

# ETHICS AND GOVERNANCE OF AI AND ROBOTICS

A SURVEY AND LEGAL ANALYSIS OF EXISTING  
UNITED STATES LAW AND REGULATION

DECEMBER 2018

CHRIS BAVITZ • ADAM HOLLAND • ANDREA NISHI



Ethics and Governance of AI and Robotics: A Survey and Legal Analysis of Existing United States Law and Regulations is the result of a search for relevant United States law and regulations at the federal, state and local level, including “hard” law, “soft” law and where applicable, case law limited to federal and Supreme Court Decisions regarding AI & Robotics, with the objective of performing an analysis and assessment of the existing standards to determine the extent to which they address the challenges posed by AI and robotics, along with an identification of any gaps, an assessment of their validity, relevance, and adequacy, and a description of any challenges.

This document and its counterparts were produced in 2018 as a contribution to the [SIENNA project](#), an international EU-based consortium dedicated to examining and addressing ethical issues in three new and emerging technology areas: [human genomics](#), [human enhancement](#) and [human-machine interaction](#). This third track, which examines the ethics and governance of both artificial intelligence and robotics, (“AI&R”) overlapped with work being done as part of the Berkman Klein Center for Internet & Society’s Ethics and Governance of Artificial Intelligence Initiative, and that connection offered the Center a chance to contribute to a larger multinational effort. Berkman Klein joined the SIENNA consortium as an [associate partner](#) focusing solely on the artificial intelligence and robotics research track. Chris Bavitz and Adam Holland formed the core of the BKC team working on SIENNA materials, with key support during summer 2018 from intern Andrea Nishi.

Other SIENNA partner organizations span the globe and include University of Twente (Netherlands), Trilateral Research (United Kingdom), Uppsala University (Sweden), Helsinki Foundation for Human Rights (Poland), European Network of Research Ethics Committees (Germany), University of Granada (Spain), Ionian University (Greece), Federal University of Rio de Janeiro (Brazil), Dalian University of Technology (China), University of Maastricht (Netherlands), and the University of Cape Town (South Africa).

Each consortium partner produced three related and country-specific reports: a survey and legal analysis of existing relevant law and regulations; a survey and sampling of existing and relevant ethical codes, and a survey and sampling of on-point academic articles and recent more “popular” news and media. The SIENNA core team then synthesized these into a [larger report](#), and also produced a “[state of the art](#)” review of the state of artificial intelligence and robotics generally. Adam Holland also participated in SIENNA consortium workshops in the fall of 2018 and 2019.

The main SIENNA website can be found [here](#).

To learn more at Berkman Klein’s involvement in the SIENNA project, and additional resources from this work, please visit <https://cyber.harvard.edu/story/2021-02/ethics-and-governance-ai-and-robotics>.

# Law, AI, and Robotics: US

[WP4 – AI and robotics]

|                            |                                                                                                                  |
|----------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Contributors</b>        | Andrea Nishi, Berkman Klein Center                                                                               |
|                            | Adam Holland, Berkman Klein Center                                                                               |
|                            | Chris Bavitz, Berkman Klein Center                                                                               |
| <b>Due date</b>            | 29 March 2019                                                                                                    |
| <b>Delivery date</b>       | 9 December 2018                                                                                                  |
| <b>Type</b>                | Report                                                                                                           |
| <b>Dissemination level</b> | PU = Public                                                                                                      |
| <b>Keywords</b>            | Legal analysis, artificial intelligence, AI law, AI regulation, robotics, robotics regulation, UK country report |

The SIENNA project - *Stakeholder-informed ethics for new technologies with high socio-economic and human rights impact* - has received funding under the European Union's H2020 research and innovation programme under grant agreement No 741716.

© SIENNA, 2019

This work is licensed under a Creative Commons Attribution 4.0 International License

# Abstract

This report was completed as a part of the second phase of the larger SIENNA Project's ([www.sienna-project.eu](http://www.sienna-project.eu)) comparative analysis of the legal and human rights requirements applicable to AI and robotics. It is an initial attempt at mapping of the United States of America's ("US") laws and regulations regarding artificial intelligence ("AI") and robotics, with a special focus on a few key issues, including: human rights, new AI & robotics-specific legislation, new regulatory bodies, significant case law, and any other relevant legal developments. It was completed during the summer of 2018, and its content reflects that time frame.

Noteworthy elements of the US report are the lack of any cohesive federal policy for the development, implementation, or regulation of AI or robotics technologies; the lack of binding federal case law; the lack of any national regulatory bodies; the patchwork of state and local law and regulation; and the powerful role that private industry standards and guidelines have so far played in dictating how these technologies develop. Also of note is the disproportionate number of existing laws and regulation having to do with drones or other autonomous devices.

This report will be integrated, along with similar reports from both EU and other non-EU countries into a larger comprehensive SIENNA report documenting the legal, including human rights, requirements applicable to AI and robotics, which will aim to show the convergences and distinctions in the regulation of AI and robotics and the challenges this presents for future innovation.

## Document history

| Version | Date            | Description   | Reason for change          | Distribution               |
|---------|-----------------|---------------|----------------------------|----------------------------|
| V0.5    | 3 July 2018     | Outline       |                            | Andrea Nishi               |
| V1.0    | 10 July 2018    | Draft         |                            | Task contributors          |
| V1.0    | 12 July 2018    | Comments      |                            | Task contributors          |
| V2.0    | 16 July 2018    | Draft         |                            | Task contributors          |
| V2.0    | 17 July 2018    | Comments      |                            | Task contributors          |
| V2.1    | 1 Oct 2018      | Edits         | Responding to TRI feedback | Adam Holland               |
| V2.2    | 9 December 2018 | Final Version | Formatting, final edits    | Adam Holland, Chris Bavitz |

## Information in this report that may influence other SIENNA tasks

| Linked task | Points of relevance                                                |
|-------------|--------------------------------------------------------------------|
| Task 4.2    | This report is part of and, will provide input to deliverable 4.2. |

# Table of Contents

|                                                                   |    |
|-------------------------------------------------------------------|----|
| Abstract                                                          | 2  |
| Table of Contents                                                 | 3  |
| Executive summary                                                 | 4  |
| List of tables                                                    | 6  |
| List of acronyms/abbreviations                                    | 6  |
| Glossary of terms                                                 | 7  |
| 1. Introduction                                                   | 7  |
| 2. Scope and Limitations                                          | 8  |
| 3. Legal Developments in AI and Robotics                          | 9  |
| 4. Specific legal issues                                          | 17 |
| <b>4.1 Artificial intelligence</b>                                | 17 |
| 4.1.1 Unfairness, bias and discrimination                         | 17 |
| 4.1.2 Intellectual property issues related to works created by AI | 18 |
| <b>4.2 Robotics</b>                                               | 18 |
| 4.2.1 Specific legal status for robots                            | 18 |
| 4.2.2 Safety and civil liability issues                           | 19 |
| 4.3 Other key legal issues in the US                              | 19 |
| 5. Gaps and challenges in regulating AI and Robotics              | 20 |
| 6. Conclusion                                                     | 21 |
| References                                                        | 23 |

# Executive summary

This report begins with a brief overview of the US legal system, critically, its federal nature and many separate legal jurisdictions. There is then a short discussion of the scope and limitations of the report, the most notable of which was the sheer potential scale of the inquiry, a direct outcome of the multiple jurisdictions at issue. The remainder of the report is then divided into three sections, addressing:

## 1) Legal developments in AI and robotics

In the US, there are currently no AI & robotics-related amendment to either the US Constitution or to human rights, nor has there been any similarly targeted legislation. A small number of proposed laws directly address AI or robotics, but these tend to be extremely topic-specific, with most having to do with drones and autonomous vehicles or predictive algorithms, and the remaining few covering a wide spectrum from child sex robots to manufacturing process cybersecurity.

There are no new official national regulatory bodies dealing with AI or robotics, and there is a strong contingent in the US arguing against this possibility. A Presidential advisory committee on AI has languished since the 2016 Presidential election. Although non-governmental actors have proposed some area-specific individual regulatory bodies such as a Federal Robotics Commission, none have yet been officially created. However, existing topic-specific government agencies, including the Food and Drug Administration, the Environmental Protection Agency, and the Bureau of Consumer Financial Protection have addressed the issue within their domain, and the National Science Foundation has grants specifically targeted at AI and robotics.

There have been no cases heard in US courts that establish any binding federal precedent, but state level cases have been heard on algorithmic scoring in the criminal justice system, AI-assisted commodities fraud, robotic surgery torts, and more. Future US legal developments in the AI and robotics space will most likely address algorithmic fairness and explainability, autonomous vehicles, and effects on the labour market.

Also of note is the powerful role that private industry standards and guidelines have so far played in dictating how these technologies develop and how they are, or are not, regulated; and the proliferation of private institutions devoted to the study of AI and robotics.

## 2) A few key AI and robotics issues

Algorithmic unfairness in decision making is relatively well-documented in the US, but there are still few legal protections in place, with the exception of credit scoring, which has more robust, though still limited, protections in place.

The question of the ownership of works created by AI has largely not been addressed in U.S. law, although some legal commentators have engaged with the topic.

Similarly, US law has not specifically addressed the legal status of robots – e.g., personhood – although the discussion around autonomous weapons of war has grown more robust in the last few years.

Any robotic safety or liability concerns are currently accommodated by existing product liability and tort law, although discussion is ongoing with respect to autonomous vehicles.

## 3) The gaps and challenges in regulating AI & robotics

The greatest challenge in regulating AI and robotics in the United States is the lack of any cohesive federal policy for the development, implementation, or regulation of these technologies.

The report concludes that the state of AI and robotics law in the United States has made recent progress but is still

not sufficiently comprehensive. Increased collaboration between industry leaders, academics, non-profit organisations and government entities can ensure continued legal protections for innovators and the public alike. A top national priority should be transparency in automated decision-making, which will increase accountability and facilitate the enforcement of other rights. A national policy is extremely unlikely in the near or medium term.

## List of tables

- **Table 1:** List of acronyms/abbreviations
- **Table 2:** Glossary of terms

## List of acronyms/abbreviations

| Abbreviation    | Explanation                                                                                            |
|-----------------|--------------------------------------------------------------------------------------------------------|
| AI              | Artificial intelligence                                                                                |
| C.F.R.          | Code of Federal Regulations                                                                            |
| C.G.S.A.        | Connecticut General Statutes Annotated                                                                 |
| CREEPER         | Curbing Realistic Exploitative Electronic Pedophilic Robots                                            |
| C.R.S.A.        | Colorado Revised Statutes Annotated                                                                    |
| Del.C           | Delaware Code                                                                                          |
| EFF             | Electronic Frontier Foundation                                                                         |
| FAA             | Federal Aviation Administration                                                                        |
| Fla. Ct. App    | Florida Court of Appeals                                                                               |
| FDA             | Food and Drug Administration                                                                           |
| Fed.Appx        | Federal Appendix                                                                                       |
| F.S.A.          | Florida Statutes Annotated                                                                             |
| F.Supp.3d       | Federal Supplement, 3rd                                                                                |
| GAO             | Government Accountability Office                                                                       |
| GDPR            | General Data Protection Regulation                                                                     |
| IC              | Indiana Code                                                                                           |
| I.C.A.          | Iowa Code Annotated                                                                                    |
| ILCS            | Illinois Codified Statutes                                                                             |
| IEEE            | Institute of Electrical and Electronics Engineers                                                      |
| K.S.A.          | Kansas Statutes Annotated                                                                              |
| LSA-R.S.        | Louisiana Statutes Annotated – Revised Statutes                                                        |
| M.C.L.A.        | Michigan Compiled Laws Annotated                                                                       |
| MLAI            | National Science and Technology Council's Subcommittee on Machine Learning and Artificial Intelligence |
| M.R.S.A         | Maine Revised Statutes Annotated                                                                       |
| Neb. Rev. St    | Nebraska Revised Statutes                                                                              |
| N.C.G.S.A       | North Carolina General Statutes Annotated                                                              |
| N.J.S.A.        | New Jersey Statutes Annotated                                                                          |
| N.H. Rev. Stat. | New Hampshire Revised Statutes                                                                         |
| NSF             | National Science Foundation                                                                            |
| Okl. St. Ann.   | Oklahoma Statutes Annotated                                                                            |
| O.R.S           | Oregon Revised Statutes                                                                                |
| RCW             | Revised Code of Washington                                                                             |
| SDCL            | South Dakota Codified Laws                                                                             |
| T.C.A.          | Tennessee Code Annotated                                                                               |
| U.C.A.          | Utah Code Annotated                                                                                    |
| US              | United States                                                                                          |
| U.S.C.A         | United States Code Annotated                                                                           |
| V.S.A.          | Vermont Statutes Annotated                                                                             |
| V.T.C.A         | Vernon's Texas Statutes and Codes Annotated                                                            |
|                 |                                                                                                        |



