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Critical Analysis of Cisco's Statement of Principles and Framework for AI

Cisco prides itself on developing "network-based solutions" that help our society in a positive way (Principles for Responsible AI, 4). Cisco has set high standards for itself in terms of staying trustworthy and truthful to its customers and claims that it is this solid foundation of objectivity that they innovate its products and services on (Principles for Responsible AI, 4). In this paper, we shall review the principles and frameworks that Cisco follows while developing their artificial intelligence technology and how it ties in with some broader and highly regarded understandings and concepts of ethical frameworks.

Artificially intelligent systems promise to create a better and smarter world and push humanity to the next level. However, the same systems can also hinder the progress of humanity if they are not well-regulated. Cisco understands that AI can influence real-life decisions that can have a positive or adverse effect on regular people (Principles for Responsible AI, 1). Therefore, they understand the importance of having control and authority over the development and implementation of their AI-powered solutions (Principles for Responsible AI, 1). Cisco provides a brief report defining how they incorporate ethical standards like "transparency, fairness, accountability, privacy, security, and reliability" while building AI tools, and we shall examine this report with a discerning lens (Principles for Responsible AI, 1).

Firstly, Cisco places a massive emphasis on the need to be transparent with the customer when an AI system is being leveraged to make decisions that affect them (Principles for Responsible AI, 2). By engaging in an open dialogue with customers, the company can improve its AI's functionality to better reflect the input received from them (Principles for Responsible AI, 2). Additionally, Cisco does not shy away from sharing the parameters that were defined while developing certain models and how the public can find more information on them (Principles for Responsible AI, 2).

Cisco recognizes the issue of harmful human bias that can unintentionally become a part of an AI system (Principles for Responsible AI, 2). They understand that in order to promote fairness, it is necessary to mitigate personal prejudice from decision-making software by training AI models on more inclusive data sets that represent all demographics and people from diverse backgrounds (Principles for Responsible AI, 2).

Another important aspect of Cisco's responsibilities is to hold themselves accountable for the AI solutions that their teams develop (Principles for Responsible AI, 2). It is imperative that there are rules and regulations that oversee that AI tools are being utilized for their intended purposes and that there is no foul play involved (Principles for Responsible AI, 2). In this regard, Cisco asserts that their teams' factor in "privacy, security, and human rights impacts" concerns throughout an AI's development lifecycle (Principles for Responsible AI, 3).

One of the most important characteristics of an AI-enabled solution is its privacy and security aspects (Principles for Responsible AI, 3). Cisco has developed secure protocols to safeguard the anonymity of a person's confidential data. The software that Cisco builds is developed with "privacy-enhancing features" to protect the privacy of an individual (Principles for Responsible AI, 3). Moreover, Cisco is committed to following internationally accepted

privacy laws and standards (Principles for Responsible AI, 3). Consequently, it is not enough to use one's confidential data in a secure manner; it is also important to protect it from hackers and outside threats (Principles for Responsible AI, 3). So, Cisco regularly evaluates the resistance of its security protocols against threats like cyber-attacks that can expose classified data and threaten one's confidentiality (Principles for Responsible AI, 3).

After all is said and done, the true purpose of an artificially intelligent system is to produce results that are accurate and actionable (Principles for Responsible AI, 3). To improve the overall reliability of an AI system, Cisco methodically assesses its machine learning models to improve their accuracy and effectiveness (Principles for Responsible AI, 3).

Now that we have examined the six principles that Cisco follows while working on artificial intelligence technology, we can scrutinize Cisco's framework that they employ to make sure that departments actually engage the six principles in their daily work.

Cisco has established an AI committee comprising senior executives from across different business functions to oversee the company's AI development and implementation process and to review reports of bias from customers, among other issues (Responsible AI Framework, 2). Cisco aims to tackle incident management with the utmost seriousness, which involves flagging incident reports to the concerned departments and following up on a resolution (Responsible AI Framework, 2).

Cisco has established controls that ask for built-in security and privacy features in an AI design (Responsible AI Framework, 2). Cisco evaluates whether an AI model or the data that is being fed into the model could have a potential negative impact, including but not limited to unintentional bias or fairness and transparency issues (Responsible AI Framework, 2). Cisco also

intends to engage with other companies and industries that are using AI tools responsibly to hopefully learn from them (Responsible AI Framework, 2). In a broader approach, Cisco wishes to interact with the government to better understand and comprehend the benefits and risks of artificial intelligence on a global scale (Responsible AI Framework, 2). This way, Cisco can have a say in the policies and regulations surrounding the development and integration of AI (Responsible AI Framework, 2).

