

## Research Librarians as Guides and Navigators for AI Policies at Universities

**Geneva Henry**, Dean of Libraries and Academic Innovation, The George Washington University

### Introduction

Artificial intelligence (AI) is a term that is increasingly a part of daily conversations and is being discussed in many different contexts. Commercial applications of the various AI technologies (for example, natural language processing, machine learning, predictive analytics, robotics)<sup>1</sup> are becoming part of mainstream society without people realizing that AI is at work. Searching the internet using popular search engines, for example, can employ deep learning algorithms that continually learn from previous searches. If the same or a very similar search is performed many times, with users consistently selecting the third-ranked return, the search engine will know that the ranking priority should be adjusted so that the most frequently selected result receives a higher ranking.<sup>2</sup> Users generally do not think about how search results are returned; they're just happy to find what it is they're searching for on the first page of the results without having to sift through the 1,000,000+ possible matches that were returned. Even if someone did want to understand how the search results were prioritized, the proprietary nature of commercial products that are using AI to have a competitive advantage in the marketplace makes it impossible to inspect the software behind the decision-making process.

The end-user experience of using AI-enabled products—from search engines, to self-driving cars, to vacuum cleaners that do our housework for us—can be pleasant, but it can also be deceptive. Without visibility into the algorithms that were programmed into the systems by the software developers, the training data sets that were used to enable the algorithms to build a knowledge base, and the ongoing self-improvement processes that drive the decision-making based on

continued use, users are blindly trusting in systems that can have implicit bias programmed into them and limited knowledge that can skew results towards unexpected behaviors.<sup>3</sup>

## **AI and Research Universities in the National and Global Context**

Research universities occupy an interesting space with respect to AI. They, like any other industry, can rely on AI-enabled systems to identify patterns in massive amounts of data about their users (students, faculty, staff, and visitors) and make inferences that provide guidance in better serving these populations as well as predicting future behaviors. As part of their mission to educate, research universities are teaching students about AI, preparing them to develop algorithms and software, along with data analysis; these are key skills that make students computationally adept, thus providing a pipeline of talent for today's workforce.

The other core mission for research universities is research. Many of these institutions are advancing AI technology through ongoing research with significant funding from the federal government. In 2015, the US government invested approximately \$1.1 billion in unclassified research and development (R&D) for AI-related technologies.<sup>4</sup> In fiscal year 2017, that expenditure was more than \$2 billion and for fiscal year 2020 the federal government expects to invest about \$4.9 billion in unclassified AI research.<sup>5</sup> Research expenditures are an important metric in research university rankings, so knowing the focus of federal funding priorities will inevitably lead to more AI-related research initiatives at universities.

The US is not alone in AI R&D investments. In 2016, the US government published a National Artificial Intelligence Research and Development Strategic Plan to establish objectives for federally funded AI research.<sup>6</sup> In 2017, Canada, China, Finland, Japan, Singapore, and the United Arab Emirates released national strategies to promote AI use and development. In 2018, Denmark, the European Union, France,

“With so much funding being funneled towards AI research and the competitive international landscape that has quickly emerged, increased AI research at universities will continue to accelerate.”

India, South Korea, and the United Kingdom released similar strategies.<sup>7</sup> In 2019, US President Donald Trump signed Executive Order 13859, which established the American Artificial Intelligence Initiative to maintain American leadership in AI.<sup>8</sup> The first directive in that Executive Order is to prioritize AI R&D in federal agencies’ annual budgeting and planning process.

The US also updated its AI R&D strategic plan in 2019 to reflect advances that had been made since the plan was first published in 2016.<sup>9</sup> With so much funding being funneled towards AI research and the competitive international landscape that has quickly emerged, increased AI research at universities will continue to accelerate.