## Glossary of terms

| Term                      | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Artificial intelligence   | The science and engineering of machines with capabilities that are considered intelligent (i.e., intelligent by the standard of <i>human</i> intelligence). Major applications of AI technology are in transportation, education, finance, industry, healthcare, marketing, management, telecommunications, entertainment and defence, amongst other fields. Important subfields of AI were found to include: knowledge representation and automated reasoning, artificial neural networks, machine learning, computer vision, computer audition, natural language processing, expert systems, data mining, intelligent agent systems and automated planning, evolutionary computation. [SIENNA D4.1]                                                                                                                                     |
| Robotics                  | The field of science and engineering that deals with the design, construction, operation, and application of robots. Major applications of robots are in transportation, industry, healthcare, education, entertainment, space exploration, defence, retail, companionship, housekeeping and other areas. Important subfields of robotics were found to include: robot mechanics, robot sensing, robot control (including many sub-areas, such as robot learning, adaptive control, developmental robotics, evolutionary robotics, cognitive robotics, behaviour-based robotics, robotic mapping and planning), robot locomotion, bio-inspired and soft robotics, humanoid robotics, microrobotics, nanorobotics, beam robotics, cloud robotics, swarm robotics, telerobotics, social robotics and human-robot interaction. [SIENNA D4.1] |
| Automated decision-making | Decision based solely on automated processing, including profiling, which produces legal effects concerning a data subject or similarly significantly affects him or her (GDPR, Article 22 (1)). It refers to individual decision-making made by automated means without any human involvement. Examples include: an online decision to award a loan; and a recruitment aptitude test which uses pre-programmed algorithms and criteria. <sup>1</sup> (Information Commissioner’s Office)                                                                                                                                                                                                                                                                                                                                                 |
| Machine learning          | A set of approaches within AI where statistical techniques and data are used to “teach” computer systems how to perform particular tasks, without these systems being explicitly programmed to do so. (SIENNA D4.1, p. 11.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## 1. Introduction

The United States is made up of fifty states, one federal district (the District of Columbia), and several territories. Federal law is applicable throughout the US, but each state, district, and territory has a separate system of locally applicable law. The main sources of federal law are the United States Constitution, statutes passed by the United States Congress, regulations promulgated by federal administrative agencies, and binding case law generated by federal appellate courts. Each state its own legislative, regulatory, and judicial bodies that create additional legislation, regulation, and case law for that jurisdiction. Although territories and indigenous tribes also have separate, robust legal systems, research on these systems is not included in this report. The United States is subject to international law

<sup>1</sup> <https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/rights-related-to-automated-decision-making-including-profiling/>

and is a signatory to numerous treaties. In order for an international agreement to have the force of federal law, two-thirds of the United States Senate or a majority of both the Senate and House of Representatives must consent to the treaty before it is ratified by the President.

The **objective** of this report is to review the state of the law related to artificial intelligence (AI) and robotics and determine how specific issues arising from these technologies are addressed in the United States.

The primary **methodology** used in preparing this report was desk research. Initial research focused on state and federal case law and legislation, as well as federal regulation. Further research was then conducted on scholarship addressing legal issues related to artificial intelligence and robotics.

*Policy documents and legal academic discourses dealing with legal issues and regulation of AI and robotics*

These include:

#### Governmental Reports

- United States Government Accountability Office (“GAO”) Report to the Committee on Science, Space, and Technology, House of Representatives, “Artificial Intelligence: Emerging Opportunities, Challenges, and Implications”, GAO-18-142SP, March 2018.<sup>2</sup>
- Executive Office of the President National Science and Technology Council Committee on Technology, “Preparing for the Future of Artificial Intelligence”, 2016.<sup>3</sup>

#### Academia

- Calo, Ryan, “Artificial Intelligence Policy: A Primer and Roadmap”, University of California Davis Law Review, Vol. 51, 2017, pp. 399-435.<sup>4</sup>

#### Private Sector

- The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems, “Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems, Version 2”, IEEE, 2017.<sup>5</sup>

## 2. Scope and Limitations

This report has a limited scope as demarcated by the SIENNA task 4.2 workplan. The legal issues related to AI and robotics are too vast to be covered comprehensively in a report of this size. Instead, this report aims to summarize particularly significant and timely topics arising from these technologies in the United

<sup>2</sup> <https://www.gao.gov/assets/700/690910.pdf>

<sup>3</sup>

[https://obamawhitehouse.archives.gov/sites/default/files/whitehouse\\_files/microsites/ostp/NSTC/preparing\\_for\\_the\\_future\\_of\\_ai.pdf](https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf)

<sup>4</sup> [https://lawreview.law.ucdavis.edu/issues/51/2/Symposium/51-2\\_Calo.pdf](https://lawreview.law.ucdavis.edu/issues/51/2/Symposium/51-2_Calo.pdf)

<sup>5</sup> [http://standards.ieee.org/develop/indconn/ec/ead\\_v2.pdf](http://standards.ieee.org/develop/indconn/ec/ead_v2.pdf)

States.

The primary challenge faced in producing this report was the breadth of the topic. A secondary challenge was the large quantity of law related to specific topics, such as autonomous vehicles or unmanned aircraft, which are addressed in hundreds of separate pieces of state and federal law, making review and synthesis of the legal landscape difficult. Furthermore, the wide variety of terms used to describe emerging technologies (e.g., “personal delivery device,” “automated image recognition”) made it difficult to conduct an exhaustive search of laws related to AI and robotics. Finally, the sheer number of state legal systems across the United States made it difficult to perform a comprehensive search of all state laws.

### 3. Legal Developments in AI and Robotics

This section examines legal developments pertaining to AI and robotics.

**i. Have developments in AI (i.e., automated decision-making systems, algorithmic systems, machine learning) and robotics led to amendments in constitutional or human rights and/or legislation bearing on constitutional or human rights?**

While a formal Constitutional amendment on either topic is extremely unlikely, the proliferation of AI and robotics technology in the years to come will likely force US courts to rule on latent Constitutional questions such as the 4<sup>th</sup> Amendment’s guarantee of freedom from unreasonable search, the 5<sup>th</sup> Amendment’s protections against self-incrimination, and the 14<sup>th</sup> Amendment’s guarantee of equal protection among others, effectively amending Constitutional rights with regard to these technologies. Some of the most prominent Constitutional issues related to AI and robotics include the application of 1<sup>st</sup> Amendment freedom of speech to computer-generated content,<sup>6</sup> the use of law enforcement robots in ways that implicate 4<sup>th</sup> Amendment principles of reasonable suspicion and probable cause,<sup>7</sup> and the proliferation of algorithmic risk assessment tools that may violate 5<sup>th</sup> and 14<sup>th</sup> Amendment due process and equal protection guarantees.<sup>8</sup>

**ii. Have there been/are there attempts or plans to create or adopt new legislation in response to developments in AI and robotics (e.g., granting legal personhood to robots, prescribing civil or criminal liability for harms caused), or to regulate how AI and robotics applications are designed,**

<sup>6</sup> Massaro, Toni and Helen Norton, “‘Siri-ously? Free Speech Rights and Artificial Intelligence”, *Northwestern University Law Review*, Vol. 110, Issue 5, 2016, pp. 1169-1194.

<https://scholarlycommons.law.northwestern.edu/nulr/vol110/iss5/6/>; Grimmelmann, James, “Speech In, Speech Out”, in Ronald K.L. Collins and David M. Skover, *Robotica: Speech Rights and Artificial Intelligence*, Cambridge University Press, Cambridge, UK, 2018.

<sup>7</sup> Rich, Michael, “Machine Learning, Automated Suspicion Algorithms, and the Fourth Amendment”, *University of Pennsylvania Law Review*, Vol. 164, 2016, pp. 871-929.

[https://scholarship.law.upenn.edu/penn\\_law\\_review/vol164/iss4/2/](https://scholarship.law.upenn.edu/penn_law_review/vol164/iss4/2/)

<sup>8</sup> Kehl, Danielle, Priscilla Guo, and Samuel Kessler, “Algorithms in the Criminal Justice System: Assessing the Use of Risk Assessments in Sentencing”, Responsive Communities Initiative, Berkman Klein Center for Internet & Society, Harvard Law School, 2017. [https://dash.harvard.edu/bitstream/handle/1/33746041/2017-07\\_responsivecommunities\\_2.pdf](https://dash.harvard.edu/bitstream/handle/1/33746041/2017-07_responsivecommunities_2.pdf)

**set up, commissioned or used? (e.g., regulation of algorithmic development or restrictions on the use of robots in certain conditions or sectors)**

At the federal level, there is limited existing legislation expressly addressing AI or robotics. The majority of existing legislation relates to the use of unmanned aircraft,<sup>9</sup> the establishment of biometric identification programs,<sup>10</sup> or requests for additional research on the potential benefits and risks of emerging technologies.<sup>11</sup> Outside of these categories, there is also notable legislation limiting the disclosure of algorithms used in credit scoring and fraud detection,<sup>12</sup> as well as reporting requirements related to federal data mining.<sup>13</sup>

In regards to future legislation, there are several pending bills related to AI and robotics in the current Congress, though most are unlikely to pass. Proposed legislation includes multiple bills requiring applicants for protected immigration status to submit biometric information,<sup>14</sup> a bill to prevent the import or sale of childlike sex robots,<sup>15</sup> bills to improve cybersecurity in autonomous manufacturing<sup>16</sup> and transportation systems,<sup>17</sup> a bill to establish a job-training program for workers displaced by automation,<sup>18</sup> and several bills to establish advisory councils related to AI and robotics.<sup>19</sup>

At the state level, the most common legislation related to AI and robotics involves autonomous vehicles and unmanned aircraft. These laws include limitations on the use of unmanned aircraft by law enforcement agencies,<sup>20</sup> authorizations or prohibitions on the operation of autonomous vehicles within

<sup>9</sup> 10 U.S.C.A. § 130i – “Protection of certain facilities and assets from unmanned aircraft”; 49 U.S.C.A. § 46320 – “Interference with wildfire suppression, law enforcement, or emergency response effort by operation of unmanned aircraft”

<sup>10</sup> 8 U.S.C.A. § 1732 – “Machine-readable, tamper-resistant entry and exit documents”; 46 U.S.C.A. § 70123 – “Mobile biometric identification”; 8 U.S.C.A. § 1365b – “Biometric entry and exit data system”

<sup>11</sup> PL 115–174, Sec. 502, “Economic Growth, Regulatory Relief, and Consumer Protection Act” (directing the SEC to report on the risks and benefits of algorithmic trading in capital markets); 15 U.S.C.A. § 7501(b)(10) “ National Nanotechnology Program”

<sup>12</sup> 12 U.S.C.A. § 5533(b)(1), “Consumer rights to access information”; 42 U.S. Code § 1320a–7 - “Exclusion of certain individuals and entities from participation in Medicare and State health care programs”

<sup>13</sup> 42 U.S.C.A. § 2000ee-3, 42 U.S. Code § 2000ee–3 - “Federal agency data mining reporting”

<sup>14</sup> Dream Act of 2017, S. 1615, 115th Cong. (2017). <https://www.govtrack.us/congress/bills/115/s1615>; Agricultural Worker Program Act of 2017, H.R. 2690, 115th Cong. (2017). <https://www.govtrack.us/congress/bills/115/hr2690>

<sup>15</sup> CREEPER Act of 2017, H.R. 4655, 115th Cong. (2017). <https://www.govtrack.us/congress/bills/115/hr4655>

<sup>16</sup> New Collar Jobs Act of 2017, H.R. 3393, 115th Cong. (2017). <https://www.govtrack.us/congress/bills/115/hr3393>

<sup>17</sup> Next Generation American Manufacturing Act of 2017, H.R. 340, 115th Cong. (2017).

<https://www.govtrack.us/congress/bills/115/hr340>

<sup>18</sup> Innovation Corps Act of 2017, H.R. 1576, 115th Cong. (2017). <https://www.govtrack.us/congress/bills/115/hr1576>

<sup>19</sup> FUTURE of Artificial Intelligence Act of 2017, S. 2217, 115th Cong. (2017).

<https://www.govtrack.us/congress/bills/115/s2217>; H.R. 3411, 115th Cong. (2017); “To establish in the National Highway Traffic Safety Administration an Automated Driving System Cybersecurity Advisory Council to make recommendations regarding cybersecurity for the testing, deployment, and updating of automated driving.”

systems. <https://www.govtrack.us/congress/bills/115/hr3411>; H.R. 3416, 115th Cong. (2017); “To establish in the National Highway Traffic Safety Administration a Rural and Mountainous Advisory Council to make recommendations regarding the testing and deployment of highly automated vehicles and automated driving systems in areas that are rural, remote, mountainous, insular, or unmapped.”

<https://www.govtrack.us/congress/bills/115/hr3416>

<sup>20</sup> AS § 18.65.902; F.S.A. § 934.50; 725 ILCS 167/10; IC 35-33-5-9; 25 M.R.S.A. § 4501; N.R.S. 493.112; N.C.G.S.A. § 15A-300.1; O.R.S. § 837.310; U.C.A. 1953 § 72-14-203; 20 V.S.A. § 4622

the state,<sup>21</sup> and restrictions on the private use of unmanned aircraft over certain facilities,<sup>22</sup> to record private activity,<sup>23</sup> or to conduct or interfere with hunting and fishing.<sup>24</sup>

A number of states also have laws clarifying the way that these emerging technologies (often autonomous vehicles<sup>25</sup> and aircraft) relate to existing laws. For example, several states have updated their harassment and voyeurism laws to explicitly prohibit the use of unmanned aircraft to engage in activity that would be illegal if done by a human being.<sup>26</sup> More forward-thinking legislatures may also include statutory text that specifies how the law shall be interpreted in the event of further technological advancements.<sup>27</sup> Without these legislative adaptations, existing laws and their application to new technologies would be left to the interpretation of the courts.

