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Agenda

Getting to know each other

Let's talk about bias in healthcare AI

Group brainstorming sessions

Share your ideas

Closing remarks

Getting to know each other

Let's talk about bias in healthcare AI

AI gender bias costing women's lives, new BHF campaign warns

Women are disadvantaged at diagnosis, treatment and management of myocardial infarction, BHF research shows

BRIEF REPORT

Gender imbalance in medical imaging datasets produces biased classifiers for computer-aided diagnosis

Agostina J. Larrazabal, Nicolás Nieto, Victoria Peterson, Diego H. Milone, and Enzo F...

+ See all authors and affiliations

AI Bias Could Put Women's Lives At Risk – A Challenge For Regulators

Carmen Niethammer Contributor
Diversity, Equity & Inclusion

Feature » Racism in Medicine

Can we trust AI not to further embed racial bias and prejudice?

BMJ 2020 ; 368 doi: https://doi.org/10.1136/bmj.m363 (Published 12 February 2020)
Cite this as: *BMJ* 2020;368:m363

HEALTH

AI-Driven Dermatology Could Leave Dark-Skinned Patients Behind

Machine learning has the potential to save thousands of people from skin cancer each year—while putting others at greater risk.

ANGELA LASHBROOK AUGUST 16, 2018

NEWS · 24 OCTOBER 2019 · UPDATE 26 OCTOBER 2019

Millions of black people affected by racial bias in health-care algorithms

Study reveals rampant racism in decision-making software used by US hospitals – and highlights ways to correct it.

HEAL THYSELF, ALGORITHM

If AI is going to be the world's doctor, it needs better textbooks

POLICY & ETHICS | OPINION

Health Care AI Systems Are Biased

We need more diverse data to avoid perpetuating inequality in medicine

By Amit Kaushal, Russ Altman, Curt Langlotz on November 17, 2020

Healthcare Algorithms Are Biased, and the Results Can Be Deadly

Deep-learning algorithms suffer from a fundamental problem: They can adopt unwanted biases from the data on which they're trained. In healthcare, this can lead to bad diagnoses and care recommendations.

Population
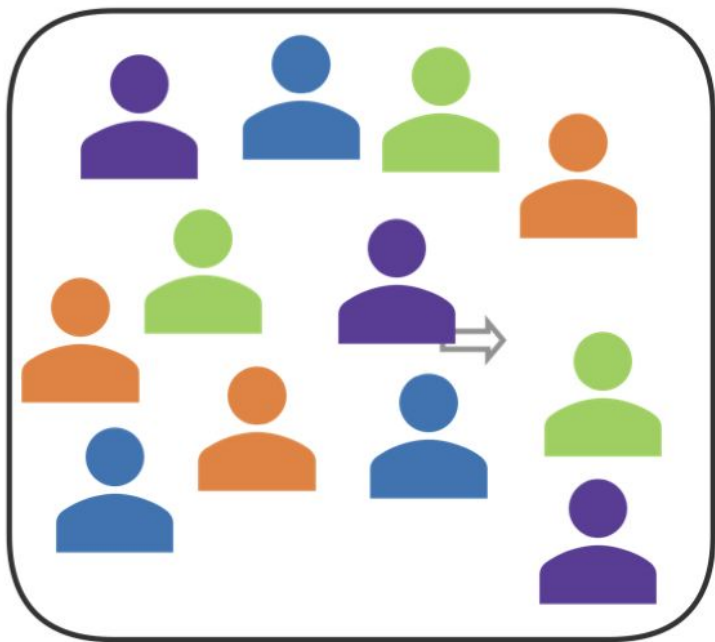
Biased sample

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How might we use AI to reduce inequalities?

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Brainstorming session

Black patients have higher late-stage cancer diagnosis and overall mortality, compared to White patients, and they are often misdiagnosed by existing skin cancer algorithms. How might we help Black people understand their risk of and protect themselves against skin cancer?

Cardiovascular disease has different patterns of expression in men vs women. Prediction models of cardiovascular disease fail to recognize the symptoms of heart attack in women. How might we use AI to overcome the heart attack gender gap?

Black patients have higher late-stage cancer diagnosis and overall mortality, compared to White patients. How might we use AI to help overcome the barriers preventing early detection in ethnic minorities?

Algorithms trained to detect dementia and Alzheimer's disease struggle to diagnose people with an accent. How might we help overcome bias in speech recognition software used for diagnostics?

LGBTQ+ are twice as likely to suffer from mental health problems, but many AI developers fail to include gender in their models. How might we help bridge the gender gap in healthcare AI?

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choose your challenge

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If you'd like to work on this topic, write your name on the post its below

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For each of the challenges
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1. Think about the background of the problem. What might have caused the bias presented above?
2. Who are you designing for, what is your population of interest?
3. What barriers might you face in the data collection process?
4. Are there any ethical implications you should consider(privacy, access, data protection)?
5. What are your ideas & solutions? What would you need to bring them to life?

Share your ideas

The weirdest people in the world?

Joseph Henrich [a1], Steven J. Heine [a2] and Ara Norenzayan [a3]

Western

Educated

Industrialized

Rich

Democratic

Example: Dermatology

Original Research

Deep neural networks are superior to dermatologists in melanoma image classification

Kaggle datasets with skin patches
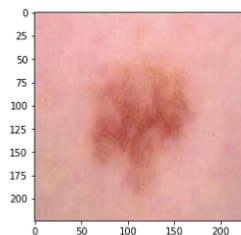
Skin patches

Variability in skin patches

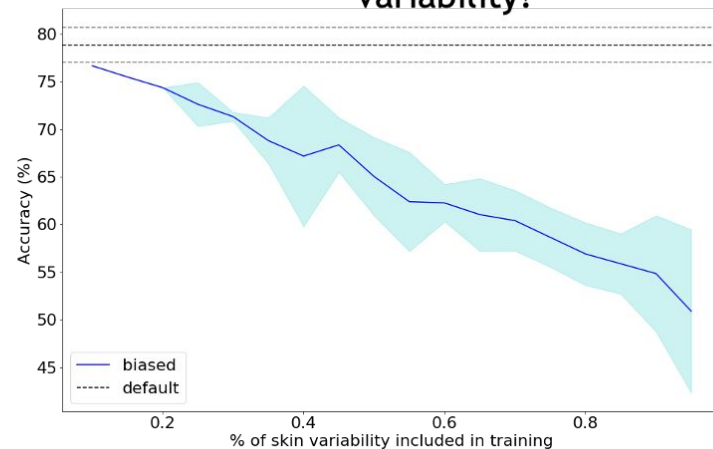**Training performance is affected by variability!**

Factors contributing to bias

Biased samples

Data gaps

Imbalanced classes

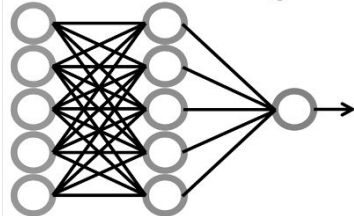Training bias

Societal prejudices

Power imbalances

Bias type

Data-driven bias

Algorithmic bias

Human bias

Network training

Biased output

Norori et al., in preparation

Do you want to help us out and potentially be a co-author in our research article?

http://bit.ly/unbaised-form

Thank you!

https://github.com/natalianorori/unbAIsed

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