With governments around the world launching national strategies in AI, there is now an increased awareness of the need for policies to govern AI technology. Eleonore Pauwels, with the United Nations University Centre for Policy Research, has examined the power of AI converging with other emerging technologies such as cyber- and biotechnologies, affective computing, neurotechnologies, robotics, and automated manufacturing.<sup>10</sup> She explores scenarios in which the technologies, once released from the lab environments where they were created, can create deception, degradation of truth, targeted monitoring of specific populations, exploitation of vulnerabilities in infrastructure, and other actions that have a negative impact on society and governments. Alternatively, the convergence of AI with other technologies has the opportunity to address issues such as famine and disease, healthcare inequalities, military attacks from hostile forces, election fraud, and violent crimes.

Countries have recognized the need to begin developing policies to govern the use of AI technologies, but this is still in an early stage. The

most advanced policies to date are found around the testing and use of autonomous vehicles.<sup>11</sup> Given the significant impacts that AI will have, it will be important to establish policies that can provide a governing framework that promotes ethically responsible behaviors and accountability of AI systems. These policies will need to interoperate at an international level and be mutually recognized by countries impacted by the technologies. A key step in recognizing this may come from a recent alliance of France, Germany, and Japan to jointly fund research into AI that respects privacy and transparency.<sup>12</sup> Their joint call for research proposals states that their goal is to “present the direction of future digital economy and society through technical progress in AI research to strengthen trust, transparency and fairness.”<sup>13</sup> As noted by Brundage and Bryson, “The key question is not whether AI will be governed, but how it is currently being governed, and how that governance might become more informed, integrated, effective, and anticipatory.”<sup>14</sup>

“Given the significant impacts that AI will have, it will be important to establish policies that can provide a governing framework that promotes ethically responsible behaviors and accountability of AI systems.”

While there is a great deal of incentive to pursue federal research funding to continually advance AI, there is a parallel responsibility to ensure that the university is using, teaching, and creating AI technologies responsibly. Issues such as understanding the provenance of the data used that drives automated decisions, being able to examine algorithms for bias, and being attentive to privacy or other ethics concerns are important things to address in all aspects of AI use and development. What measures can be taken to limit the likelihood that a university develops AI technology that leads to nefarious uses? How can campus users of AI-enabled systems guard against decisions that may be guided by biased algorithms? How does instruction that prepares university students for AI work ensure that they are sensitive to issues like bias, data provenance, privacy, and other ethical concerns

that may impact the products they create or decisions they make with AI technology?

An important step in this direction is the establishment of policies related to AI that can inform and guide the university community in all of its areas of work with AI. In addition to setting guidelines for the university, there is also an opportunity for universities to provide leadership and guidance in developing local, national, and international policies for AI technology, given the early state of policies that currently exist around AI.

Competing interests within a university can present challenges in developing policies that align with shared values, ethical responsibility, and respect for individual privacy. The drive to maximize research awards for advancing AI technologies can cause researchers to perceive policies as restrictive barriers to pursuing research opportunities. Staff and administration who desire to learn as much as possible about current as well as prospective students may not favor policies that restrict how data can be used with systems using AI to maximize student success. Requiring faculty who teach AI courses to include ethics, privacy, transparency, and implicit bias training in their curriculum will undoubtedly lead to complaints that there is no room in the curriculum for this added material, let alone the expertise required to teach those subjects. Using AI-empowered systems to assess faculty performance and impact could lead to less-subjective promotion and tenure decisions. If, however, there is a lack of transparency to provide insight into the underlying data and algorithms used, the integrity of the process will be called into question.

### **AI and Research Librarians**

Research librarians, having expertise in information science, are well positioned to navigate the campus landscape and work with stakeholders to form policies that can ensure accountability, transparency, and alignment with ethical values. Long guided by

the American Library Association's Code of Ethics,<sup>15</sup> librarians are sensitive to issues related to information ethics and privacy. They are also aware of information policies more broadly that impact the

“Research librarians, having expertise in information science, are well positioned to navigate the campus landscape and work with stakeholders to form policies that can ensure accountability, transparency, and alignment with ethical values.”

universities and their use of different types of information.