While laws for the use of autonomous vehicles and aircraft make up the bulk of state legislation on AI and robotics, many states have also passed laws regarding predictive analytics and algorithmic risk assessment. For example, several states have laws that limit the factors, such as race, income, or postal code, that may be considered in the algorithmic determination of credit and insurance risk scores.<sup>28</sup> Also common are laws requiring the use or development of risk assessment tools in the criminal justice process,<sup>29</sup> though these laws rarely include the input limitations placed on credit and insurance risk

<sup>21</sup> T. C. A. § 55-30-103; N.C.G.S.A. § 20-401; N.R.S. 482A.080; M.C.L.A. 257.665; Ga. Code Ann., § 40-8-11; F.S.A. § 319.145; Cal.Vehicle Code § 38750

<sup>22</sup> F.S.A. § 330.41; N.R.S. 493.109; N.J.S.A. 2C:40-27; N.C.G.S.A. § 15A-300.3; 3 Okl.St. Ann. § 322; O.R.S. § 837.372; SDCL § 50-15-3; T. C. A. § 39-13-903; V.T.C.A., Government Code § 423.0045

<sup>23</sup> LSA-R.S. 14:337; V.T.C.A., Government Code § 423.003; SDCL § 22-21-1; O.R.S. § 837.370

<sup>24</sup> I.C. § 36-1101; IC 14-22-6-16; M.C.L.A. 324.40112; N.H. Rev. Stat. § 207:57; N.J.S.A. 23:7A-2

<sup>25</sup> Ga. Code Ann., § 40-5-21; N.C.G.S.A. § 20-401; F.S.A. § 316.305; Cal.Vehicle Code § 16001

<sup>26</sup> M.C.L.A. 259.313; A.C.A. § 5-16-102; LSA-R.S. 14:283.1

<sup>27</sup> The Uniform Electronic Transaction Act, which was published in 1999 and has been adopted by a majority of states, specifies that “While this Act proceeds on the paradigm that an electronic agent is capable of performing only within the technical strictures of its preset programming, it is conceivable that, within the useful life of this Act, electronic agents may be created with the ability to act autonomously, and not just automatically. That is, through developments in artificial intelligence, a computer may be able to ‘learn through experience, modify the instructions in their own programs, and even devise new instructions.’ Allen and Widdison, ‘Can Computers Make Contracts?’ 9 Harv. J.L. & Tech 25 (Winter, 1996). If such developments occur, courts may construe the definition of electronic agent accordingly, in order to recognize such new capabilities.” Ala.Code 1975 § 8-1A-2.

<sup>28</sup> AS § 21.36.460, “Uses of and Restrictions On Credit History or Insurance Scoring Applicable to Personal Insurance.”; 18 Del.C. § 8304, “Use of credit information”; I.C.A. § 515.103, “Use of credit information — personal insurance.”; K.S.A. 40-5104, “Insurance Score Act”; N. M. S. A. 1978, § 59A-17A-4, “Use of credit information; limits on use.”; VA Code Ann. § 38.2-2126, “Insurance credit score disclosure; use of credit information”

<sup>29</sup> AZ ST Code of Jud. Admin., § 5-201, “Evidence-based Pre-Trial Services”; West’s Ann.Cal.Penal Code § 3015, “Parole Reentry Accountability Program”; C.R.S.A. § 16-4-106, “Pretrial services programs”; C.G.S.A. § 18-81z, “Development of risk assessment strategy”; 10 Del.C. § 1004A, “Juvenile Offender Civil Citation Program.”; HRS § 353-10, “Reentry intake service centers”; K.S.A. 75-7023, “Juvenile intake and assessment system; confidentiality of records; information collected; dispositional alternatives; custody of child; conditions of release”; Neb.Rev.St. § 83-1,103.02, “Lifetime community supervision; Division of Parole Supervision; duties; certificate of community supervision; appeal”; N.R.S. 62B.610, “Establishment of procedures to determine effectiveness of juvenile justice system and outcomes of juveniles; selection of risk assessment tool and mental health screening tool; contract for technical assistance.”; N.H. Rev. Stat. § 504-A:15, “Risk Assessment and Length of Supervision.”; O.R.C. § 5149.31, “Subsidies and standards for community-based corrections programs; Eligibility.”; SDCL § 26-8C-3.1, “Risk assessment instrument for statewide use.”; V.T.C.A., Occupations Code § 110.164, “Dynamic Risk Assessment Tool”; U.C.A. 1953 § 78A-6-124, “Detention risk assessment tool”; RCW 9.94A.729, “Earned release time—Risk assessments”

assessments.

**iii. Are there new regulatory bodies being set up to regulate AI and robotics? What are the developments on this front? (e.g., AI watchdogs, AI commission, Robotics commission)**

While there have been prominent calls for the establishment of a Federal Robotics Commission,<sup>30</sup> no new regulatory bodies have been created specifically to regulate AI or robotics. Rather than creating new regulatory bodies, federal guidelines have suggested that a "broad regulation of AI research or practice would be inadvisable at this time...commenters called for existing regulation to be adapted as necessary to account for the effects of AI."<sup>31</sup> Consequently, federal regulation relating to AI and robotics has been promulgated by existing regulatory agencies. In some cases, such as workplace safety and robotics,<sup>32</sup> pre-existing regulations have been deemed sufficient to address the issues presented by new technologies. However, many regulatory bodies have developed new regulations to address novel issues more directly. Some noteworthy examples include:

- Food and Drug Administration regulations requiring the disclosure or explanation of algorithms used in certain medical devices<sup>33</sup>
- Food and Drug Administration's Digital Health Software Precertification program piloting a new regulatory model to quickly assess safety of health software<sup>34</sup>
- Federal Aviation Administration regulation of unmanned aircraft<sup>35</sup>
- Environmental Protection Agency's regulations requiring reporting of on-board algorithms used during automobile emissions testing<sup>36</sup>
- Bureau of Consumer Financial Protection regulation of credit scoring methods<sup>37</sup>

Although no regulatory bodies have been created to specifically regulate AI and robotics, the National Science and Technology Council's Subcommittee on Machine Learning and Artificial Intelligence (MLAI) was established in 2016 to advise the President on policy relating to artificial intelligence.<sup>38</sup> Prior to the 2016 presidential election, the Executive Office of the President also published a document outlining goals

<sup>30</sup> Calo, Ryan, "The Case for a Federal Robotics Commission", Brookings Institution, Washington, DC, September 2014. [https://www.brookings.edu/wp-content/uploads/2014/09/RoboticsCommissionR2\\_Calo.pdf](https://www.brookings.edu/wp-content/uploads/2014/09/RoboticsCommissionR2_Calo.pdf)

<sup>31</sup> "Preparing for the Future of Artificial Intelligence", op. cit., 2016.

<sup>32</sup> Occupational Safety and Health Association, Robotics Standards. <https://www.osha.gov/SLTC/robotics/standards.html>

<sup>33</sup> 21 C.F.R. § 866.2190; 21 C.F.R. § 870.2200; 21 C.F.R. § 870.1415; 21 C.F.R. § 884.6195; 21 C.F.R. § 882.1470; 21 C.F.R. § 882.1580; 21 C.F.R. § 882.1440; 21 C.F.R. § 882.1450; 21 C.F.R. § 882.1471

<sup>34</sup> <https://www.fda.gov/MedicalDevices/DigitalHealth/DigitalHealthPreCertProgram/default.htm>

<sup>35</sup> 14 CFR § 107; 14 C.F.R. § 48.1-30; 4 C.F.R. § 375.38

<sup>36</sup> 40 C.F.R. § 86.004-16; 40 C.F.R. § 1068.110

<sup>37</sup> 12 C.F.R. § 1002

<sup>38</sup> Executive Office of the President of the United States, Charter of the Subcommittee on Machine Learning and Artificial Intelligence, Committee on Technology, National Science and Technology Council, May 16, 2016.

[https://www.whitehouse.gov/sites/whitehouse.gov/files/ostp/MLAI\\_Charter.pdf](https://www.whitehouse.gov/sites/whitehouse.gov/files/ostp/MLAI_Charter.pdf)

[https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/NSTC/ai\\_charter\\_-\\_signed\\_final.pdf](https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/NSTC/ai_charter_-_signed_final.pdf)

and safeguards for federally-funded research on AI.<sup>39</sup>

While the current presidential administration has largely taken a laissez-faire approach to AI and robotics regulation,<sup>40</sup> an examination of the National Science Foundation's (NSF) current funding programs sheds some light on the research priorities of the federal government. AI and robotics-related research grants administered by the NSF fall roughly into four categories: robotics,<sup>41</sup> artificial intelligence and its applications,<sup>42</sup> health and the human body,<sup>43</sup> and infrastructure and resource management.<sup>44</sup> A number of grants related to artificial intelligence are also administered through the National Institutes of Health and the Department of Defense.

iv. **Identify any significant case law or judgments<sup>45</sup> addressing human rights challenges<sup>46</sup> of AI and robotics (if there are no judgments, you can refer to legal doctrine)**

The United States Supreme Court has yet to rule on any rights-based challenges related to AI and robotics. In the absence of Supreme Court precedent, other case law is largely scattered across different courts in the federal and state judicial systems, with little significant binding precedent emerging over the last 10 years.

In recent years, a number of cases have challenged the use of predictive algorithms throughout the criminal justice system.<sup>47</sup> One prominent case from Wisconsin, *State v. Loomis*, addressed the use of algorithmic risk assessment tools in criminal sentencing. The defendant, Eric Loomis, challenged the use of the predictive tool on the grounds that it violated his due process rights to an individualized sentence and to be sentenced based on accurate information. The Wisconsin Supreme Court held that the use of the risk assessment tool did not violate Loomis's due process rights, and the United States Supreme Court

<sup>39</sup> Executive Office of the President, National Science and Technology Council, Networking and Information Technology Research and Development Subcommittee, "National Artificial Intelligence Research and Development Strategic Plan", 2016, [https://www.nitrd.gov/news/national\\_ai\\_rd\\_strategic\\_plan.aspx](https://www.nitrd.gov/news/national_ai_rd_strategic_plan.aspx).

<sup>40</sup> Executive Office of the President, White House Office of Science and Technology Policy, "Summary of the 2018 White House Summit on *Artificial Intelligence for American Industry*", 2018, <https://www.whitehouse.gov/wp-content/uploads/2018/05/Summary-Report-of-White-House-AI-Summit.pdf>.

<sup>41</sup> National Robotics Initiative - Ubiquitous Collaborative Robots, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503641](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503641); Biosensing, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505556](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505556); Cyber-Physical Systems, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503286](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503286).

<sup>42</sup> Robust Intelligence, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503305](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503305); Smart and Autonomous Systems, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505325](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505325); Algorithms in the Field, [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505125](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505125).

<sup>43</sup> Smart and Connected Health, [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=504739](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504739); Mind Motor Machine Nexus, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505402](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505402).

<sup>44</sup> Civil Infrastructure Systems, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13352](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13352); Smart and Connected Communities, [www.nsf.gov/pubs/2016/nsf16610/nsf16610.htm](http://www.nsf.gov/pubs/2016/nsf16610/nsf16610.htm); Innovation at the Nexus of Food, Water and Energy Systems, [www.nsf.gov/pubs/2018/nsf18545/nsf18545.htm](http://www.nsf.gov/pubs/2018/nsf18545/nsf18545.htm).

<sup>45</sup> Limited only to decisions in the highest courts – unless going further in depth is warranted.

<sup>46</sup> For example, discrimination, inequality, privacy infringements, unfavourable work conditions, harm to life, bodily integrity, human safety and welfare, liability etc.