After reviewing the principles and framework that Cisco has developed to adhere to while working with artificial intelligence technology, we can analyze if these principles are underpinned by a coherent ethical paradigm.

Utilitarianism is a theory that suggests that the "morally right action is the action that produced the most good" (Driver, 1). Utilitarians such as Jeremy Bentham and John Stuart Mill believed that societies must strive towards generating the "greatest amount of good for the greatest number," including our own (Driver, 1). This theory further suggests that all members of society are on an equal footing, with no member being better off than the other (Driver, 1). This indicates that everyone's good deeds and morally right actions count the same in the grand scheme of the universe (Driver, 1).

Using the basis and foundation defined above, we will now review Cisco's principles and framework under the light of Utilitarianism. Cisco wishes to be open with its customers about the nature of the AI systems they are using. They want the customer to have as much knowledge as they would like about the metrics and parameters that were used to define the AI system that is making decisions about their lives. Most importantly, if customers disagree with some decisions, they can report it to Cisco's Incident Response Team and get the issue resolved. By being

transparent with the customer, Cisco is making sure that no one in society is harmed by its product and promoting the overall good of society.

Another crucial characteristic of remaining true to the nature of utilitarianism is to treat everyone equally and without bias. Cisco's mission to detect and remove any harmful bias from its training data is a step in the right direction. They understand that unintentional bias can cause undue harm to members of society and therefore have established protocols to remove such bias from their models to the best of their ability.

It is imperative that the right technology does not fall into the wrong hands because that can harm society in an unprecedented way. In that spirit, it seems that Cisco's principles are preaching the right action by holding teams that develop AI technology accountable for their innovations. Utilitarianism urges the good of everyone in society as opposed to the good of a select few. So, by holding people liable for their actions, Cisco can discourage its teams from thinking of their own short-term success and put more emphasis on whether their technology benefits all parties involved.

A true utilitarian approach would not be possible if people's confidential data were not safe and secure from prying eyes. In today's context, it means that Cisco needs to prepare for threats such as cyber-attacks that can cause emotional damage to people. According to Cisco's principles, they have a clear emphasis on the privacy and security of data and to keep it on secure servers, safe from viruses and hackers. It would be ambiguous what the long-term consequences could be if private information were to be leaked. To that end, Cisco's commitment to having properly established procedures for keeping data secure, which in turn keeps people away from harm, falls in line with the principles of utilitarianism.

Shifting gears, we shall now look at some evidence to see whether Cisco has any achievements under its belt that support its claim to be an industry leader in AI.

In May 2017, Cisco acquired MindMeld, a company focused on providing a "highly accurate and customized natural language model" through the use of machine learning models (Buckley, 1). Cisco acquired this company to integrate AI into its platforms and become a software-focused company (Buckley, 1). Additionally, Cisco also acquired two other AI-fueled companies around the same time, which can be seen as a move by Cisco to increase its ability to rely on artificially intelligent technology in the future and to establish itself at the forefront of the AI industry (Buckley, 1).

As Gartner reported in 2018, "only 4% of CIOs worldwide report that they have AI projects in production" (CNEgypt, 1). It is safe to assume that this number has grown since then and will continue to grow, which will put increased pressure on the IT infrastructures of all businesses (CNEgypt, 1). To mitigate this problem, Cisco built a server to manage the increased AI and ML workloads for everyone to use (CNEgypt, 1). This new server will help accelerate machine learning techniques and give data scientists a chance to experiment more and innovate more (CNEgypt, 1). Cisco is making it easier for businesses to incorporate AI technology into their IT environment and is proving itself to be a true proponent of AI (CNEgypt, 2).

In June 2019, Cisco introduced an update to its flagship Cisco DNA software, which added artificial intelligence and machine learning expertise to control and manage networks (Savitz, 1). This new update would provide an improved user experience for the customers as the machine learning capability of the software can solve any network issues before the customer can even realize there is a problem (Savitz, 1). This is another excellent example of how Cisco is leading the development of AI and using it for the benefit of society (Savitz, 1).

In this paper, we summarize Cisco's principles, and framework for responsible AI. We learned how Cisco works with AI technology while adhering to the ethical standards of transparency, fairness, accountability, privacy, security, and reliability. We analyzed these principles in light of utilitarianism theory, which seeks to maximize the good for the greatest number of people. Whether Cisco is able to actually achieve a truly utilitarian society cannot be decisively determined without reviewing some input from the public, but we can infer that Cisco is operating with the right intentions. Lastly, we looked at some examples where Cisco has acted as an industry leader to promote the growth and inculcation of AI in IT frameworks.

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