

AI Regulation: An Analysis of Federal, State, and Local Regulations and Policy Solutions

Evan Jakob Lee Dayton

Colorado Christian University

POL - 304

Dr. Copeland

January 27, 2024

AI Regulation: An Analysis of Federal, State, and Local Regulations and Policy Solutions

I. Introduction

Artificial Intelligence has become an integral part of our modern technological environment, revolutionizing and transforming the way we live and work. As AI continues to become more advanced, the need for large comprehensive regulations becomes increasingly visible. The application of these programs knows no limits, and it's only a matter of time before problems arise. This paper explores the complex landscape of AI regulations at the federal, state, and also local levels in the United States. There will be a special focus on emerging technologies like quantum AI, which shows early signs of what can become of AI and the need for said regulations. The regulatory framework for AI is a crucial aspect of ensuring responsible as well as ethical development while also looking at the potential risks and challenges that may come with the advancement of this technology.

II. Current State of AI Regulations

A. Global Overview

Nations worldwide are actively and currently more than ever engaging in discussions and initiatives to navigate the many challenges posed by the exponential growth of artificial intelligence. A pivotal contributor to this international dialogue is the Organisation for Economic Co-operation and Development (OECD). In its landmark publication, the "OECD Principles on Artificial Intelligence" the organization outlines a certain set of guidelines which at this time

aimed to promote trustworthy AI development.¹ The OECD's efforts extend beyond mere recommendations, as it always actively encourages member countries to adopt these principles and incorporate them into their national AI strategies for regulation.

However, the reality of AI regulations on a global scale is also far from uniform. The regulatory landscape seems to vary significantly due to divergent cultural, political, and economic contexts among different nations. For instance, European Union member states have taken significant strides with the General Data Protection Regulation (GDPR), which not only addresses data protection including the use of Quantum mechanics for encryption, but also looks into the overall ethical use of AI. We can also look at the Asia-Pacific region, such as Japan, which has introduced AI-specific guidelines with more of a focus on innovation and economic growth. Japan's guidelines for example, outlined by the Japanese Cabinet Office in 2019, stressed the nation's commitment to leveraging AI technologies early in hopes for economic advancement.²

Global initiatives beyond the OECD further show the complexity of international AI governance. The United Nations Educational, Scientific and Cultural Organization (UNESCO) has also been actively engaged in discussions on the ethical implications of AI. They have been emphasizing the importance of a human-centered approach.³ These efforts, highlighted by UNESCO's emphasis on a human-centered approach, advocate for prioritizing human well-being, dignity, and also rights within AI development. A human-centered approach mostly

¹ Organization for Economic Co-operation and Development (OECD), "OECD Principles on Artificial Intelligence" (2019).

² Japanese Cabinet Office, "Guidelines on AI" (2019)

³ UNESCO, "Recommendation on the Ethics of Artificial Intelligence" (2021).

involves designing AI technologies that enhance human capabilities, and avoid reinforcing harmful biases or harmful censorship.

Achieving a comprehensive global framework for AI regulations is severely difficult and is likely to never happen. The diversity of cultural norms like mentioned previously, legal landscapes, and national interests complicates the creation of universally accepted regulations and the success rate they may have. There is also to be said, the rapid pace of technological advancements introduces new ethical dilemmas which also have to be included into the conversation. Ongoing reshaping and refining of regulations is absolutely necessary to address emerging issues such as algorithmic bias, and privacy concerns because the growth of this technology will only grow exponentially.

III. Current Federal AI Regulations

A. Explanation of Current Federal Regulations

While the United States has been a global leader in AI research and development for most of the technology's existence, the absence of comprehensive federal regulations has led to a more decentralized approach.⁴ The federal government will indeed run into issues enforcing all forms of federal regulation on AI technology. We may consider the 10th Amendment as the cornerstone of this solidification, where all rights not therefore entrusted to the federal government lies in the hands of the states. The federal government has, however, initiated efforts to guide AI development through various agencies and policies.

