



Thesis Defense

Computer Science Master's Program

“A Literature Review on Ethics in Medical Diagnostic AI & Analysis Therein”

By **Connor Turetzky**

Abstract:

Artificial Intelligence presents a very promising future in medicine. Being able to diagnose and recommend treatments quickly is vital in ensuring positive patient outcomes. However, the new technology is not without risk. In this narrative literature review, the risks of AI in terms of bias, ethics, and environmental impact will be explored through existing research. This paper will focus on research published between 2020 and 2026, highlighting the major ethical and systematic problems currently facing diagnostic AI. Historical bias in medical data has led to AI that share those biases, and humans inherit that bias creating a potential negative feedback loop that perpetuates existing inequity in healthcare outcomes. Similarly, when considering externalities in energy and material production for the systems that medical AI require, it is possible that the pollution and toxic waste produced by those processes may end up causing more medical problems than AI solves, potentially making the use of AI in medicine a net negative for public health. Methodologies such as data augmentation and imputation can alleviate the problem of bias, however the standard of using real data should be maintained in any system deployed for human patients. Because of the risks surrounding potentially inequitable results, the legal and ethical questions that are as yet unanswered, and negative healthcare outcomes from the externalities associated with it, diagnostic AI may not be ready to be deployed at scale until these problems are more thoroughly solved.

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Time: 3:00 PM – 5:00 PM

Location: 14-257a

Committee: Dr. Kurfess, Dr. Sparks, Dr. Gonzalez-Sanchez