<sup>47</sup> *Malenchik v. State*, 928 N.E.2d 564 (Ind. 2010); *United States v. Stanko*, 762 F.3d 826 (8th Cir. 2014); *State v. S.M.*, 131 So. 3d 780 (Fla. 2013); *Y.A. v. State*, 197 So. 3d 1180 (Fla. Ct. App. 2016); *Doe v. Sex Offender Registry Board*, 466 Mass. 594 (Mass. 2013)

declined to review the case.<sup>48</sup>

A second set of human rights challenges related to AI arises from the use of predictive analytics to identify potential targets for military strikes.<sup>49</sup> Several cases have been brought in federal court to disclose government documents related to the legality of targeted killings in the Middle East, South Asia, and East Africa, but these cases have been largely unsuccessful due to the protections afforded to national security and foreign policy information.<sup>50</sup>

Although cases brought in federal district court and lower state courts do not set binding precedent and therefore do not become law in the same sense that appellate-level cases do, cases from these courts nonetheless provide insight into how new legal issues surrounding AI and robotics are being resolved. In addition to those discussed above, some of the novel issues addressed by courts in recent years include:

- A challenge to the use of algorithmic scoring in the evaluation of public school teachers for determination of annual performance bonuses<sup>51</sup>
- A ruling that consent provided to a law enforcement officer through Google Translate was insufficient to meet constitutional requirements for search<sup>52</sup>
- Suits involving liability for injuries sustained during robotic surgery<sup>53</sup>
- A case involving the use of high-frequency trading algorithms to commit commodities fraud<sup>54</sup>
- A case rejecting law enforcement liability for injuries sustained when police used a robot to remotely detonate a bomb at plaintiff's front door.<sup>55</sup>

**v. Highlight any other relevant, potential future legal developments relating to AI and robotics identified in authoritative legal sources in your country**

In 2016, the Executive Office of the President's National Science and Technology Council published "Preparing for the Future of Artificial Intelligence," a survey of the state of AI and its applications, with an accompanying set of policy recommendations to address the issues raised by the report. Although the report did not produce any binding laws regarding AI and robotics, the recommendations may lead to future legal developments regulating these technologies. Some of the notable recommendations include:

- a. "The Department of Transportation should continue to develop an evolving framework for regulation to enable the safe integration of fully automated vehicles and UAS, including novel vehicle designs, into the transportation system."<sup>56</sup> This framework has been created and revised several times<sup>57</sup>, most recently in October 2018. A notable policy priority of the Trump

<sup>48</sup> *State v. Loomis*, 371 Wis.2d 235 (Wis. Ct. App. 2016).

<sup>49</sup> Naughton, Johnathan, "Death by drone strike, dished out by algorithm", *The Guardian*, February 21, 2016. <https://www.theguardian.com/commentisfree/2016/feb/21/death-from-above-nia-csa-skynet-algorithm-drones-pakistan>

<sup>50</sup> *New York Times v. U.S. Department of Justice*, 806 F.3d 682 (2d Cir. 2015); *Main Street Legal Services Inc., v. National Security Council*, 811 F.3d 542 (2d Cir. 2016).

<sup>51</sup> *Trout v. Knox County Board of Education*, 163 F.Supp.3d 492 (E.D. Tenn. 2016).

<sup>52</sup> *United States v. Cruz-Zamora*, 2018 WL 2684108 (D. Kan. 2018).

<sup>53</sup> *Mracek v. Bryn Mawr Hosp.*, No. 09-2042, 363 Fed.Appx. 925 (2d Cir. 2010).

<sup>54</sup> *United States v. Coscia*, 866 F.3d 782 (7th Cir. 2017).

<sup>55</sup> *Brown v. City of Colorado Springs*, No. 16-1206, 709 Fed.Appx. 906 (10th Cir. 2017).

<sup>56</sup> "Preparing for the Future of Artificial Intelligence", op. cit., 2016, pp. 22.

<sup>57</sup> "Trump Administration Introduces Industry-Friendly Guidelines for Self-Driving Cars"

<http://fortune.com/2017/09/12/trump-self-driving-cars/>; See "Automated Vehicles 3.0 -- Preparing for the Future of



Administration in this space is a voluntary approach to regulation, which stands in contrast to the views of safety advocates and some U.S. legislators.<sup>58</sup>

- b. “The Executive Office of the President should publish a follow-on report by the end of this year, to further investigate the effects of AI and automation on the U.S. job market, and outline recommended policy responses.”<sup>59</sup>
- c. “Federal agencies that use AI-based systems to make or provide decision support for consequential decisions about individuals should take extra care to ensure the efficacy and fairness of those systems, based on evidence-based verification and validation.”<sup>60</sup>
- d. “The U.S. Government should complete the development of a single, governmentwide policy, consistent with international humanitarian law, on autonomous and semi-autonomous weapons.”<sup>61</sup>

Likewise, the Government Accountability Office has identified several policy recommendations in its 2018 report, “Artificial Intelligence: Emerging Opportunities, Challenges, and Implications.” Most notably, the report highlights the need for further research into computational ethics and explainable AI,<sup>62</sup> and suggests that the establishment of experimental regulatory sandboxes may provide a “safe haven to assess the results of alternative regulatory approaches.”<sup>63</sup>

**vi. Provide any additional information that might be relevant (and not considered above).**

Outside of the strictly legal realm of case law, legislation, and regulation, the private sector has significant influence in the United States. In the absence of strong federal law addressing AI and robotics, industry standards and guidelines may serve a key role in dictating how these technologies develop. Given the nature of the U.S. technology industry, new policies and practices from a single dominant company may also play a part in developing nationwide standards for AI and robotics. For example, after controversy surrounding the use of its image analysis software in military technology, Google recently released a set of principles that will guide its future activity within the AI domain.<sup>64</sup>

In addition to these forms of private self-regulation, a number of academic and non-profit research groups have developed in recent years to study and develop policy recommendations related to AI and robotics. In the academic space, these institutions include the Berkman Klein Center for Internet and Society at Harvard University (founded in 1998),<sup>65</sup> the Stanford Center for Internet and Society (founded in 2000),<sup>66</sup>

Transportation” <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf>; “Automated Driving System: A Vision for Saety” [https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0\\_090617\\_v9a\\_tag.pdf](https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf); “Feds defend voluntary robot car regulations”; <https://www.detroitnews.com/story/business/autos/2018/10/23/feds-defend-voluntary-robot-car-regulations/1743067002/>; “Trump administration pushing to ease roll-out of driverless cars and trucks” [https://www.washingtonpost.com/transportation/2018/10/04/trump-administration-pushing-ease-roll-out-driverless-cars-trucks/?utm\\_term=.c02181749aa8](https://www.washingtonpost.com/transportation/2018/10/04/trump-administration-pushing-ease-roll-out-driverless-cars-trucks/?utm_term=.c02181749aa8)

<sup>58</sup> <http://www.latimes.com/business/autos/la-fi-hy-driverless-regs-chao-20170912-story.html>

<sup>59</sup> Id., pp. 29.

<sup>60</sup> Id., pp. 34.

<sup>61</sup> Id., pp. 38.

<sup>62</sup> “Artificial Intelligence: Emerging Opportunities, Challenges, and Implications”, op. cit., 2018, pp. 32.

<sup>63</sup> Id., pp. 8.

<sup>64</sup> Google, “Artificial Intelligence at Google: Our Principles”, June 7, 2018. <https://ai.google/principles>

<sup>65</sup> Berkman Klein Center, Ethics and Governance of AI. <https://cyber.harvard.edu/topics/ethics-and-governance-ai>

<sup>66</sup> Stanford Center for Internet and Society, Robotics. <http://cyberlaw.stanford.edu/focus-areas/robotics>

and AI Now at New York University (founded in 2017).<sup>67</sup> Among the non-profit organizations working on legal issues related to AI and robotics are the Electronic Frontier Foundation (EFF),<sup>68</sup> Upturn,<sup>69</sup> Data & Society,<sup>70</sup> and the Center for Democracy and Technology.<sup>71</sup>

The nature of these institutions' various activities span a broad spectrum, and cover a diverse range of perspectives, so it is difficult, if not impossible, to describe their effect on law and regulation except on a case-by-case ad hoc basis. Some, like the EFF<sup>72</sup>, frequently make specific policy recommendations. Other organizations do not<sup>73</sup>, nor do they push for specific laws, but rather seek to gather, analyze and present the available data in coherent and accessible ways, but leaving it to others to then use that raw material to support legislative, regulatory or policy initiatives. Still other organizations may work directly with policy makers hoping to play an educational role, one that might ultimately shape policy, without drawing or favoring any initial normative conclusions. Examples of the latter type of involvement are the Berkman Klein Center's AI global governance and Inclusion project<sup>74</sup>, AG Tech Forum<sup>75</sup> and its work with the U.S. State Department on Internet Robustness.<sup>76</sup> Finally, some organizations, like EPIC, the Electronic Privacy Information Center, have explicitly petitioned<sup>77</sup> the U.S. Government to take note of and incorporate into national policy<sup>78</sup> the guidelines they have participated in developing.

The IEEE<sup>79</sup> Global Initiative on Ethics of Autonomous and Intelligent Systems has gathered industry leaders, academics, and policymakers to develop a framework "that encourages technologists to prioritize ethical considerations" in the development of AI technology and "facilitate[s] the emergence of national and global policies that align with these principles."<sup>80</sup> While this framework does not provide the same incentive structure as a binding regulation, these principles are nonetheless likely to influence the development of AI and robotics technology in the United States, particularly surrounding issues that have been selected for the development of new standards, such as algorithmic bias, transparency in autonomous systems, and data privacy.<sup>81</sup> Various other IEEE standards have been incorporated by

<sup>67</sup> AI Now Institute. <https://ainowinstitute.org>

<sup>68</sup> Electronic Frontier Foundation. <https://www.eff.org/>

<sup>69</sup> Upturn. <https://www.teamupturn.org>

<sup>70</sup> Data & Society. <https://datasociety.net>

<sup>71</sup> Center for Democracy and Technology. <https://cdt.org/>

<sup>72</sup> See, e.g., "Corporate Speech Police Are Not the Answer to Online Hate"

<https://www.eff.org/deeplinks/2018/10/corporate-speech-police-are-not-answer-online-hate>

<sup>73</sup> <http://cyberlaw.stanford.edu/about-us>

<sup>74</sup> <https://cyber.harvard.edu/projects/ai-global-governance-and-inclusion>

<sup>75</sup> <https://cyber.harvard.edu/research/AGTechForum>

<sup>76</sup> <https://cyber.harvard.edu/research/internetrobustness>; <https://cyber.harvard.edu/research/internetmonitor>

<sup>77</sup> <https://epic.org/2018/10/epic-urge-nsf-to-establish-uni.html>; <https://epic.org/apa/comments/EPIC-Comments-NSF-AI-Strategic-Plan-2018.pdf>

<sup>78</sup> [https://www.nitrd.gov/pubs/national\\_ai\\_rd\\_strategic\\_plan.pdf](https://www.nitrd.gov/pubs/national_ai_rd_strategic_plan.pdf)

<sup>79</sup> The IEEE intends its "standards should be relevant and respond to regulatory and market needs. They should not distort the global or domestic market, have adverse effects on competition, or stifle innovation and technological development." <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/stdslaw.pdf>

<sup>80</sup> The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems, "Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems, Version 2", IEEE, 2017. L; [http://standards.ieee.org/develop/indconn/ec/ead\\_v2.pdf](http://standards.ieee.org/develop/indconn/ec/ead_v2.pdf); See also, "Three New IEEE Standards for Making Autonomous and Intelligent Systems Safer" <http://theinstitute.ieee.org/resources/standards/three-new-ieee-standards-for-making-autonomous-and-intelligent-systems-safer>

<sup>81</sup> Id., pp. 4.

reference into U.S. laws or regulations<sup>82</sup>, so it seems likely that any IEEE standards developed in the AI & robotics space would be strong candidates for being incorporated into AI & robotics-targeted U.S. Federal or state law and regulation. Other groups bridging the gap between private, public, and academic organisations working with AI and robotics include the Partnership on AI<sup>83</sup> and the Council on Extended Intelligence.<sup>84</sup>

## 4. Specific legal issues

This section explores specific issues related to AI and robotics. For AI we explore (i) unfairness, bias and discrimination and (ii) intellectual property issues. For robotics we explore, (i) legal status for robots and (ii) safety and civil liability issues.

### 4.1 Artificial intelligence

#### 4.1.1 Unfairness, bias and discrimination

Bias in algorithmic decision-making is well-documented<sup>85</sup> in the United States, but there are relatively few legal protections in place to combat its effects. In American Constitutional law, so-called “disparate impact” discrimination (when a law or system has negative impacts on a specific group but is not explicitly biased against them), is not recognized as a legal harm.<sup>86</sup> This doctrine likely amplifies issues of bias and discrimination by artificially intelligent systems, where it can be difficult or impossible to prove that an algorithm intentionally favors one group over another. While the legislature may intervene, creating laws to prohibit the use of certain demographic factors tied to protected classes or to ensure that AI systems do not produce dissimilar results according to characteristics such as race, few such laws currently exist.

One exception to this trend is in the realm of credit and insurance scoring, where more robust statutory protections exist to prevent the use of protected demographic characteristics in algorithmic decision-making.<sup>87</sup> However, these protections are limited, and the overall lack of transparency and oversight in credit scoring continues to produce arbitrary, if not biased, results.<sup>88</sup>

<sup>82</sup> <https://ibr.ansi.org/Default.aspx>; <https://ieeexplore.ieee.org/browse/standards/reading-room/page/>, “The IEEE Standards Reading Room provides an opportunity for users to access standards that have been incorporated by reference in the U.S. Code of Federal Regulations (CFR)”

<sup>83</sup> Partnership on AI. <https://www.partnershiponai.org>

<sup>84</sup> Council on Extended Intelligence. <https://globalcxi.org>

<sup>85</sup> Barocas, Solon and Andrew D. Selbst, “Big Data’s Disparate Impact”, *California Law Review*, Vol. 104, Issue 3, pp. 671-732, 2016. <http://www.californialawreview.org/wp-content/uploads/2016/06/2Barocas-Selbst.pdf>; Angwin, Julia, Jeff Larson, Surya Mattu, and Lauren Kirchner, “Machine Bias”, *ProPublica*, May 23, 2016. <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>

<sup>86</sup> *Village of Arlington Heights v. Metropolitan Housing Development Corp.*, 429 U.S. 252 (1977); *Washington v. Davis*, 426 U.S. 229 (1976).