As new forms of information and methods for working with that information have continued to evolve, today's research librarians are instrumental in working with faculty, students, and staff to help with managing information and to provide guidance related to such policies as copyright, intellectual

property, privacy, and ethical use of personal information. Librarians have increasingly become a part of research teams on campus, helping them manage their data and develop consistent, replicable processes for working with their data.<sup>16</sup>

Data is at the core of AI-enabled systems, with data sets used as training for developing a more generalized model that can make decisions on new data.<sup>17</sup> Accustomed to working with faculty, students, and staff, librarians are not only qualified experts in understanding data provenance, but are also trusted professionals who steward information and provide education.<sup>18</sup> Librarians can work to identify areas where policies will be beneficial and bring awareness of existing laws—such as the General Data Protection Regulation (GDPR) passed by the European Union (EU) to protect EU citizens' right to privacy with online information<sup>19</sup>—so that there is consistency with higher-level governance.

By examining some of the issues that exist in AI research, education, and administrative uses at research universities, it is possible to understand the impartial role librarians can have in working with campus stakeholders to develop policies that identify the decisions



that should be permitted and encouraged vs. those that should be managed.<sup>20</sup>

## **A Role for Research Librarians in AI in University Research**

In a recent survey that examined publications from 21 leading scientific conferences in the field of AI in 2018, only 18% of the authors were women. These researchers mostly have PhDs and represent the research underway in AI throughout the world. The US continues to graduate PhDs whose publication rates dominate other countries, with 44% of the 2018 publications produced by scholars who earned their PhD in the US, followed by China at 11%, the United Kingdom at 6%, Germany at 5%, and Canada, France, and Spain each at 4%. Furthermore, the survey also found that the AI talent pool is very mobile, with approximately one third of the researchers employed outside of the country where they received their PhD.<sup>21</sup> When we

“When we look at faculty in AI, both tenured and non-tenured, African American representation is only 1.7%.”

look at faculty in AI, both tenured and non-tenured, African American representation is only 1.7%.<sup>22</sup> This lack of diversity in the university research population is troubling when algorithms and training data sets are being developed and selected

by a mostly homogeneous group of primarily white men. Given the widespread lack of diversity among this population, the normal research review process of peer review will draw from this same population, further exacerbating issues that may be present, such as unconscious bias and data training sets that may be skewed to unfairly represent certain populations.

Research emerging from universities can make its way into industry products and visibility into the algorithms and data training sets can be hidden from the end users. Universities have a responsibility to ensure that the research emerging from the institution is of the highest integrity. Having policies that require accountability of algorithms,

showing not just the algorithm itself and the process followed when using data, but an explanation of the extent to which the data used had an influence on the decision outcome.<sup>23</sup> Data sets that are used to train the systems must also be open to inspection to uncover potential biases and lack of true representation.

Research librarians who are part of AI research teams can be sensitive to the need for well-documented and open systems. Librarians are likely to be aware of how other existing policies will influence outcomes. Librarians working in this space will need a sufficient understanding of algorithms so that they can validate the documentation that explains the algorithm and its intended impacts with the data that is fed into it. To demonstrate replicability and consistency, the algorithms, their explanations, and associated data training sets should be archived by the institution, a role that is well suited to research libraries and a function that data librarians often perform as members of research teams. Making these materials openly available will allow other researchers to replicate the findings and make improvements to further advance research. Concerns researchers may have about others claiming credit by using these algorithms and data can be mitigated by archival restrictions such as embargoes or limited-access restriction if necessary. Establishing institutional policies around documenting algorithms and archiving both the algorithms and training data will benefit the larger research community and can provide a safeguard for the university against the risk of claims associated with harm caused by the use of the technology.