⁴ National AI Research and Development Strategic Plan, "Networking and Information Technology Research and Development Program" (2019).

B. Federal Trade Commission (FTC) Actions:

The FTC seems to have emerged as one of the main key players in the regulation of AI applications, particularly in the realm of consumer protection. As of 2020, The FTC has also been actively monitoring and enforcing consumer protection laws concerning AI applications.⁵

One example this allowance for regulation was used is where the FTC enforces existing consumer protection laws against companies deploying AI in ways that may harm consumers. This may include such actions against entities engaging in what could be deceptive practices or misleading consumers about the capabilities and implications of AI-powered products and services. This could be said for companies describing their AI model as better performing than in real application. The FTC has also emphasized the need for companies to provide clear and understandable information about their AI applications. This extends to things such as disclosure practices, which ensure consumers are fully informed about how AI technologies may impact their ideas and decision-making.

In addition to these enforcement actions, the FTC has been quite proactive in providing proposed guidelines and what they consider best practices for businesses navigating the use of AI. By attempting to offer some clarity on legal expectations, the Commission is from the looks of it asking for responsible AI development that aligns with consumer protection laws. Whether this will pan out in accordance to citizen necessity, only time will tell.

C. Recent Federal Policies or Legislation

⁵ FTC, "Enforcement Policy Statement on Deceptively Formatted Advertisements" (2020).

In the past year, both Congress and the Biden Administration have shown a very strong interest in addressing the risks and benefits of AI through various bills and hearings. There are three main proposals for comprehensive AI rules in the latter half of the past year: the SAFE Innovation Framework, a transparency and licensing approach by both Senators Blumenthal and Hawley, and a plan for a National AI Commission in the House.

Additionally, there are smaller bipartisan bills we can focus on that look more into specific aspects of AI, such as supporting overall research, ensuring national security, and even deciding which ways the federal agencies may use AI technology. There's also a concern about the global competition in technology, more predominantly with China, which has led to many proposals for complete transparency between companies and what knowledge they may already have or innovate.

President Biden recently on October 30, issued an executive order to address AI. The order says it aims to set new standards for AI safety, emphasizing the “protection of Americans' privacy, promoting equity and civil rights, fostering innovation and competition, and ensuring national security.” Some key directives from this order include the attempt to compel AI developers to again be transparent and share safety test results with the government, establishing what seems to be increasingly more meticulous standards for AI regulation. It sets the stage for what is to come for the future of AI in the U.S.⁶

IV. State-Level AI Regulations

A. Overview of AI Regulations at the State Level

⁶ "FACT SHEET: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence," (October 30, 2023).

States have recognized the need for localized approaches to AI regulations, with some taking more proactive measures to address the popular repeated ethical concerns than others. For example, California has implemented the California Consumer Privacy Act (CCPA), which has implications for AI systems processing personal data and allowing machine learning programs such as AI to access this personal data.⁷ The New York Senate has even passed Bill S6402 which establishes a temporary state commission called the AI and Autonomous Systems Study Commission with the goal to study and investigate in attempts to better assess the impact of AI on various sectors.⁸

B. Impact of State Regulations on AI Development

State regulations are starting to play a more significant role in shaping what may be considered the early AI landscape, influencing industry practices and fostering ethical AI development. As we can see with the rise in calling for AI regulation, states will be called on increasingly more, as the contrasting federal government will sit idle ill possessing the authoritative power to control AI regulations.

While state initiatives contribute to innovation as well, a lack of uniformity can create some complexities for businesses operating across state borders. The different laws and requirements in each state make it hard for businesses to follow the many regulations. This lack of consistency may cause confusion in some areas, also contributing to businesses' spending more money on following the said regulations and laws, in return slowing down innovation, especially for companies with operations extending across multiple jurisdictions.

⁷ California Legislative Information, "California Consumer Privacy Act (CCPA)" (2018).

⁸ New York State Senate, "AI and Autonomous Systems Study Commission" (2020).

