Andrew DiBiasio

Amanda Girard

Computing, Society, and Professionalism

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Term Paper Proposal

1. I will write my term paper about recognizing racial biases in healthcare algorithms.
2. Bias essentially exists anywhere that machine learning is used and is present across many different industries. However, I was especially interested in its impact on healthcare because when compared to other industries where biases may result in different financial outcomes between different demographics, bias in healthcare algorithms can have much more severe consequences. This was the most important reason for picking this topic.
3. Recognizing racial biases in healthcare algorithms is essential for improving healthcare equity and justice. However, being overly cautious can have unintended consequences and can lead to worse medical care. In this paper, I hope to conduct in-depth research on this topic and decide on which approach is better to take.
4. Peer Reviewed References
   1. Peer Reviewed
   2. Peer Reviewed
   3. Peer Reviewed

[1] J. Huang, G. Galal, M. Etemadi, and M. Vaidyanathan, “Evaluation and mitigation of racial bias in clinical machine learning models: Scoping review,” *JMIR Medical Informatics*, vol. 10, no. 5, 2022. doi:10.2196/36388

This study was conducted to determine the methods by which racial bias and fairness in clinical machine learning models is assessed. It was concluded that applications of machine learning in healthcare need to focus more on mitigating bias.

[2] N. Norori, Q. Hu, F. M. Aellen, F. D. Faraci, and A. Tzovara, “Addressing bias in big data and AI for health care: A call for open science,” *Patterns*, vol. 2, no. 10, p. 100347, 2021. doi:10.1016/j.patter.2021.100347

This scientific paper examines the use of machine learning to determine whether skin lesions suspected of being melanoma are benign or malignant. This application appears to be very useful, but it was discovered that the training data lacked enough black skin samples, making it likely to misclassify black patients’ skin lesions.

[3] T. Panch, H. Mattie, and R. Atun, “Artificial Intelligence and algorithmic bias: Implications for health systems,” *Journal of Global Health*, vol. 9, no. 2, 2019. doi:10.7189/jogh.09.020318

This essay discusses the difficulties associated with implementing AI algorithms in large-scale applications. When attempting to integrate AI in large-scale operations, the system is much more likely to misrepresent the population. For example, while AI can be effective in clinical trials, there’s a reason why there are few large-scale deployments.