### **A Role for Research Librarians in AI in University Education**

The underrepresentation of women and people of color in AI at the PhD level is a reflection of the underrepresentation that exists at the undergraduate level in students' choice of majors and the courses they take. Undergraduate enrollments in computer science have increased significantly, with a growth of 136% among full-time computer science majors between 2006 and 2015.<sup>24</sup> With this growth, there has not



been an improvement in the representation of women and people of color, which has been historically low. The percentage of information science degrees earned by women has remained steady at about 22%, and between 2011 and 2015 there was an increase from 13.6% to 15.9% of computer science degrees earned by women; this is still a small fraction of overall degrees awarded. The share of computer science, computer engineering, and information science degrees awarded to African Americans decreased between 2009 and 2015 from 8.0% to 6.1% for computer science, 5.8% to 4.9% for computer engineering, and 15.0% to 13.4% for information science.<sup>25</sup> Looking at enrollments in AI courses at Stanford University and the University of California, Berkeley in 2017, both schools reported enrollments in introductory AI courses as approximately 74% male, and introductory machine learning as about 76% male at Stanford and 79% male at Berkeley.<sup>26</sup> Sexist jokes, slide presentations that only show men, and masculine language are some of the reasons that women lack interest in computer science.<sup>27</sup> Understanding that undergraduates in these majors populate the pipeline for graduate students and future PhDs as well as for the workforce looking to hire AI talent, universities must be mindful of the biases that can be formed with this type of white-male-dominated educational environment.

Research librarians at many universities have been actively engaged in the curriculum, partnering with faculty in all disciplines. Engaging librarians in computer and data science courses can help with teaching students about important concepts such as validating information, understanding data provenance, finding appropriate information resources and vetted data to use in their research and experiments, and issues related to privacy and ethical uses of data. Teaching students about good research practices very early—for example, documenting algorithms, questioning data sources, and archiving software and data so that the expected behavior of algorithms can be replicated by others—is also useful information that librarians can teach as part of the curriculum. Librarians are familiar with policies, such as Title IX,<sup>28</sup> related to sexual harassment and inappropriate behavior and

can ensure that students in these courses are aware of their rights and responsibilities with respect to these policies. The risk to a university of being accused of discrimination against or harassment of any student can be very costly to its reputation as well as financially. Worse, sending students into the workforce who have not received an education where diversity, equity, and inclusion are important values that should be fully integrated into all aspects of work can result in practices that perpetuate bias in products that are developed and system behaviors that skew results to perpetuate and exacerbate biases.

A university can develop policies that address known issues in the curriculum and include requirements to teach students involved with software development about concerns such as unconscious bias, privacy, and ethical responsibility when working with personal information. Requiring students to understand data sources and to document software with explanations of expected behaviors when that software interacts with data will benefit society as students enter the workforce. Teaching all students how to assess information validity, regardless of its format, is a critical skill that people should have in our society. Policies can be adopted that lead to computationally and digitally fluent citizens who can assess information produced by software to know if it is valid and who act responsibly in using data. Research librarians who understand these issues and how to work with digital resources are a key resource for developing university policies that help to stem the flow of “fake news” and misinformation that propagates through social media and other online sources. As noted by Matt Chessen in his report, *The MADCOM Future*, “Academia has been essential in developing cybersecurity best practices, and it should do the same in the cognitive security space.”<sup>29</sup> Establishing educational policies that incorporate digital fluency skills in the curriculum can be a good step towards achieving this for society.

## **A Role for Research Librarians in the Use of AI in University Administrative Systems**

The core mission of research universities is to educate and do research. The previous sections addressed these two areas and ways that research librarians can be integrated into the teaching and research activities to help with establishing processes for greater transparency in AI teaching and research. Establishing university policies and practices to support accountability in both research and education can begin addressing issues that AI-empowered systems can cause in society. But the use of AI in higher education is also proliferating in systems being adopted to improve decisions and services for students, faculty, and staff. Universities are investing in enterprise systems that can process massive amounts of data to detect patterns that will help with admissions decisions, student retention, advising, and understanding how students learn (that is, learning analytics).<sup>30</sup> These same approaches can be used to analyze faculty productivity and impact to provide insight into promotion and tenure decisions. While there is clearly a lot of benefit to be gained from these systems, there are challenges with visibility into the algorithms that commercial systems use and a lack of insight into the training data that was used to enable ongoing pattern detection with new data. There are also a number of issues related to privacy and compliance with such regulations as the Family Educational Rights and Privacy Act of 1974 (FERPA).

