Artificial intelligence is an integral part of the modern world providing assistance for many applications and algorithms that can be applied to vast amounts of data. However, it is important to consider the ethical dimensions that come with the ways in which we train and use it specifically regarding the process of machine learning. Many ethical concerns arise when it comes to the process of collecting and using data to train AI systems with breaches in privacy to gain private data and bias' present in large amounts of data sets causing issues when it comes to outputting correct and fair results.

Data collection is a main contention point for the ethical concerns that come with AI and machine learning through the collection of vast datasets through both public and private sources raising ethical concerns of breaches in privacy. The process of machine learning makes use of vast datasets known as "training data" to train the AI to be able to complete the tasks required of it. These datasets are crucial to providing artificial intelligence's with the vast amounts of data required to find rules and methods in which they can process new data into an output. These large amounts of data require a source that can be found through public datasets and field research or in certain cases private or confidential data. This is the main ethical concern for machine learning as it makes use of individuals personal data through many different sites and apps such as social medias. The use of sites such as social media provide large broad amounts of data to be used and can be accessed without the knowledge of the users on these sites. This breach of privacy can be seen in the Cambridge Analytica and Facebook Data Scandal in which 50 million Facebook profiles were used to target voters with political ads for the 2016 election. This scandal highlights how millions of users' data can be accessed and used to model AI's to target and manipulate people to share the same view as them. This poses a major ethical issue through the unconsentual collection of private data but also its use in manipulating users. The process of machine learning poses many ethical concerns when it comes to collecting the data required to perform it making use of data that can be obtained through different unethical means breaching the privacy of potential users' in which the data originates from.

As AI systems become more integral to various aspects of our society the topic of biases and fairness arises posing ethical concerns in how to adapt these factors into the training methods of AI's. Artificial intelligence systems are trained through vast amounts

of data that is inherently biased through datasets that are skewed and partly from the fact they are created by humans who have their own natural biases (Mr Sahota, Wall Street Journal). This use of bias data affects the decision making of the AI to output results that can be inaccurate, wrong or harmful to society. Bias in algorithms is a major concern for AI as algorithms are designed to learn from datasets resulting in bias' in the algorithms if the data used is biased(Murtaza Khurshid, LinkedIn). This use of bias data is a significant ethical concern as it can result in unfair treatment for marginalised groups or make descisions based on factors that are false or do not apply to the situation. When dealing with such biases fairness is a neccesity to ensure AI systems are benefiting society making unbiased and equitable decisions that do not reinforce societal disparities(Nucleus_AI, YourStory). By doing this we can achieve fairness through AI and prevent discriminatory outcomes, protect individual right's while promoting inclusivity. Bias is an important topic when talking about the ethics of AI covering the impacts that biased data can have on AI systems and how important it is to prevent this in order to create systems that can benefit many aspects of our society.

As AI technologies continue to develop and integrate into our society it is important to consider the ethical dimensions surrounding privacy. Focusing on factors such as data collection and bias' present in data sets it is evident that machine learning can be a significant breach to the privacy of up to millions of people through the collection of data on social medias such as Facebook as well as biased data plaguing many AI systems highlighting the ethical concerns present in artificial intelligences. All of these ethical issues show how the use of machine learning AI can result in a lack of privacy for a large majority of private information on the internet.

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