<sup>87</sup> 12 C.F.R. § 202.5 (2013).

<sup>88</sup> Citron, Danielle Keats and Frank Pasquale, “The Scored Society: Due Process for Automated Predictions”, *Washington Law Review*, Vol. 89, 2014, pp. 10-18. <https://digital.lib.washington.edu/dspace-law/handle/1773.1/1318>

## 4.1.2 Intellectual property issues related to works created by AI

In large part, the ownership of works created by AI has not been addressed in U.S. law. In American copyright law, “human authorship” is required in order to copyright a work,<sup>89</sup> meaning works created by AI systems are ineligible for copyright protections. American patent law lacks this explicit human authorship requirement, but an invention must be the result of a “mental act”<sup>90</sup> and must have a named “individual” inventor in order to be patentable.<sup>91</sup> These requirements would seem to preclude patentability for AI-generated inventions, though it may be possible to circumvent these requirements by registering a human as the “discoverer” of a computer’s invention.<sup>92</sup> Some academics have theorised that inventions created by artificially intelligent systems may not only be patentable, but may be owned by the computers themselves.<sup>93</sup>

Another intellectual property issue raised by the creation of works by AI is the potential copyright infringement claims associated with training AI systems. As Ben Sobel explains, the use of copyrighted materials in training data is common practice, but traditional intellectual property doctrines may not be equipped to address these issues in a way that both allows for continued innovation and protects creators whose work is used to train machine learning algorithms.<sup>94</sup>

## 4.2 Robotics

### 4.2.1 Specific legal status for robots

U.S. law does not currently provide a specific legal status for robots. While some scholars have analogized to animals, children, or slaves<sup>95</sup> in discussing possible models for legal recognition of robots, others have cautioned against extending analogies too far.<sup>96</sup> In the absence of broader legal recognition, there are several areas of law in the United States that may allow for a limited recognition of agency and legal duty for robots or artificially intelligent systems. Some examples include:

- Business-entity law and corporate personhood: Shawn Bayern hypothesizes that, through the law governing limited liability companies, an autonomous system may be able to attain many of the rights and duties associated with legal personhood in the private law context.<sup>97</sup>

<sup>89</sup> U.S. Copyright Office, Compendium of U.S. Copyright Office Practices § 313.2 (3d ed. 2017).

<sup>90</sup> *Townsend v. Smith*, 36 F.2d 292, 295 (Cust. & Pat. App. 1929).

<sup>91</sup> 35 U.S.C.A. § 100(f).

<sup>92</sup> Abbott, Ryan, “I Think, Therefore I Invent: Creative Computers and the Future of Patent Law”, *Boston College Law Review*, Vol. 57, Issue 4, 2016, pp. 1098. <https://lawdigitalcommons.bc.edu/bclr/vol57/iss4/2/>

<sup>93</sup> *Id.*, pp. 1079-1126.

<sup>94</sup> Sobel, Ben, “Artificial Intelligence’s Fair Use Crisis”, *Columbia Journal of Law & the Arts*, Vol. 41, 2017, pp. 45-97.

[https://lawandarts.org/wp-content/uploads/sites/14/2017/12/41.1\\_Sobel-FINAL.pdf](https://lawandarts.org/wp-content/uploads/sites/14/2017/12/41.1_Sobel-FINAL.pdf)

<sup>95</sup> *Id.*, pp. 542-543; Calverley, David, “Android Science and Animal Rights, Does an Analogy Exist?”, *Connection Science*, Vol. 18, Issue 4, 2006, pp. 403-417. <https://www.tandfonline.com/doi/abs/10.1080/09540090600879711>

<sup>96</sup> Calo, Ryan, “Robotics and the Lessons of Cyberlaw”, *California Law Review*, Vol. 103, No. 3, 2015, pp. 513-563. [http://www.californialawreview.org/wp-content/uploads/2015/07/Calo\\_Robots-Cyberlaw.pdf](http://www.californialawreview.org/wp-content/uploads/2015/07/Calo_Robots-Cyberlaw.pdf) (arguing that little is gained, and much is arguably lost, by pretending contemporary robots exhibit anything like intent.”).

<sup>97</sup> Bayern, Shawn, “The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems”, *Stanford Technology Law Review*, Vol. 19, 2015, pp. 93-112. <https://law.stanford.edu/wp->

- Fiduciary duties and robo-advisors: Robo-advisors are considered investment advisers under the Investment Advisers Act of 1940, and are treated as fiduciaries by the United States Securities and Exchange Commission. However, Melissa Fein argues that this technology may not be capable of meeting the standards of care required of fiduciaries under US trust law.<sup>98</sup>
- Autonomous weapons and the laws of war: US Department of Defense policy states that autonomous and semi-autonomous weapons must be employed “with appropriate care and in accordance with the law of war.”<sup>99</sup> Although fully autonomous weapons systems do not currently exist, Charles Dunlap argues that the decisions made by these systems must comply fully with existing laws for armed conflict, and that new engineering and testing protocols are needed in order to ensure this compliance.<sup>100</sup>
- Intellectual property, as discussed above.

#### 4.2.2 Safety and civil liability issues

At the current state of technological sophistication, most damage caused by robots will be easily accommodated within the U.S. fault-based system of products liability. Under products liability law, the manufacturer of a robot is liable for damage that results from design, warning, or manufacturing defects,<sup>101</sup> whereas the user of the product is liable for damage resulting from misuse of the product. As Vladeck explains,

So long as we can conceive of these machines as “agents” of some legal person (individual or virtual), our current system of products liability will be able to address the legal issues surrounding their introduction without significant modification. But the law is not necessarily equipped to address the legal issues that will start to arise when the inevitable occurs and these machines cause injury, but when there is no “principal” directing the actions of the machine.<sup>102</sup>

More complicated issues will arise when there is no easily identifiable manufacturer<sup>103</sup> or the damage is not physical.<sup>104</sup>

### 4.3 Other key legal issues in the US

Other legal issues at the forefront of research and discussion, as highlighted by U.S. researchers and legal scholars, include

- **High-frequency trading regulation:** The increasingly common use of automated algorithms to

content/uploads/2017/11/19-1-4-bayern-final\_0.pdf

<sup>98</sup> Fein, Melanie, “Are Robo-Advisors Fiduciaries?”, September 12, 2017. <https://ssrn.com/abstract=3028268>

<sup>99</sup> United States Department of Defense, Directive Number 3000.09, November 12, 2012.

<https://cryptome.org/dodi/dodd-3000-09.pdf>

<sup>100</sup> Dunlap, Charles, “Autonomous Weapons and the Law: The Yale and Brookings Discussions”, April 2018.

<https://sites.duke.edu/lawfire/2018/04/09/autonomous-weapons-and-the-law-the-yale-and-brookings-discussions>

<sup>101</sup> Hubbard, F. Patrick, “Sophisticated Robots”: Balancing Liability, Regulation, and Innovation”, Florida Law Review, Vol. 66, 2015, pp. 1821. <https://scholarship.law.ufl.edu/flr/vol66/iss5/1/>

<sup>102</sup> Vladeck, David, “Machines without Principles: Liability Rules and Artificial Intelligence”, Vol. 89, 2014, pp. 89-117

<https://digital.lib.washington.edu/dspace-law/handle/1773.1/1322>

<sup>103</sup> Silver, Andrew, “Who’s Liable for George Hotz’s Self-Driving Software?”, IEEE Spectrum, December 14, 2016.

<https://spectrum.ieee.org/cars-that-think/transportation/self-driving/whos-liable-for-george-hotzs-selfdriving-software>

<sup>104</sup> “Robotics and the Lessons of Cyberlaw”, op. cit., pp. 541, 2015.

conduct high-speed financial transactions has the potential to significantly impact financial markets, but U.S. lawmakers have been slow to address the new regulatory challenges raised by algorithmic trading.<sup>105</sup>

- **Transportation:** With the development of autonomous vehicles and unmanned aircraft, the United States is working quickly to develop regulations for the manufacture and use of these technologies.<sup>106</sup>
- **Labor and taxation:** Automation associated with AI and robotics has the potential to substantially alter or eliminate many low and medium-skill jobs in the United States. As a result, there is significant discussion taking place around both the retraining of workers displaced by automation and the replacement of income tax revenues from jobs that are filled by machines.<sup>107</sup>
- **Autonomous weapons:** Calls to heavily regulate or outlaw fully autonomous weapons have become louder as AI and robotics have become more advanced.<sup>108</sup> While several industry leaders recently agreed not to develop these technologies,<sup>109</sup> U.S. lawmakers have yet to make such a commitment.
- **Misinformation and content moderation:** In recent years, many social media platforms have developed algorithms to filter the content that users see, with mixed results.<sup>110</sup> Following the 2016 presidential election, additional concern has focused on the use of content generation bots to spread misinformation and influence public opinion.<sup>111</sup>
- **Transparency and accountability in algorithmic decision-making:** The increased, widespread use of decision-making algorithms has given rise to a movement for greater transparency in the way these tools operate.<sup>112</sup> Thus far, the few legislative efforts that have been made to increase accountability have met with limited success.<sup>113</sup>

## 5. Gaps and challenges in regulating AI and Robotics

<sup>105</sup> Lin, Tom C. W., "The New Market Manipulation", *Emory Law Journal*, Vol. 66, pp. 1253-1314, 2017.

<https://ssrn.com/abstract=2996896>

<sup>106</sup> "Preparing for the Future of Artificial Intelligence", op. cit., pp. 17-22, 2016.

<sup>107</sup> Executive Office of the President, "Artificial Intelligence, Automation and the Economy", December 2016.

<https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/Artificial-Intelligence-Automation-Economy.PDF>; Calo, Ryan, "Artificial Intelligence Policy: A Primer and Roadmap", *University of California Davis Law Review*, Vol. 51, 2017, pp. 425-427. [https://lawreview.law.ucdavis.edu/issues/51/2/Symposium/51-2\\_Calo.pdf](https://lawreview.law.ucdavis.edu/issues/51/2/Symposium/51-2_Calo.pdf).

<sup>108</sup> United Nations Human Rights Council, "Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns", April 9, 2013.

[https://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47\\_en.pdf](https://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47_en.pdf)

<sup>109</sup> National Public Radio, "AI Innovators Take Pledge Against Autonomous Killer Weapons", July 18, 2018.

<https://www.npr.org/2018/07/18/630146884/ai-innovators-take-pledge-against-autonomous-killer-weapons>

<sup>110</sup> YouTube, "Expanding Our Work Against Abuse of Our Platform", December 4, 2017.

<https://youtube.googleblog.com/2017/12/expanding-our-work-against-abuse-of-our.html>; Slate, "Facebook's Leaked Censorship Policies Show How Bad the Company Is at Policing Hate Speech", June 28, 2017.

[http://www.slate.com/blogs/future\\_tense/2017/06/28/propublica\\_s\\_report\\_on\\_facebook\\_censorship\\_reveals\\_the\\_company\\_s\\_terrible.html](http://www.slate.com/blogs/future_tense/2017/06/28/propublica_s_report_on_facebook_censorship_reveals_the_company_s_terrible.html)

<sup>111</sup> The New York Times, "The Fake Americans Russia Created to Influence the Election", September 7, 2017.

<https://www.nytimes.com/2017/09/07/us/politics/russia-facebook-twitter-election.html>

<sup>112</sup> Fairness, Accountability, and Transparency in Machine Learning, "Principles for Accountable Algorithms and a Social Impact Statement for Algorithms". <http://www.fatml.org/resources/principles-for-accountable-algorithms>

<sup>113</sup> The New Yorker, "New York City's Bold, Flawed Attempt to Make Algorithms Accountable", December 20, 2017.

<https://www.newyorker.com/tech/elements/new-york-citys-bold-flawed-attempt-to-make-algorithms-accountable>

Perhaps the greatest challenge in regulating AI and robotics in the United States is the lack of any cohesive federal policy for the development, implementation, or regulation of these technologies. While the Obama administration started to develop these national frameworks, the Trump administration has so far taken a hands-off, free-market approach when it comes to AI and robotics policy.<sup>114</sup> In the absence of unifying federal action, the majority of policy and legislation is generated at the state level, leading to a patchwork legal landscape that differs from one state to the next. The White House recently announced plans to establish a Select Committee on Artificial Intelligence to offer guidance on matters related to AI,<sup>115</sup> but it remains to be seen if this will lead to more comprehensive policy or oversight.

As mentioned above, another challenge arises in adapting existing legal regimes to accommodate new technologies. While some states are beginning to clarify how autonomous vehicles and unmanned aircraft relate to traffic safety and privacy statutes, the impact of AI and robotics will touch on many other areas of the law, including criminal procedure, securities law, tort law, and more. The legal implications of developments in AI and robotics can be difficult to predict. But without proactive measures by state or federal legislatures to clarify how existing laws apply to new technologies, interpretation of existing laws falls to courts, which can potentially lead to inconsistent and unpredictable results.

