Personal Project Proposal

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Problem Statement

Machine learning models can be subject to the same biases that exist among humans due to the lack of a diversity of information.

Racial disparities in the diagnosis of skin diseases exist through the emphasis placed on white patients despite how skin diseases present differently based on skin tone.

Chickenpox on pale skin vs. dark skin

Machine Learning Model

Garbage in, garbage out: a model will only learn from the features it is given in the training data.

Biased data collection will cause misclassification errors when encountering real world data.

Medical Student Learning

Students are able to understand the signs of disease through the use of examples given during training.

The presentation of skin diseases on exclusively white skin will cause a misdiagnosis when encountering real cases.

Binary Image Classification Model

The goal of the model will be to distinguish between healthy skin and diseased skin regardless of skin tone.

The invisible bias contributing to the misdiagnosis of people of color can be inhibited by collecting enough examples of how skin disease can show up on various skin tones.

Model Application

Just as studies have shown that students are able to better identify diseases on darker skin tones with exposure to more visual examples, a machine learning model can do the same.

Further advancements can focus on real-time detection of skin disease on patients for quick diagnosis and treatment.

References

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