C-136096: AI APPLICATIONS IN HEALTH CARE

Artificial intelligence has led to a chance to completely change how healthcare is delivered. By using machine learning algorithms, patients' scan are read more well. It enables physicians to work more efficiently while improving patient outcomes. In order to look through unstructured data in medical records, natural language processing is used. However, with this advancements the tools are trained with data that reflect historical, measurement and aggregation bias.

Historical bias occur when the state of the world in which data was generated is flawed. So historical bias refers to judgement based on preconceived notion. Example, a heart attack symptom used to train AI models for triage. The symptoms used to train the model were male specific because it did not now there is a difference in men and women symptoms.

Measurement bias – Occur when the accuracy of data varies across a group. This can happen when working with proxy variable. Example, from a study conducted by Dr. Obermeyer and colleagues they examined a widely used algorithm to predict patients in need of additional care support and identified racial bias in algorithm. The algorithm computed that black patients needed to be sicker to achieve the same predictive scores as their white counterpart patients for potentially benefiting from the care program. This resulted in allocating health care resources among different racial groups.

Aggregation bias occurs while developing the model when we try to combine different populations whose underlying distribution of the outcome under study differ. For example, the rate of skin cancer across ethnicities. In order to identify aggregation bias, developers need to understand the meaningful distinct groups and reasons why they are different from each other. Resulting to models that favor a certain group without considering the other ethnical group leading to harm.

Deployment bias arises during the implementation of the model. It occurs when a problem in the model is intended to solve from the way it is actually used. Example, a model to predict cost of care. The model had a great accuracy and was able to distinguish between high and low-cost patients. However, the problem arose when the model was used to predict healthcare instead of health care cost, thus the model results to predict healthcare needed which is different from the model's output intended.

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