2018 1st International Conference on Cancer Care Informatics (CCI)

The Ethical Challenges of Applying Machine Learning and Artificial Intelligence in Cancer Care

Rima Hajjo
Harvard Extension School, Harvard University
Cambridge, USA
rhajjo@gmail.com

***Abstract*— With the increasing popularity of cancer informatics and the advent of "data revolution," it is becoming imperative to discuss the ethical implications of machine learning (ML) and artificial intelligence (AI) on the society and cancer care. Machine learning [1] can be defined as the application of computers and mathematical algorithms to learn from data and predict future outcome. Artificial Intelligence [2], on the other hand, is built on deep learning as a machine learning technology, and has proved very powerful at solving problems in recent years. There is now hope that machine learning and AI will be able to diagnose cancer, make recommendations for treatment plans, and do countless other things to transform cancer health. However, there are evolving ethical issues that arise in the context of applying ML and AI for optimizing cancer care. This article examines the ethical issues of applying ML and AI in cancer care and classifies them into three major categories: bias, the societal implementation of the technology, and the effects of big data analytics on cancer patients. Our hope is to stimulate discussion about these important ethical implications, which will increasingly need to be addressed in the oncology community.**

Keywords*— *Cancer care, cancer informatics, cancer care informatics, machine learning, artificial intelligence, and ethical issues.

REFERENCES

[1] Goldberg, D. E., & Holland, J. H. Genetic algorithms and machine learning. *Machine learning*, *3*(2), 95-99, 1988.

[2] Russell, S. J., & Norvig, P.. *Artificial intelligence: a modern approach*. Malaysia; Pearson Education Limited,, 2016.