Every industry in the world is powered by technology and artificial intelligence but it is still seen largely as a black box. Biased AI algorithms are extremely prevalent in today's tech industry but due to the public's lack of knowledge around tech they go largely unnoticed and tech companies are able to get away with whatever they want. In order to combat this, it is necessary for the government to pass legislation requiring AI algorithms to be be reviewed for fairness and bias, and require tech companies to increase transparency behind the algorithms to the public.

One big idea behind AI algorithms that is not commonly known by the public is that they can be biased, and in fact it is impossible for them not to be biased. To understand how it is possible for algorithms to be biased, it is necessary to first understand how the algorithms work. The majority of today's AI use algorithms know as deep learning, generally speaking deep-learning algorithms work by finding patterns in data.[1] Deep learning algorithms are fed data in which they learn from and form predictions based on. Bias can be introduced into these algorithms in three common stages of the development process: framing the problem, collecting the data, and preparing the data.[1] Developers first must decide the goal of the algorithm, take an algorithm whose goal is determine the creditworthiness of a customer for example, if the goal of the algorithm is to maximize profit then it will behave significantly different than if its goal is to increase loan payback rate.[1] Data for the algorithm to train on must then be collected, whatever bias was present during the creation of the data being used will influence the behavior of the algorithm.[2] Finally, developers must decide which attributes the algorithm will consider, bias can be introduced when an algorithm considers arbitrary attributes such as race or gender.[3] Bias in AI although unintentional can perpetuate injustice in many different industries throughout the world if not taken seriously.

Bias in AI is a big issue and although it is impossible to completely remove, it can be mitigated by adding stricter federal regulation around it passed by congress. Many experts believe one way to reduce AI bias is to require AI algorithms and research to be evaluated for ethics and fairness, algorithms would also be regularly reevaluated to make sure they are still working properly.[4] This enables a group of professionals to prevent intentional misuse of biased algorithms before they effect anybody's lives. Another piece of legislation that can be passed to mitigate the effects of bias in AI is stricter transparency requirements for algorithms. Some examples of this legislation already exist in Finland's GDPR; under GDPR users have the right to get information

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[1] Hao, Karen. "This is how AI bias really happens — and why it's so hard to fix." *MIT Technology Review*, 4 Feb. 2019. *MIT Technology Review*, www.technologyreview.com. Accessed 22 May 2019.

[2] Lee, Benjamin. Personal Interview. 21 May 2019.

[3] Wachter-Boettcher, Sara. *Technically Wrong*. HighBridge Audio, 2017.

[4] Warner, Mark. "Potential Policy Proposals for Regulation of Social Media and Technology Firms." United States Senate, 20 August 2018, https://www.ftc.gov/system/files/documents/public_comments/2018/08/ftc-2018-0048-d-0104-155263.pdf.

about automated decisions relating to them, and they also have the right to request human intervention in the decision making process.[4] Legislation similar to Finland's GDPR could greatly decrease the amount of discrimination in AI decision making. U.S. senator Mark Warner also proposed that on top of this, consumers should be able to access the data that was used to train the algorithms making their decisions, and have a process to correct or amend erroneous data.[4] These various forms of federal legislation would not end the problem of bias in AI but they would serve as an effective way to reduce the potential harm from the bias.

Critics of the proposed legislation may argue that AI outputs cannot be precisely explained and that too much transparency requirements for AI algorithms puts tech company's property in danger, while both of these claims are valid, they can also be easily solved. While it is true that many AI outputs are unpredictable and unexplainable, there are many different techniques that exist that can determine whether algorithms are aligning with key objectives.[4] These processes of evaluating algorithms can help remove a large portion of the black box surrounding AI and decrease unintentional discrimination. Another large claim against this legislation is that requiring too much transparency of algorithms put tech companies' property at risk. This claim is valid but would not be an issue by using an internal review board structure for fairness and ethics reviews. Many experts in the AI field say that the tech industry can learn a lot from medical research where students must get their research reviewed and approved by an ethics committee before their research is conducted.[2] The IRB structure of ethics reviews would be able to complete thorough reviews of conduct in the tech industry while still keeping the proprietary issue in mind as proven by the medical industry where keeping sensitive data private is just as important. Progress to mitigate bias related discrimination in AI will not be an easy issue to tackle but with smart solutions and legislation it can be done.

Technology powers every aspect of society and will only continue to grow in the future. Small factors in tech and AI can affect people's lives in very profound ways. It is important now more than ever to understand and be critical of the algorithms dictating hundreds of millions of lives. The only way to ensure equity and fairness in the algorithms that control the lives of millions of americans is for the government to pass legislation requiring federal mandates for auditability and fairness relating to AI algorithms.