrighted materials. Personal use is acceptable, but redistributing another creator's work commercially warrants both compensation and credit. For instance, it's akin to distributing media (movies, songs, writings) without remunerating the artists. Currently, artists are compensated and hold copyrights to their material [6].

Citations

[1] https://www.ibm.com/topics/ai-ethics

[2] https://chat.openai.com/share/5eec11a4-f86a-45f1-a21c-4f27da6f60c0

[3] https://chat.openai.com/share/f06599ed-6652-4402-b5b0-046e48257ffe

[4] https://www.imd.org/research-knowledge/digital/articles/amazons-sexist-hiring-algorithm-could-still-be-better-than-a-human/

[5] https://chat.openai.com/share/1b4a3f90-30d9-408f-b2d6-bf8c3c7d3246

[6] https://chat.openai.com/share/2770c225-2ceb-472d-801a-ca1f96b8f9c3