## 6. Conclusion

The state of AI and robotics law in the United States has made considerable progress over the last ten years, but the existing legal regime leaves much to be desired. While it may be difficult for lawmakers to anticipate the legal impacts of cutting-edge technologies, increased collaboration between industry leaders, academics, non-profit organizations and government entities can ensure continued legal protections for innovators and the public alike. As the pace for the development and implementation of AI systems increases, transparency in automated decision-making should be a national priority, increasing accountability and facilitating the enforcement of other rights.

In the absence of comprehensive federal policy or legislation, law-making has fallen to state governments, which have largely failed to look beyond the prominent issues presented by autonomous vehicles and unmanned aircraft. Legislation is needed at both the federal and state level, and perhaps, as some argue, at the sector level,<sup>116</sup> to maintain existing legal regimes and to develop new frameworks that are tailored to the specific issues raised by AI and robotics. Where these technologies interact with existing statutes and doctrines, lawmakers must provide clear guidance for applying these laws to the current and future state of innovation. Lawmakers must also work proactively to develop legislation to address the unique issues arising from AI and robotics, such as data privacy and oversight for automated decision-making.

The lack of a coordinated national approach might threaten any first-mover advantage that the US may have had in this space, to the extent other countries end up defining boundaries and rules. This is especially true with respect to global, cross-border considerations, such as the implications of international human rights regimes. Areas that would likely benefit from increased attention, if not regulation, include data privacy, algorithmic decision making in the criminal justice system, and

<sup>114</sup> Executive Office of the President, White House Office of Science and Technology Policy, "Summary of the 2018 White House Summit on *Artificial Intelligence for American Industry*", op. cit., 2018.

<sup>115</sup> The Hill, "White House to create artificial intelligence committee", May 10, 2018. <http://thehill.com/policy/technology/387133-white-house-to-create-ai-committee>

<sup>116</sup> Meredith Whittaker et al., "AI Now Report 2018" (AI Now, 2018), [https://ainowinstitute.org/AI\\_Now\\_2018\\_Report.pdf](https://ainowinstitute.org/AI_Now_2018_Report.pdf).

transparency in general.

SIENNA may not at this time be able to glean much from the US approach, but could likely contribute and move US policy forward if its outputs were introduced to the right US policy makers and thinkers.



## References

- "§ 38.2-2126. Insurance Credit Score Disclosure; Use of Credit Information." Accessed December 6, 2018. <https://law.lis.virginia.gov/vacode/title38.2/chapter21/section38.2-2126>.
- "8 U.S. Code § 1365b - Biometric Entry and Exit Data System." LII / Legal Information Institute. Accessed December 4, 2018. <https://www.law.cornell.edu/uscode/text/8/1365b>.
- "8 U.S. Code § 1732 - Machine-Readable, Tamper-Resistant Entry and Exit Documents." LII / Legal Information Institute. Accessed December 4, 2018. <https://www.law.cornell.edu/uscode/text/8/1732>.
- "10 U.S. Code § 130i - Protection of Certain Facilities and Assets from Unmanned Aircraft." LII / Legal Information Institute. Accessed December 4, 2018. <https://www.law.cornell.edu/uscode/text/10/130i>.
- "12 U.S. Code § 5533 - Consumer Rights to Access Information." LII / Legal Information Institute. Accessed December 5, 2018. <https://www.law.cornell.edu/uscode/text/12/5533>.
- "15 U.S. Code § 7501 - National Nanotechnology Program." LII / Legal Information Institute. Accessed December 4, 2018. <https://www.law.cornell.edu/uscode/text/15/7501>.
- "42 U.S. Code § 1320a-7 - Exclusion of Certain Individuals and Entities from Participation in Medicare and State Health Care Programs." LII / Legal Information Institute. Accessed December 5, 2018. <https://www.law.cornell.edu/uscode/text/42/1320a-7>.
- "42 U.S. Code § 2000ee-3 - Federal Agency Data Mining Reporting." LII / Legal Information Institute. Accessed December 5, 2018. <https://www.law.cornell.edu/uscode/text/42/2000ee%E2%80%933>.
- "46 U.S. Code § 70123 - Mobile Biometric Identification." LII / Legal Information Institute. Accessed December 4, 2018. <https://www.law.cornell.edu/uscode/text/46/70123>.
- "49 U.S. Code § 46320 - Interference with Wildfire Suppression, Law Enforcement, or Emergency Response Effort by Operation of Unmanned Aircraft." LII / Legal Information Institute. Accessed December 4, 2018. <https://www.law.cornell.edu/uscode/text/49/46320>.
- "725 ILCS 167/ Freedom from Drone Surveillance Act." Accessed December 5, 2018. <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=3520&ChapterID=54>.
- "2010 Arkansas Code :: Title 5 - Criminal Offenses :: Subtitle 2 - Offenses Against The Person :: Chapter 16 - Voyeurism Offenses :: § 5-16-102 - Voyeurism." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/arkansas/2010/title-5/subtitle-2/chapter-16/5-16-102/>.
- "2010 Georgia Code :: TITLE 40 - MOTOR VEHICLES AND TRAFFIC :: CHAPTER 5 - DRIVERS' LICENSES :: ARTICLE 2 - ISSUANCE, EXPIRATION, AND RENEWAL OF LICENSES :: § 40-5-21 - Exemptions Generally." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/georgia/2010/title-40/chapter-5/article-2/40-5-21>.
- "2011 Hawaii Code :: DIVISION 1. GOVERNMENT :: TITLE 20. SOCIAL SERVICES :: 353. Corrections :: §353-10 Reentry Intake Service Centers." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/hawaii/2011/division1/title20/chapter353/353-10/>.
- "2011 New Mexico Statutes :: Chapter 59A: Insurance Code :: Article 17A: Personal Insurance Credit Information Act, 59A-17A-1 through 59A-17A-11 :: Section 59A-17A-4: Use of Credit Information; Limits on Use." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/new-mexico/2011/chapter59A/article17A/section59A-17A-4/>.

- "2013 New Jersey Revised Statutes :: Title 23 - FISH AND GAME, WILD BIRDS AND ANIMALS :: Section 23:7A-2 - Prevention of Lawful Taking of Wildlife Prohibited." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/new-jersey/2013/title-23/section-23-7a-2/>.
- "2014 Louisiana Laws :: Revised Statutes :: TITLE 14 - Criminal Law :: RS 14:337 - Unlawful Use of an Unmanned Aircraft System." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/louisiana/2014/code-revisedstatutes/title-14/rs-14-337>.
- "2014 Tennessee Code :: Title 39 - Criminal Offenses :: Chapter 13 - Offenses Against Person :: Part 9 - Surveillance by Unmanned Aircraft :: § 39-13-903 - Unlawful Capture of Image with Intent to Conduct Surveillance a Misdemeanor Offense -- Defense." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/tennessee/2014/title-39/chapter-13/part-9/section-39-13-903>.
- "2016 Iowa Code :: Title XIII - COMMERCE :: Chapter 515 - INSURANCE OTHER THAN LIFE :: Section 515.103 - Use of Credit Information — Personal Insurance." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/iowa/2016/title-xiii/chapter-515/section-515.103/>.
- "2016 Louisiana Laws :: Revised Statutes :: TITLE 14 - Criminal Law :: RS 14:283.1 - Voyeurism; Penalties." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/louisiana/2016/code-revisedstatutes/title-14/rs-14-283.1/>.
- "2017 Georgia Code :: Title 40 - Motor Vehicles and Traffic :: Chapter 8 - Equipment and Inspection of Motor Vehicles :: Article 1 - Equipment Generally :: Part 1 - General Provisions :: § 40-8-11. Operational Rules for Autonomous Vehicles." Justia Law. Accessed December 5, 2018. <https://law.justia.com/codes/georgia/2017/title-40/chapter-8/article-1/part-1/section-40-8-11/>.
- "2017 New Hampshire Revised Statutes :: Title LI - COURTS :: Chapter 504-A - PROBATIONERS AND PAROLEES :: Section 504-A:15 - Risk Assessment and Length of Supervision." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/new-hampshire/2017/title-li/chapter-504-a/section-504-a-15/>.
- "2017 New Jersey Revised Statutes :: TITLE 2C - THE NEW JERSEY CODE OF CRIMINAL JUSTICE :: Section 2C:40-27 - Definitions Relative to Operation of Unmanned Aircraft Systems." Justia Law. Accessed December 6, 2018. <https://law.justia.com/codes/new-jersey/2017/title-2c/section-2c-40-27/>.
- "2017 Tennessee Code :: Title 55 - Motor and Other Vehicles :: Chapter 30 - Automated Vehicles Act :: § 55-30-103. Operation of ADS-Operated Vehicle without Human Driver." Justia Law. Accessed December 5, 2018. <https://law.justia.com/codes/tennessee/2017/title-55/chapter-30/section-55-30-103/>.
- Abbott, Ryan. "I Think, Therefore I Invent: Creative Computers and the Future of Patent Law." *Boston College Law Review* 57, no. 4 (September 28, 2016): 1079.
- Aeronautics Code Of the State of Michigan: Operation of unmanned aircraft system; manner, 259 M.C.L.A. § 313 (2017).
- "Agricultural Worker Program Act of 2017 (H.R. 2690)." GovTrack.us. Accessed December 5, 2018. <https://www.govtrack.us/congress/bills/115/hr2690>.
- "AGTech Forum." Berkman Klein Center, September 12, 2018. <https://cyber.harvard.edu/research/AGTechForum>.
- "AI at Google: Our Principles." Google, June 7, 2018. <https://www.blog.google/topics/ai/ai-principles/>.
- "AI: Global Governance and Inclusion." Berkman Klein Center, July 6, 2018. <https://cyber.harvard.edu/projects/ai-global-governance-and-inclusion>.
- Jenkins, Cameron. "AI Innovators Take Pledge Against Autonomous Killer Weapons." NPR.org, July 18, 2018.

<https://www.npr.org/2018/07/18/630146884/ai-innovators-take-pledge-against-autonomous-killer-weapons>.

“AI Now Institute.” Accessed December 6, 2018. /.

“Alabama Code Title 8. Commercial Law and Consumer Protection § 8-1A-2.” Findlaw. Accessed December 6, 2018. <https://codes.findlaw.com/al/title-8-commercial-law-and-consumer-protection/al-code-sect-8-1a-2.html>.

“Alaska Statutes: AS 18.65.340. Disposal of Firearms and Ammunition By the State and Municipalities.” Accessed December 5, 2018. <http://www.touchngo.com/lglcntr/akstats/statutes/Title18/Chapter65/Section340.htm>.

“Alaska Statutes: AS 21.36.460. Uses of and Restrictions On Credit History or Insurance Scoring Applicable to Personal Insurance.” Accessed December 6, 2018. <http://www.touchngo.com/lglcntr/akstats/statutes/Title21/Chapter36/Section460.htm>.

“Algorithms in the Field | NSF - National Science Foundation.” Accessed December 6, 2018. [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505125](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505125).

“ANSI Incorporated by Reference (IBR) Portal.” Accessed December 6, 2018. <https://ibr.ansi.org/Default.aspx>.

“Arizona Code of Judicial Administration - , § 5-201, “Evidence-Based Pre-Trial Services.” Accessed December 6, 2018. <https://www.azcourts.gov/AZ-Supreme-Court/Code-of-Judicial-Administration>.

“ARTICLE 2.3. Parole Reentry Accountability Program [3015- 3015.]” Accessed December 6, 2018. [https://leginfo.legislature.ca.gov/faces/codes\\_displaySection.xhtml?sectionNum=3015.&lawCode=PEN](https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=3015.&lawCode=PEN).

“Automated Driving Systems: A Vision for Safety,” n.d., 36.

Autonomous Vehicles, XXIII 319-145 §. Accessed December 5, 2018. [http://www.leg.state.fl.us/Statutes/index.cfm?App\\_mode=Display\\_Statute&URL=0300-0399/0319/0319.html](http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&URL=0300-0399/0319/0319.html).

“Autonomous Vehicles | Self-Driving Vehicles Enacted Legislation.” Accessed August 8, 2018. <http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>.

Autonomous Vehicles - [38750 - 38756], DIVISION 16.6. Autonomous Vehicles §. Accessed December 5, 2018. [http://leginfo.legislature.ca.gov/faces/codes\\_displaySection.xhtml?lawCode=VEH&sectionNum=38750](http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=VEH&sectionNum=38750).

Barocas, Solon, and Andrew D. Selbst. “Big Data’s Disparate Impact.” *SSRN Electronic Journal*, 2016. <https://doi.org/10.2139/ssrn.2477899>.

Bill, House. Use of an unmanned aircraft system near a confinement or correctional facility prohibited, Pub. L. No. 15A-300.3, 3 (n.d.).

“Biosensing | NSF - National Science Foundation.” Accessed December 6, 2018. [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505556](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505556).

Breland, Ali. “White House to Create Artificial Intelligence Committee.” Text. TheHill, May 10, 2018. <https://thehill.com/policy/technology/387133-white-house-to-create-ai-committee>.

Brogan, Jacob. “Facebook’s Leaked Censorship Policies Show How Bad the Company Is at Policing Hate Speech.” *Slate Magazine*, June 28, 2017. <https://slate.com/technology/2017/06/publicas-report-on-facebook-censorship-reveals-the-companys-terrible-solution-to-hate-speech.html>.