“ Librarians bring expertise in working with personally identifiable information, data privacy and security, informed consent, and access-controlled data storage. Leveraging this expertise can help universities adopt informed policies regarding the use of AI systems in making decisions that can have a significant impact on students.”

An area where librarians have become increasingly engaged with the use of AI in higher education is the area of learning analytics. With

the ability to collect data on most every aspect of a college student's life, analysis of patterns can provide greater insight and predictions to assist students with their success. To be most effective, student data will need to be shared across university units in order to gain a greater understanding of the student's performance and behaviors. Broadly sharing a student's data across many members of the campus community can increase the risks of violating student privacy and regulatory protections such as FERPA and the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Data security in these environments is also important and can impact how systems work with the data. The Library Integration in Institutional Learning Analytics project (LIILA) has documented their research and analysis of librarian involvement with learning analytics activities on campus.<sup>31</sup> Librarians bring expertise in working with personally identifiable information, data privacy and security, informed consent, and access-controlled data storage. Leveraging this expertise can help universities adopt informed policies regarding the use of AI systems in making decisions that can have a significant impact on students. When black-box algorithms that are not transparent are using increasingly diverse data to make decisions and recommendations, having policies in place to enable more accountability will be important to explain how decisions are being made and confirm that bias is being held in check.

## **Summary**

The computational ability to process massive amounts of data and detect patterns that can refine themselves over time enables a level of intelligence that humans cannot achieve due to cognitive limitations in processing truly large amounts of data and information. As Brundage and Bryson have observed, however, "Artificial intelligence is not necessarily similar or equivalent to human intelligence. In fact, because human intelligence keeps evolving (primarily culturally but even biologically) to meet the requirements of our animal lives and societies, it is unlikely that even if an AI was built to be exactly like human intelligence that it would stay that way for long."<sup>32</sup>

AI manifests itself in multiple ways at our universities, including research, education, and administrative uses of the technology. Universities can have a lasting impact on society by the technology advances that are made and the students who become productive global citizens. Establishing well-informed policies to govern AI at universities can also result in lasting impacts for society with more transparency and accountability of AI algorithms and data.

“Research universities can and should demonstrate leadership in policy development before policies are developed that hamper future research and the advantages that AI can bring.”

Research librarians are well positioned to navigate this challenging and evolving landscape. As partners throughout the higher education enterprise, they can provide the necessary guidance that results in sound policies that can be more

widely adopted by and adapted to the larger world. AI governance will continue to grow as the technologies continue to advance and impact our lives in many ways. Research universities can and should demonstrate leadership in policy development before policies are developed that hamper future research and the advantages that AI can bring. Engaging research librarians in the many AI-related activities that take place on the campus leverages their expertise in data privacy, ethics, validating information integrity, data management, heightening awareness of bias in data and algorithms, archiving software and data for use by others to replicate intended outcomes, providing transparency in documenting software behaviors, conforming with existing public policies, and providing access to vetted information sources. Research librarians will be important strategic partners in developing campus policies for AI that lead to greater trust and accountability.

