**Use of Machine Learning in Justice System and Policing**

The use of machine learning in the justice system and policing is a multifaceted and contentious issue, drawing both support and skepticism. Proponents advocate for its potential to enhance decision-making and reduce crime rates. Some of them believe that the application of machine learning can “act as a force multiplier” to help police officers and judges make better predictions to reduce crimes. Others argue that there exist biases and that the system should not play a great role in the judgment. Critics highlight inherent biases within these systems that can perpetuate discrimination and unfair treatment, particularly concerning racial disparities.

As shown in related videos, predictive policing, risk assessment, and sentencing guidelines are three main aspects of machine learning in the justice system and policing. In addition, machine learning algorithms also play a more and more important role in facial recognition, video analysis, evidence analysis, bias detection, and mitigation. With the continuous maturity of this technology, its wide application is an inevitable trend.

While these applications offer potential benefits, there still exist several potential risks. According to the MIT course, there are biases at all stages of the AI life cycle: data, model, training and deployment, evaluation, and interpretation. For the justice system and policing model, the main factor that can impact its fairness is the input data bias. In some models, blacks are more likely to be predicted to re-offend. That is because prediction models are data-driven and in the training data set more blacks are recorded compared to other colors. Models simply label and categorize all cases to find the regulation and form its classification method. Therefore, when more guilty black cases are fed to the model during the training period, it will automatically combine the color with the possibility of crime. The so-called bias is formed. Therefore, some people worry about the fairness of the use of machine learning.

However, the presence of bias does not necessarily mandate the complete abandonment of machine learning in the justice system. It's imperative to acknowledge that these biases stem from data patterns and systemic issues present in society, rather than inherent flaws in the technology itself. Machine learning models operate based on the data they're provided, mimicking patterns and decisions observed in historical records. They are not guilty. They are just trained to perform as normal people.

To make more people aware of this problem, some tools are made to detect and adjust bias, such as AI Fairness 360, Fairness Indicators by TensorFlow, and Google What-If Tool. They can detect sensitive attributes and mitigate possible bias by reweighting, pre-processing, and post-processing. They are more like a modification of the previous application of machine learning in the justice system and policing.

It's crucial to note that the responsibility does not solely fall on the technology or the algorithms. People involved in the creation, implementation, and oversight of these systems bear responsibility as well. Addressing biases requires a multi-faceted approach involving data collection strategies, algorithmic improvements, and continuous monitoring and evaluation to ensure fairness and accountability. The machine is not the culprit. It learns past cases, finds the regulation, and performs like past judges. Opponents only point out that the model has a higher error rate for blacks. They do not mention the quantity. If there exists a significant quantity difference, will people make the same mistake or even have a higher error rate?

In general, the integration of machine learning in the justice system and policing should not be considered a bad idea. In some ways, the model acts as an average-skilled judge. People can make changes once they realize their mistakes. However, the machine has to learn from countless experiences and improve its performance step-by-step. When people notice the bias on the machine, they probably also realize the mistake they have made. Researchers and practitioners are exploring techniques like adversarial learning and learned latent structures to reduce bias and enhance fairness. However, the journey towards fair and just machine learning applications in the justice system and policing requires collaboration among stakeholders. Transparency, accountability and a commitment to continually improving these systems are essential to navigate the complexities and challenges associated with integrating machine learning into law enforcement and the justice system. Everyone should make efforts to mitigate biases in machine learning models for justice and policing.