Artificial Intelligence in The Criminal Justice System

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Artificial Intelligence (AI) has dominated our technology world, offering many advantages to every sector of society. The world demands more creative, rational, and fair applications of AI in every aspect of our daily life. However, besides its success, AI also poses many challenges to researchers. A major concern that we have to take into consideration is AI ethics of bias and discrimination, especially in the criminal justice system. Future AI research approaches should promote the fairness of algorithms and data in their applications to meet our modern world's demands. Gradual changes from multilevel collaboration could result in a significant transformation.

Overview of Artificial Intelligence

In 1950, Alan Turing, the father of modern computer science, published his paper "Computing Machinery and Intelligence" on creating thinking machines. Six years later, John McCarthy conceived his definition of artificial intelligence: "It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable" (IBM Cloud Education, 2020). In the common sense, an AI agent is a machine programmed to simulate human intelligence, meaning thinking like humans and mimicking their actions. However, AI definitions widely vary in different sectors where it is implemented. Generally, they fall into four main categories based on rationality and thinking or acting abilities:

1. Systems that think like humans
2. Systems that act like humans
3. Systems that think rationally

4. Systems that act rationally (IBM Cloud Education, 2020).

While the first two categories measure AI in terms of fidelity to human performance, the last two measure AI against an idealistic concept of intelligence referred to as "rationally." In an ideal approach, a rational agent should think and do the "right thing" given what it knows.

Applications

The advances of artificial intelligence have been implemented in all aspects of society, affecting everyone's daily life. AI stands behind most of today's technological systems including personal mobile devices, job application screening software, healthcare, and information security. Especially in the criminal justice and public safety system, AI is playing a significant role. Since 2012, many police departments around the country have adopted software like PredPol to identify high-risk locations for specific crime types in real-time (CNBC, 2019). This software model uses an algorithm trained on past crime data to anticipate high-risk areas, and it could also be adjusted according to the needs of each place. AI also takes a major role in bail and sentencing decisions. When it comes to risk assessment, a person's likelihood to show up on court dates or commit another crime is algorithmically generated based on their personal and criminal history. This software is substituting the cash bail system in some places, replacing the traditional system that disproportionally impacts low-income defendants. The state of New Jersey, for example, has adopted a risk assessment tool called Public Safety Assessment to determine who is released pre-trial (CNBC, 2019). Thus, artificial intelligence started to substitute human force in all sectors, including in the legal system.

Bias Concerns

Although those predictive algorithms promise fairness in the system, there still exists bias and discrimination against certain groups of people. In a TEDx talk on "The danger of predictive

algorithms in criminal justice," Dartmouth professor Dr. Hany Farid and his students presented their research on whether computerized software is better than human minds in the legal system (2018). A group of 400 people recruited from an online crowdsourcing platform was given some short paragraphs about actual defendants. There was a total of 8000 defendants with known demographic information, excluding race, and criminal history. Participants were asked to determine whether these people would re-offend within 2 years after their last arrest. Surprisingly, computer software and humans had approximately equal rates of accuracy in predicting those who would re-offend based on two factors age and prior crimes, which are 65.2%, and 66.8% respectively. In terms of false-positive predictions (when a person was predicted to re-offend, but they didn't), black people have a notably higher rate than white people: 37.1% versus 27.2%. In the cases of false-negative predictions (when a person was predicted to not re-offend, but they did), black people have a rate of 29.2%, which is significantly lower than that of 40.2% in white people.

Even when race wasn't present, AI didn't perform significantly better than humans as intended. How did this happen? First, they were feeding data into the software that tells us the race of the person inadvertently. The data we use for such algorithms mirror existing social inequalities. In the research of Dr. Farid mentioned above, the number of prior crimes of a defendant is an implicit representation of race because of inequalities in the criminal justice system (TEDx Talks, 2018). Thus, biased data creates biased software, and this only emphasizes the existing problem. Second, we thought that using the latest data analytics or AI could make very sophisticated inferences about the future for criminal defendants. However, they are actually doing something incredibly simple like data classification.

Why does it matter in the criminal justice system? People assume that software built on the latest advances in technology could give better recommendations than human beings. As mentioned in the research of Dr. Farid above, a judge would relatively find the software more compelling and trustworthy than a random person although both give approximately the same accuracy. Hence, data analytics, artificial intelligence, or machine learning are not inherently more accurate than humans. Using sophisticated technology does not promise a better outcome. Thus, it's dangerous to unleash and use those predictive algorithms without thoroughly understanding how it works, their accuracy, and fairness.

Ethics Concerns

Algorithmic bias in AI has raised some concerns about its ethics. First, AI was supposed to mitigate bias and discrimination in the criminal justice system. In contrast, we have been seeing more bias encoded in the system that disproportionately benefits one group of people over another. For example, white people would receive more advantages than people of color in the legal system. Its goal of a fair system couldn't be achieved. Thus, predictive algorithms mostly exacerbate existing biases in the system. Second, in the legal system, only government and relevant authorities have full access to the algorithm. Lack of transparency in the system raises doubts and distrust in citizens on whom it is used. Without a clear understanding of what types of algorithms affect every aspect of our lives, certain groups of people are unconsciously disadvantaged, especially the underrepresented and discriminated ones. Obviously, this is not what our country is supposed to become. Everyone is legally equal. Furthermore, in all religions and their studies, followers are taught about equality of human beings regardless of their backgrounds. Thus, respecting and embracing each other person's equal rights are how we all should act against this problem.

Proposal of Changes

It is important to take formal actions to mitigate algorithmic biases in the criminal justice system. This is a systematic issue; hence, we should incorporate the help of every societal level, starting with the government. "As [the] major user of technology, [the] government and the public sector should set standards, provide guidance, and highlight good practice. As [the] regulator, [the] government needs to adapt existing regulatory frameworks to incentivize ethical innovation" (Brookings Institution, 2021). The government and every organization should offer a high level of accountability, transparency, and fairness to the algorithms that are affecting people's lives. While the United States doesn't have clear regulations for the use of artificial intelligence, European citizens have been given the right to audit the data and the algorithms that are used against them or on them or to them if they believe they are incorrect (TEDx Talks, 2019). This helps strengthen their trust and encourages all organizations and associations to promote fairness in their use of AI. Since the data fed into the software affects its fairness, researchers should be more careful with what type of data they use for it. Representative data is a solution for this issue. This type of data is created to give a full and unbiased picture of the diversity of the population that we are researching. Thus, representative data could be an idealistic input for the software algorithm.

In conclusion, the artificial intelligence bias and discrimination in the criminal justice system have been a significant concern of researchers, the government, and the public. Understanding the root causes of the issue enables us to propose some interventions to reduce and prevent future bias in the system. However, the issue could not be addressed by one individual. Thus, it calls for the collaboration of all levels of associations to actualize the transformation and achieve fairness in the legal system.

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