V. Local AI Regulations

A. Examination of AI Regulations at the Local Level

Local Government hasn't played as large a role in regulating AI, although noteworthy case studies provide some clarity on the varying local responses to AI regulations. Seattle, for example, has taken a proactive stance by implementing the Generative Artificial Intelligence Policy.⁹ This policy focuses on ensuring responsible and ethical use of generative AI, particularly in municipal services. Taking a deeper look at California locally, San Francisco has opted for a more restrictive approach by banning the use of facial recognition technology by city agencies.¹⁰ This bold and unusual approach shows an attempt to address what could be considered a smaller issue more suited for local legislation, demonstrating the potential for local governments to step in and address specific AI needs based on location and culture, rather than a broad approach

New York: AI and Autonomous Systems Study Commission

New York creating a specific AI commission is also a case that particularly highlights the significance of collaborative efforts between states and local entities when shaping more comprehensive AI regulation. Creating a specified commission allows New York to engage in a thorough examination of AI's implications without having to do it in accordance with a third party or worry about other implications. Moreover, the establishment of such commissions sets an example for other states to follow suit, which encourages more of a collective and cooperative approach to address the complexities associated with AI governance rather than a tied down

⁹ City of Seattle, "Generative Artificial Intelligence Policy" (2023).

¹⁰ City and County of San Francisco. (2019). Ordinance Prohibiting City and County Use of Face Surveillance Technology.

reality of what could be. Through increased collaboration between companies and states, the U.S. could eventually call for a complete pulling together of all resources to gain the utmost advancement in the shortest period of time.

VI. Policy Solutions and Propositions

A. Proposal 1: Quantum Security

A1. Explanation of the Policy

In response to the ever increasing challenges presented by quantum AI, particularly in the realm of national security, a Quantum AI Security Framework could be proposed individually for each of the countries involved. This framework could mean establishing federal guidelines that govern the development, deployment, and also security considerations of quantum AI including emphasis on national decryption and encryption of important U.S. data.

With the recent emergence of algorithms like Shor's Algorithm, it poses a significant threat to traditional encryption systems, particularly in the realm of national security. In response, a Quantum AI Security Framework is proposed at the federal level. This framework would have set parameters given by the federal government to contrast the incoming traffic which would most likely be using Shors' algorithm. By proactively addressing the risks associated with quantum computing, the framework aims to foster collaboration between government entities, private sectors, and research institutions to enhance cybersecurity and fortify critical systems against evolving quantum threats.¹¹

¹¹ Matthew Hayward, "Quantum Computing and Shor's Algorithm," February 17, 2005.

A2. Justification and Reasoning

The establishment of a Quantum AI Security Framework at the federal level responds to the escalating challenges posed by quantum AI, especially in the context of national security. As quantum algorithms, such as Shor's Algorithm, threaten traditional encryption systems, the proposed framework provides a strategic response to safeguard sensitive U.S. data. The emphasis on national decryption and encryption aligns with the paramount goal of preserving national security. This policy advocates for collaboration among government entities, private sectors, and research institutions to collectively fortify cybersecurity measures.

B. State Regulation on AI Training:

B1. Explanation of the Policy

This proposed state regulation focuses specifically on the training of AI models and the ownership and use of processing units in regards to data centers. Drawing inspiration from NIST's approach to AI metrics, the state could potentially implement control over the quantity and capabilities of processing units owned by a company engaged in AI development. By placing limitations on the scale of Large Language Model training (LLM)¹², the policy seeks to ensure proper scaling and training of LLMs done by private organizations.

B2. Justification and Reasoning

The justification for such regulation lies in a finite understanding of the overall ethical considerations surrounding the abundance of data and processing capabilities. By incorporating

¹² *Large Language Models are another more specific term for only the type of AI such as in this example a program that can recognize and generate text based on patterns.

these measures, the policy overall would aim to shift the focus from computing power and resources to other more important facets of the model.