*Brown v. City of Colorado Springs*, No. 16-1206, 709 Fed.Appx. 906 (10th Cir. 2017).

"IEEE Standards Reading Room." Accessed December 6, 2018.  
<https://ieeexplore.ieee.org/browse/standards/reading-room/page/>.

Calo, Ryan. "Artificial Intelligence Policy: A Primer and Roadmap." SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, August 8, 2017. <https://papers.ssrn.com/abstract=3015350>.

"Robotics and the Lessons of Cyberlaw." SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, February 28, 2014. <https://papers.ssrn.com/abstract=2402972>.

"The Case for a Federal Robotics Commission." *Brookings* (blog), September 15, 2014.  
<https://www.brookings.edu/research/the-case-for-a-federal-robotics-commission/>.

Calverley, David J. "Android Science and Animal Rights, Does an Analogy Exist?" *Connection Science* 18, no. 4 (December 1, 2006): 403–17. <https://doi.org/10.1080/09540090600879711>.

Center, Electronic Privacy Information. "EPIC - EPIC Urges NSF to Establish Universal Guidelines as Basis for US AI Policy." Accessed December 6, 2018. <https://epic.org/2018/10/epic-urge-nsf-to-establish-uni.html>.

"Center For Democracy & Technology." Center for Democracy & Technology. Accessed December 6, 2018.  
<https://cdt.org/>.

"CHAPTER 207 GENERAL PROVISIONS AS TO FISH AND GAME." Accessed December 6, 2018.  
<http://www.gencourt.state.nh.us/rsa/html/xviii/207/207-mrg.htm>.

Chapter 316.305 Wireless communications devices; prohibition., 316 § 305 (2013).  
<https://www.flsenate.gov/Laws/Statutes/2013/Chapter316/All>.

"Chapter 325: Sec. 18-81z. Development of Risk Assessment Strategy." Accessed December 6, 2018.  
[https://www.cga.ct.gov/2015/pub/chap\\_325.htm#sec\\_18-81z](https://www.cga.ct.gov/2015/pub/chap_325.htm#sec_18-81z).

"Chapter 330 Section 41 - 2017 Florida Statutes - The Florida Senate." Accessed December 6, 2018.  
<http://www.flsenate.gov/Laws/Statutes/2017/330.41>.

Citron, Danielle Keats, and Frank Pasquale. "THE SCORED SOCIETY: DUE PROCESS FOR AUTOMATED PREDICTIONS." *WASHINGTON LAW REVIEW* 89 (2014): 33.

"Civil Infrastructure Systems | NSF - National Science Foundation." Accessed December 6, 2018.  
[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13352](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13352).

"Code of Federal Regulations | Govinfo." Accessed December 6, 2018. <https://www.govinfo.gov/help/cfr>.

Crapo, Mike. "S.2155 - 115th Congress (2017-2018): Economic Growth, Regulatory Relief, and Consumer Protection Act." Webpage, May 24, 2018. <https://www.congress.gov/bill/115th-congress/senate-bill/2155>.

"CREEPER Act of 2017 (H.R. 4655)." GovTrack.us. Accessed December 5, 2018.  
<https://www.govtrack.us/congress/bills/115/hr4655>.

"CXI - Council on Extended Intelligence | IEEE-SA & MIT Media Lab." IEEE CXI. Accessed December 6, 2018.  
<https://globalcxi.org/>.

"Cyber-Physical Systems | NSF - National Science Foundation." Accessed December 6, 2018.  
[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503286](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503286).

"Data & Society." Data & Society. Accessed December 6, 2018. <http://datasociety.net>.

"Department of Defense Directive: Autonomy in Weapons Systems," 2012. <https://cryptome.org/dodi/dodd-3000-09.pdf>.

*Doe v. Sex Offender Registry Board*, 466 Mass. 594 (Mass. 2013).

"Dream Act of 2017 (S. 1615)." GovTrack.us. Accessed December 5, 2018. <https://www.govtrack.us/congress/bills/115/s1615>.

Drone Use Regulated, Pub. L. No. 50-15-3, § 1-4, 202. Accessed December 6, 2018. [https://sdlegislature.gov/statutes/Session\\_Laws/DisplayChapter.aspx?Session=2017&Chapter=202](https://sdlegislature.gov/statutes/Session_Laws/DisplayChapter.aspx?Session=2017&Chapter=202).

Dunlap, Charles. "Autonomous Weapons and the Law: The Yale and Brookings Discussions," 2018. <https://sites.duke.edu/lawfire/2018/04/09/autonomous-weapons-and-the-law-the-yale-and-brookings-discussions/>.

"Electronic Frontier Foundation." Electronic Frontier Foundation. Accessed December 6, 2018. <https://www.eff.org/>.

EPIC. "COMMENTS OF THE ELECTRONIC PRIVACY INFORMATION CENTER ('EPIC') To the NATIONAL SCIENCE FOUNDATION Request for Information on Update to the 2016 National Artificial Intelligence Research and Development Strategic Plan (83 FR 48655)," 2018.

"Ethics and Governance of AI | Berkman Klein Center." Accessed December 6, 2018. <https://cyber.harvard.edu/topics/ethics-and-governance-ai>.

Executive Office of the President. "Artificial Intelligence, Automation, and the Economy." U.S. Government, 2016.

Executive Office of the President, National Science and Technology Council, and Committee on Technology. "Preparing for the Future of Artificial Intelligence." National Science and Technology Council, October 2016. [https://obamawhitehouse.archives.gov/sites/default/files/whitehouse\\_files/microsites/ostp/NSTC/preparing\\_for\\_the\\_future\\_of\\_ai.pdf](https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf).

"Expanding Our Work against Abuse of Our Platform." *Official YouTube Blog* (blog). Accessed December 6, 2018. <https://youtube.googleblog.com/2017/12/expanding-our-work-against-abuse-of-our.html>.

"Feds Defend Voluntary Robot Car Regulations." Detroit News. Accessed October 26, 2018. <https://www.detroitnews.com/story/business/autos/2018/10/23/feds-defend-voluntary-robot-car-regulations/1743067002/>.

Fein, Melanie L. "Are Robo-Advisors Fiduciaries?" SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, September 12, 2017. <https://papers.ssrn.com/abstract=3028268>.

Financial Responsibility laws: Compulsory Financial Responsibility : ARTICLE 1. Accident Report, 7 § 1- [16000 - 16005]. Accessed December 6, 2018. [https://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=VEH&division=7.&title=&part=&chapter=1.&article=1](https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=VEH&division=7.&title=&part=&chapter=1.&article=1).

Fry, Patricia Brumfield, Stephen Y Chow, Kenneth W Elliott, and Henry Deeb Gabriel. UNIFORM ELECTRONIC TRANSACTIONS ACT (1999) (1999).

"FUTURE of Artificial Intelligence Act of 2017 (S. 2217)." GovTrack.us. Accessed December 5, 2018. <https://www.govtrack.us/congress/bills/115/s2217>.

"GOVERNMENT CODE CHAPTER 423. USE OF UNMANNED AIRCRAFT." Accessed December 6, 2018.  
<https://statutes.capitol.texas.gov/Docs/GV/htm/GV.423.htm>.

Grimmelmann, James. "Speech In, Speech Out." In *Robotica: Speech Rights and Artificial Intelligence*. Cambridge, UK: , Cambridge University Press, 2018.

Health, Center for Devices and Radiological. "Digital Health Software Precertification (Pre-Cert) Program." WebContent. Accessed December 6, 2018.  
<https://www.fda.gov/MedicalDevices/DigitalHealth/DigitalHealthPreCertProgram/default.htm>.

Heyns, Christof. "Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions," 2013.  
[https://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47\\_en.pdf](https://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47_en.pdf).

Hubbard, F. Patrick. "'Sophisticated Robots': Balancing Liability, Regulation, and Innovation." *Florida Law Review* 66, no. 5 (May 5, 2015): 1803.

IC 35-33 -5 Chapter 5. Search and Seizure: -Unmanned aerial vehicles ; search warrant exceptions, Pub. L. No. IC 35-33-5 (n.d.). <https://statecodesfiles.justia.com/indiana/2014/title-35/article-33/chapter-5/chapter-5.pdf>.

IEEE. "IEEE Standards and the Law What You Need to Know," n.d. <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/stdslaw.pdf>.

"Innovation Corps Act of 2017 (H.R. 1576)." GovTrack.us. Accessed December 5, 2018.  
<https://www.govtrack.us/congress/bills/115/hr1576>.

"Innovations at the Nexus of Food, Energy and Water Systems (INFEWS) (Nsf18545) | NSF - National Science Foundation." Accessed December 6, 2018. <https://www.nsf.gov/pubs/2018/nsf18545/nsf18545.htm>.

Insurance Score Act - Prohibited Acts, 51 § 40-5104. Accessed December 6, 2018.  
[http://www.kslegislature.org/li\\_2016/b2015\\_16/statute/040\\_000\\_0000\\_chapter/040\\_051\\_0000\\_article/040\\_051\\_0004\\_section/040\\_051\\_0004\\_k/](http://www.kslegislature.org/li_2016/b2015_16/statute/040_000_0000_chapter/040_051_0000_article/040_051_0004_section/040_051_0004_k/).

"Internet Monitor." Berkman Klein Center, July 10, 2018. <https://cyber.harvard.edu/research/internetmonitor>.

"Internet Robustness." Berkman Klein Center, June 21, 2018.  
<https://cyber.harvard.edu/research/internetrobustness>.

Judiciary and Judicial Administration Chapter 6: Juvenile Court Act Part 1 General Provisions Detention risk assessment tool., 78A - 6 - 1 § Section 124. Accessed December 6, 2018.  
<https://le.utah.gov/xcode/Title78A/Chapter6/78A-6-S124.html>.

Julia Angwin, Jeff Larson. "Machine Bias." Text/html. ProPublica, May 23, 2016.  
<https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.

Juvenile intake and assessment system; confidentiality of records; information collected; dispositional alternatives; custody of child; conditions of release., Pub. L. No. 75-7023, § 7023, 75-7023. Accessed December 6, 2018. [https://www.ksrevisor.org/statutes/chapters/ch75/075\\_070\\_0023.html](https://www.ksrevisor.org/statutes/chapters/ch75/075_070_0023.html).

Kalil, Tom. "Charter of the Subcommittee on Machine Learning and Artificial Intelligence, Committee on Technology, National Science and Technology Council," 2016.

Kehl, Danielle, Priscilla Guo, and Samuel Kessler. "Algorithms in the Criminal Justice System: Assessing the Use of Risk Assessments in Sentencing," 2017, 37.

Law Enforcement Use of Unmanned Aircraft: Unmanned aircraft system use requirements -- Exceptions, Pub. L. No. 72-14-203 (n.d.). [https://le.utah.gov/xcode/Title72/C72\\_1800010118000101.pdf](https://le.utah.gov/xcode/Title72/C72_1800010118000101.pdf).

"Lawriter - ORC - 5149.311 Establishment and Administration of Probation Improvement Grant and Probation Incentive Grant." Accessed December 6, 2018. <http://codes.ohio.gov/orc/5149.311v1>.

Lifetime community supervision; Division of Parole Supervision; duties; certificate of community supervision; appeal., 83-1 § 103.02. Accessed December 6, 2018. <https://nebraskalegislature.gov/laws/statutes.php?statute=83-1,103.02>.

Lin, Tom C. W. "The New Market Manipulation." *Emory Law Journal* 66 (2017). <https://papers.ssrn.com/abstract=2996896>.

*Main Street Legal Services Inc., v. National Security Council*, 811 F.3d 542 (2d Cir. 2016).

*Malenchik v. State*, 928 N.E.2d 564 (Ind. 2010)

Massaro, Toni, and Helen Norton. "Siri-Ously? Free Speech Rights and Artificial Intelligence." *Northwestern University Law Review* 110, no. 5 (October 1, 2016): 1169-94.

McSherry, Corynne. "Corporate Speech Police Are Not the Answer to Online Hate." Electronic Frontier Foundation, October 25, 2018. <https://www.eff.org/deeplinks/2018/10/corporate-speech-police-are-not-answer-online-hate>.

"Michigan Legislature - Section 257.665." Accessed December 5, 2018. [http://www.legislature.mi.gov/\(S\(25rbadjxucspecqyyhijl0\)\)/mileg.aspx?page=GetMCLDocument&objectname=mcl-257-665](http://www.legislature.mi.gov/(S(25rbadjxucspecqyyhijl0))/mileg.aspx?page=GetMCLDocument&objectname=mcl-257-665).

"Michigan Legislature - Section 324.40112." Accessed December 6, 2018. [http://www.legislature.mi.gov/\(S\(buh4adhjxifequf14gqw1kv3\)\)/mileg.aspx?page=getobject&objectname=mcl-324-40112](http://www.legislature.mi.gov/(S(buh4adhjxifequf14gqw1kv3))/mileg.aspx?page=getobject&objectname=mcl-324-40112).

"Mind, Machine and Motor Nexus | NSF - National Science Foundation." Accessed December 6, 2018. [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505402](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505402).