## Endnotes

1. Nisa Malli, Melinda Jacobs, and Sarah Villeneuve, *Intro to AI for Policymakers: Understanding the Shift* (Toronto, ON: Brookfield Institute for Innovation and Entrepreneurship, March 2018), <https://brookfieldinstitute.ca/report/intro-to-ai-for-policymakers>.
2. Yoshua Bengio, “Springtime for AI: The Rise of Deep Learning,” *Scientific American* 314, no. 6 (June 1, 2016): 46–51, <https://doi.org/10.1038/scientificamerican0616-46>.
3. Miles Brundage and Joanna Bryson, “Smart Policies for Artificial Intelligence,” preprint, submitted August 29, 2016, 12, <https://arxiv.org/abs/1608.08196>.
4. National Science and Technology Council and Networking and Information Technology Research and Development Subcommittee, *The National Artificial Intelligence Research and Development Strategic Plan*, Networking and Information Technology Research and Development Program, October 2016, [https://www.nitrd.gov/pubs/national\\_ai\\_rd\\_strategic\\_plan.pdf](https://www.nitrd.gov/pubs/national_ai_rd_strategic_plan.pdf).
5. Chris Cornillie, “Finding Artificial Intelligence Money in the Fiscal 2020 Budget,” *Bloomberg Government*, March 28, 2019, <https://about.bgov.com/news/finding-artificial-intelligence-money-fiscal-2020-budget/>.
6. National Science and Technology Council and Networking and Information Technology Research and Development Subcommittee, *The National Artificial Intelligence Research and Development Strategic Plan*.
7. Tim Dutton, “AI Policy 101: An Introduction to the 10 Key Aspects of AI Policy,” *Medium*, July 5, 2018, <https://medium.com/politics-ai/ai-policy-101-what-you-need-to-know-about-ai-policy-163a2bd68d65>.
8. Exec. Order No. 13,859, 84 Fed. Reg. 3967 (Feb. 11, 2019), <https://www.govinfo.gov/content/pkg/FR-2019-02-14/pdf/2019-02544.pdf>.



9. Select Committee on Artificial Intelligence of the National Science & Technology Council, *The National Artificial Intelligence Research and Development Strategic Plan: 2019 Update*, Networking and Information Technology Research and Development Program, June 2019, <https://www.nitrd.gov/pubs/National-AI-RD-Strategy-2019.pdf>.
10. Eleonore Pauwels, *The New Geopolitics of Converging Risks: The UN and Prevention in the Era of AI* (New York: United Nations University Centre for Policy Research, April 29, 2019), <https://i.unu.edu/media/cpr.unu.edu/attachment/3472/PauwelsAIGeopolitics.pdf>.
11. *Regulation of Artificial Intelligence in Selected Jurisdictions* (Washington, DC: Law Library of Congress, January 2019), <https://www.loc.gov/law/help/artificial-intelligence/regulation-artificial-intelligence.pdf>.
12. David Matthews, “New Research Alliance Cements Global Split on AI Ethics,” *Times Higher Education* (THE), August 15, 2019, <https://www.timeshighereducation.com/news/new-research-alliance-cements-global-split-ai-ethics>.
13. The French National Research Agency, Deutsche Forschungsgemeinschaft e.V., and Japan Science and Technology Agency, “Trilateral Call for Proposals on Artificial Intelligence (AI),” Deutsche Forschungsgemeinschaft e.V., July 30, 2019, [https://www.dfg.de/download/pdf/foerderung/internationales/dfg\\_jst\\_anr\\_call\\_text\\_2019.pdf](https://www.dfg.de/download/pdf/foerderung/internationales/dfg_jst_anr_call_text_2019.pdf).
14. Brundage and Bryson, “Smart Policies for Artificial Intelligence.”
15. “Code of Ethics of the American Library Association,” American Library Association, amended January 22, 2008, <http://www.ala.org/advocacy/sites/ala.org.advocacy/files/content/proethics/codeofethics/Code%20of%20Ethics%20of%20the%20American%20Library%20Association.pdf>.
16. Joyce M. Ray, ed., *Research Data Management: Practical Strategies for Information Professionals*, Charleston Insights in Library, Archival,

and Information Sciences (West Lafayette, IN: Purdue University Press, 2014).