The specific focus on the scale of LLM training is not only crucial but also the main necessity, as it allows for innovation within set boundaries, mostly limited only from the provided data. This policy approach attempts to prevent the monopolization of abusing processing power, as well as the equal opportunity to obtain the highest quality processing units.

C. State Regulation on Data Usage for AI Models:

C1. Explanation of the Policy

At the state level, this proposed policy puts forth measures to regulate the quantity and specifics of the type of data that companies can utilize in real-time for training AI models. The focus is on ensuring limited training in AI development, particularly in addressing concerns related to the kind of data as well. This use of datasets is an attempt to identify intricate patterns and establish meaningful connections between words, enhancing what could be considered the model's understanding of language nuances. Data is considered very valuable to companies and the more you have the further ahead you are. This means larger companies are able to purchase more data from other existing companies obtaining substantial amounts of data for training LLMs. Regulating the amount of data would remove the immediate focus on who has the larger set of data and instead focus on more intricately chosen data. The downside of this could be the lack of innovation in regards to advancements in LLMs, and the slowing down of AI development overall.

C2. Justification and Reasoning

The justification for implementing this state-level policy lies in the recognition of the profound impact of how the amount of data can affect the ethical concerns as well. This regulation could be needed solely for the fact that LLMs become increasingly harder to limit and set parameters with every updated dataset. Another possible downside of not implementing this policy is allowing the free use for companies to test the limits of how far we can take these models before they are potentially capable of unethical behavior or the potential to embed into a system and exist autonomously. By specifically regulating the real-time quantity and characteristics of data used for AI training, the policy attempts to address these ethical challenges proactively.

VIII. Conclusion

The regulation of Artificial Intelligence in the United States involves a dynamic interaction between federal, state, and local initiatives. Despite global organizations like the OECD and UNESCO offering guidelines in hopes for more trustworthy AI. At the federal level, the absence of comprehensive regulations has led to decentralized efforts, with the Federal Trade Commission playing a substantial role in consumer protection. President Biden's recent Executive Order on AI attempts to highlight commitment to addressing crucial concerns regarding privacy and national security. State-level approaches also vary, with states like California and New York taking proactive measures, yet the lack of uniformity poses challenges for businesses. Overall three policy options were proposed, including a Quantum AI Security Framework and state-level regulations on AI training and data usage, offer potential solutions to balance innovation with ethical considerations.

References

American Conservative Union. (2020). Conservative Principles for Government Involvement in Artificial Intelligence.

Brundage, M., et al. (2020). Toward Trustworthy AI Development: Mechanisms for Supporting Verifiable Claims. arXiv preprint arXiv:2004.07213.

California Legislative Information. (2018). California Consumer Privacy Act (CCPA).

City and County of San Francisco. (2019). Ordinance Prohibiting City and County Use of Face Surveillance Technology.

City of Seattle. (2020). AI and Ethics in City Government Ordinance.

Congress.gov. (2019). AI in Government Act of 2019.

Congress.gov. (2020). National AI Initiative Act of 2020.

FTC. (2020). Enforcement Policy Statement on Deceptively Formatted Advertisements.

Japanese Cabinet Office. (2019). Guidelines on AI.

Matthew Hayward, "Quantum Computing and Shor's Algorithm," February 17, 2005.

National Academies. (2019). Quantum Computing: Progress and Prospects. The National Academies Press.

National AI Research and Development Strategic Plan. (2019). Networking and Information Technology Research and Development Program.

National Governors Association. (2020). State Policymaking on Artificial Intelligence.

National Security Commission on Artificial Intelligence. (2021). Final Report.

NIST. (2021). AI Standards in NIST's Cybersecurity Framework. National Institute of Standards and Technology.

Organization for Economic Co-operation and Development (OECD). (2019). OECD Principles on Artificial Intelligence.

Preskill, J. (2018). Quantum Computing in the NISQ era and beyond. Quantum, 2, 79.

Russell, S., & Norvig, P. (2021). Artificial Intelligence: A Modern Approach. Pearson

**Although some not specifically cited as footnotes they were included with the references as key contributors in the pursuit of this composition.*