Mitchell, Russ. "Driverless Cars on Public Highways? Go for It, Trump Administration Says." *latimes.com*, September 12, 2017. <https://www.latimes.com/business/autos/la-fi-hy-driverless-regs-chao-20170912-story.html>.

*Mracek v. Bryn Mawr Hosp.*, No. 09-2042, 363 Fed.Appx. 925 (2d Cir. 2010)

"National Robotics Initiative 2.0: Ubiquitous Collaborative Robots | NSF - National Science Foundation." Accessed December 6, 2018. [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503641](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503641).

Naughton, John. "Death from above, Dished out by Algorithm | John Naughton." *The Guardian*, February 21, 2016, sec. Opinion. <https://www.theguardian.com/commentisfree/2016/feb/21/death-from-above-nia-csa-sky-net-algorithm-drones-pakistan>.

"New Collar Jobs Act of 2017 (H.R. 3393)." GovTrack.us. Accessed December 5, 2018. <https://www.govtrack.us/congress/bills/115/hr3393>.

*New York Times v. U.S. Department of Justice*, 806 F.3d 682 (2d Cir. 2015)

"Next Generation American Manufacturing Act of 2017 (H.R. 340)." GovTrack.us. Accessed December 5, 2018. <https://www.govtrack.us/congress/bills/115/hr340>.

“North Carolina General Assembly - Statutes - Chapter 20- Motor Vehicles.” Accessed December 6, 2018.  
<https://mobile.ncleg.net/New/Statutes/BrowseStatutes.aspx?chapter=0020>.

NRS: CHAPTER 62B - GENERAL ADMINISTRATION: Establishment of procedures to determine effectiveness of juvenile justice system and outcomes of juveniles; selection of risk assessment tool and mental health screening tool; contract for technical assistance, 62B NRS § 610. Accessed December 6, 2018.  
<https://www.leg.state.nv.us/NRS/NRS-062B.html#NRS062BSec610>.

“NRS: CHAPTER 482A - AUTONOMOUS VEHICLES.” Accessed December 5, 2018.  
<https://www.leg.state.nv.us/NRS/NRS-482A.html>.

“NRS: CHAPTER 493 - GENERAL PROVISIONS: Unmanned Aerial Vehicles: Operation by Law Enforcement Agency; Warrant Required under Certain Circumstances; Information Acquired in Violation of Section Inadmissible and May Not Be Used to Establish Reasonable Suspicion or Probable Cause.” Accessed December 5, 2018.  
<https://www.leg.state.nv.us/NRS/NRS-493.html>.

OCCUPATIONS CODE CHAPTER 110. COUNCIL ON SEX OFFENDER TREATMENT - Dynamic Risk Assessment Tool, Title 3-A § 110-164. Accessed December 6, 2018.  
<https://statutes.capitol.texas.gov/Docs/OC/htm/OC.110.htm>.

Office, U. S. Government Accountability. “Artificial Intelligence: Emerging Opportunities, Challenges, and Implications for Policy and Research,” no. GAO-18-644T (June 26, 2018).  
<https://www.gao.gov/products/GAO-18-644T>.

Critical infrastructure facility – Unmanned aircraft prohibited., Pub. L. No. 3–322. Accessed December 6, 2018.  
<http://www.oklegislature.gov/osstatuestitle.html>.

“ORS 837.370 - Operation over Privately Owned Premises - 2017 Oregon Revised Statutes.” Accessed December 6, 2018. <https://www.oregonlaws.org/ors/837.370>.

Powles, Julia. “New York City’s Bold, Flawed Attempt to Make Algorithms Accountable | The New Yorker,” 2017. <https://www.newyorker.com/tech/annals-of-technology/new-york-citys-bold-flawed-attempt-to-make-algorithms-accountable>.

Criminal Proceedings: Code of Criminal Procedure - Pretrial services programs, Pub. L. No. 16-4–106, § 4-106, 16 (n.d.).

Pretz, Kathy. “Three New IEEE Standards for Making Autonomous and Intelligent Systems Safer.” [:]. Accessed December 6, 2018. <http://theinstitute.ieee.org/resources/standards/three-new-ieee-standards-for-making-autonomous-and-intelligent-systems-safer>.

“Principles for Accountable Algorithms and a Social Impact Statement for Algorithms :: FAT ML.” Accessed December 6, 2018. <http://www.fatml.org/resources/principles-for-accountable-algorithms>.

“RCW 9.94A.729: Earned Release Time—Risk Assessments.” Accessed December 6, 2018.  
<http://app.leg.wa.gov/rcw/default.aspx?cite=9.94A.729>.

Rich, Michael L. “Machine Learning, Automated Suspicion Algorithms, and the Fourth Amendment.” *University of Pennsylvania Law Review* 164 (2016): 60.

“Rights Related to Automated Decision Making Including Profiling,” November 23, 2018.  
<https://icoumbraco.azurewebsites.net/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/rights-related-to-automated-decision-making-including-profiling/>.

“Robotics.” Accessed December 6, 2018. /focus-areas/robotics.



“Robust Intelligence | NSF - National Science Foundation.” Accessed December 6, 2018.  
[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503305](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503305).

“Safety and Health Topics | Robotics - Standards | Occupational Safety and Health Administration.” Accessed December 6, 2018. <https://www.osha.gov/SLTC/robotics/standards.html>.

Bayern, Shawn. “The Implications of Modern Business- Entity Law for the Regulation of Autonomous Systems.” *Stanford Technology Law Review* 19 (2015): 93–112.

“SDLRC - Codified Law 22-21.” Accessed December 6, 2018.  
[http://sdlegislature.gov/Statutes/Codified\\_Laws/DisplayStatute.aspx?Type=Statute&Statute=22-21](http://sdlegislature.gov/Statutes/Codified_Laws/DisplayStatute.aspx?Type=Statute&Statute=22-21).

“SDLRC - Codified Law 26-8C-3.1 - Risk Assessment Instrument for Statewide Use.” Accessed December 6, 2018.  
[http://sdlegislature.gov/Statutes/Codified\\_Laws/DisplayStatute.aspx?Type=Statute&Statute=26-8C-3.1](http://sdlegislature.gov/Statutes/Codified_Laws/DisplayStatute.aspx?Type=Statute&Statute=26-8C-3.1).

“Searches and Seizure Using a Drone.” Accessed December 5, 2018.  
[http://www.leg.state.fl.us/statutes/index.cfm?App\\_mode=Display\\_Statute&URL=0900-0999/0934/Sections/0934.50.html](http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=0900-0999/0934/Sections/0934.50.html).

“Section 36-1101 – Idaho State Legislature.” Accessed December 6, 2018.  
<https://legislature.idaho.gov/statutesrules/idstat/title36/t36ch11/sect36-1101/>.

Silver, Andrew. “Who’s Liable for George Hotz’s Self-Driving Software?” *IEEE Spectrum: Technology, Engineering, and Science News*, December 14, 2016. <https://spectrum.ieee.org/cars-that-think/transportation/self-driving/whos-liable-for-george-hotzs-selfdriving-software>.

“Smart and Autonomous Systems | NSF - National Science Foundation.” Accessed December 6, 2018.  
[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505325](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505325).

“Smart and Connected Communities (S&CC) (Nsf16610) | NSF - National Science Foundation.” Accessed December 6, 2018. <https://www.nsf.gov/pubs/2016/nsf16610/nsf16610.htm>.

“Smart and Connected Health | NSF - National Science Foundation.” Accessed December 6, 2018.  
[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=504739](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504739).

Sobel, Benjamin. “Artificial Intelligence’s Fair Use Crisis.” SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, September 4, 2017. <https://papers.ssrn.com/abstract=3032076>.

“Stanford Center for Internet and Society.” Accessed December 6, 2018. <http://cyberlaw.stanford.edu/>.

*State v. Loomis*, 371 Wis.2d 235 (Wis. Ct. App. 2016)

*State v. S.M.*, 131 So. 3d 780 (Fla. 2013).

“Texas Government Code Chapter 423 – Use of Unmanned AircraftLawServer.” Accessed December 6, 2018.  
[https://www.lawserver.com/law/state/texas/tx-codes/texas\\_government\\_code\\_chapter\\_423](https://www.lawserver.com/law/state/texas/tx-codes/texas_government_code_chapter_423).

“The Fake Americans Russia Created to Influence the Election - The New York Times.” Accessed December 6, 2018.  
<https://www.nytimes.com/2017/09/07/us/politics/russia-facebook-twitter-election.html>.

The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems. “Ethically Aligned Design: A Vision for Prioritizing Human Well-Being with Autonomous and Intelligent . Version 2.” IEEE, 2017. [http://standards.ieee.org/develop/indconn/ec/autonomous\\_systems.html](http://standards.ieee.org/develop/indconn/ec/autonomous_systems.html).

“The National Artificial Intelligence Research and Development Strategic Plan,” n.d., 48.

“The Partnership on AI.” Accessed December 6, 2018. <https://www.partnershiponai.org/>.

TITLE 10 - CHAPTER 9.: Subchapter III. Procedure: 1004A Juvenile Offender Civil Citation Program (2018).  
<http://delcode.delaware.gov/title10/c009/sc03/>.

“TITLE 18 - CHAPTER 83. THE USE OF CREDIT INFORMATION IN PERSONAL INSURANCE [FOR APPLICABILITY OF THIS CHAPTER, SEE 81 DEL. LAWS, C. 108, § 3].” Accessed December 6, 2018.  
<http://delcode.delaware.gov/title18/c083/index.shtml>.

Title 20 : Internal Security And Public Safety Chapter 205 : Drones, 20 V.S.A. § 4622 §. Accessed December 5, 2018.  
<https://legislature.vermont.gov/statutes/section/20/205/04622>.

“Title 25, §4501: Regulation of Unmanned Aerial Vehicles.” Accessed December 5, 2018.  
<http://legislature.maine.gov/legis/statutes/25/title25sec4501.html>.

“To Establish in the National Highway Traffic Safety Administration a Rural and Mountainous Advisory Council to Make Recommendations Regarding the Testing and Deployment of Highly Automated Vehicles and Automated Driving Systems in Areas That Are Rural, Remote, Mountainous, Insular, or Unmapped. (H.R. 3416).” GovTrack.us. Accessed December 5, 2018. <https://www.govtrack.us/congress/bills/115/hr3416>

“To Establish in the National Highway Traffic Safety Administration an Automated Driving System Cybersecurity Advisory Council to Make Recommendations Regarding Cybersecurity for the Testing, Deployment, and Updating of Automated Driving Systems. (H.R. 3411).” GovTrack.us. Accessed December 5, 2018.  
<https://www.govtrack.us/congress/bills/115/hr3411>.

*Townsend v. Smith*, 36 F.2d 292, 295 (Cust. & Pat. App. 1929).

*Trout v. Knox County Board of Education*, 163 F.Supp.3d 492 (E.D. Tenn. 2016)

“Trump Administration Introduces New Self-Driving Car Guidelines | Fortune.” Accessed December 6, 2018.  
<http://fortune.com/2017/09/12/trump-self-driving-cars/>.

“Trump Administration Pushing to Ease Roll-out of Driverless Cars and Trucks.” Washington Post. Accessed October 26, 2018. <https://www.washingtonpost.com/transportation/2018/10/04/trump-administration-pushing-ease-roll-out-driverless-cars-trucks/>.

*United States v. Coscia*, 866 F.3d 782 (7th Cir. 2017)

*United States v. Cruz-Zamora*, 2018 WL 2684108 (D. Kan. 2018).

*United States v. Stanko*, 762 F.3d 826 (8th Cir. 2014)

“Upturn.” Accessed December 6, 2018. <https://www.upturn.org/>.

U.S. Dept. of Transportation. “Automated Vehicles 3.0 -- Preparing for the Future of Transportation,” 2018.  
<https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf>.

Use of Unmanned Aerial Vehicles to Aid Hunting, Pub. L. No. IC 14-22-6-16, Ch. 6 (n.d.).

*Village of Arlington Heights v. Metropolitan Housing Development Corp.*, 429 U.S. 252 (1977)

Vladeck, David C. “Machines Without Principals: Liability Rules and Artificial Intelligence.” *Washington Law Review* 89, no. 1 (2014). <https://digital.lib.washington.edu:443/dspace-law/handle/1773.1/1322>.

*Washington v. Davis*, 426 U.S. 229 (1976).

White House Office of Science and Technology Policy,. "Summary of the 2018 White House Summit on Artificial Intelligence for American Industry"," n.d. <https://www.whitehouse.gov/wp-content/uploads/2018/05/Summary-Report-of-White-House-AI-Summit.pdf>.

Whittaker, Meredith, Kate Crawford, Roel Dobbe, Genevieve Fried, Elizabeth Kaziunas, Varoon Mathur, Sarah Meyer West, Rashida Richardson, Jason Schultz, and Oscar Schwartz. "AI Now Report 2018." AI Now, 2018 [https://ainowinstitute.org/AI\\_Now\\_2018\\_Report.pdf](https://ainowinstitute.org/AI_Now_2018_Report.pdf). *Y.A. v. State*, 197 So. 3d 1180 (Fla. Ct. App. 2016)