Automated Diagnosis of Melanoma
(Technical Report)

Automation in Medicine: Bias in Medical AI
(STS Research Paper)

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by

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Preface

Professional judgment is necessary but fallible. Clinicians disagree about where the optimal balance between medical technology and professional medical judgment lies. Medical systems can save hospitals money, but they can also divert resources from important human caregiving responsibilities. Oftentimes, technology is insufficient or misleading. How can technology best augment professional judgment in healthcare? Physicians must recognize the need for a doctor-patient relationship along with the use of technology, and acknowledge that healthcare technology may be biased or excessive.

The use of machine learning to identify melanomas is one way technology is used in healthcare. Melanomas are one of the most dangerous types of skin cancer. Thus, it is vital for a potential patient to be diagnosed swiftly. Many lack the resources or time to get a professional opinion in time. A proposed self-diagnosis tool that uses machine learning to identify melanomas will allow skin cancer to be more accurately and cost-effectively diagnosed. The proposed tool would eventually be able to predict malignant melanomas with a 90% accuracy. The tool would be a web application hosted on a cloud platform. Because it is not a mobile application, there could be complications when accessing the app on a phone.

Among physicians, hospitals, insurers, patient advocacies, and medical technology vendors, some promote medical AI, but others caution that it can exacerbate social biases. The medical community faces a major challenge: How can the healthcare community effectively use medical AI in clinical care while reducing the systematic bias in its algorithms? The healthcare community can attempt to reduce bias in medical AI by providing reliable datasets, reducing human bias, and improving the doctor-patient relationship.

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