17. Solon Barocas, Moritz Hardt, and Arvind Narayanan, *Fairness and Machine Learning: Limitations and Opportunities*, incomplete draft, last updated August 21, 2018, <https://fairmlbook.org>.
18. Portland Research Group, Maine State Library, Bruce M. Lockwood, and James Ritter, *Maine State Library: Trusted Professionals Survey 2016*, Library Documents (Augusta, ME: Maine State Library, 2016), [http://digitalmaine.com/msl\\_docs/101](http://digitalmaine.com/msl_docs/101).
19. European Commission, *Communication from the Commission to the European Parliament and the Council: Data Protection Rules as a Trust-Enabler in the EU and beyond—Taking Stock* (Brussels: European Commission, July 24, 2019), [https://doi.org/10.1163/2210-7975\\_HRD-4679-0058](https://doi.org/10.1163/2210-7975_HRD-4679-0058).
20. Brundage and Bryson, “Smart Policies for Artificial Intelligence.”
21. JF Gagne, Grace Kiser, and Yoan Mantha, “Global AI Talent Report 2019,” accessed August 28, 2019, <https://jfgagne.ai/talent-2019/>.
22. Edward C. Dillon Jr., Juan E. Gilbert, Jerlando F. L. Jackson, and LaVar J. Charleston, “The State of African-Americans in Computer Science—The Need to Increase Representation,” *Computing Research News* 27, no. 8 (September 1, 2015), <https://cra.org/crn/2015/09/expanding-the-pipeline-the-state-of-african-americans-in-computer-science-the-need-to-increase-representation/>.
23. Finale Doshi-Velez et al., “Accountability of AI Under the Law: The Role of Explanation,” preprint, submitted November 3, 2017, revised November 21, 2017, <http://arxiv.org/abs/1711.01134>.
24. National Academies of Sciences, Engineering, and Medicine, *Assessing and Responding to the Growth of Computer Science Undergraduate Enrollments* (Washington, DC: The National Academies Press, 2018), <https://doi.org/10.17226/24926>.

25. National Academies of Sciences, Engineering, and Medicine, “Impacts of Enrollment Growth on Diversity in Computing,” in *Assessing and Responding to the Growth of Computer Science Undergraduate Enrollments* (Washington, DC: The National Academies Press, 2018), 230, <https://doi.org/10.17226/24926>.
26. Yoav Shoham et al., *The AI Index 2018 Annual Report* (Stanford, CA: AI Index Steering Committee, Human-Centered AI Initiative, Stanford University, December 2018), <http://cdn.aiindex.org/2018/AI%20Index%202018%20Annual%20Report.pdf>.
27. Blanca Myers, “Women and Minorities in Tech, by the Numbers,” *Wired*, March 27, 2018, <https://www.wired.com/story/computer-science-graduates-diversity/>.
28. US Department of Education, Office for Civil Rights, *Title IX Resource Guide* (Washington, DC: US Department of Education, Office for Civil Rights, April 2015), <https://www2.ed.gov/about/offices/list/ocr/docs/dcl-title-ix-coordinators-guide-201504.pdf>.
29. Matt Chessen, *The MADCOM Future: How Artificial Intelligence Will Enhance Computational Propaganda, Reprogram Human Culture, and Threaten Democracy...and What Can Be Done About It* (Washington, DC: Atlantic Council, 2017), [https://www.atlanticcouncil.org/wp-content/uploads/2017/09/The\\_MADCOM\\_Future\\_RW\\_0926.pdf](https://www.atlanticcouncil.org/wp-content/uploads/2017/09/The_MADCOM_Future_RW_0926.pdf).
30. Lee Gardner, “How A.I. Is Infiltrating Every Corner of the Campus,” *The Chronicle of Higher Education*, April 8, 2018, <https://www.chronicle.com/article/How-AI-Is-Infiltrating-Every/243022>.
31. Megan Oakleaf, *Library Integration in Institutional Learning Analytics* (Syracuse, NY: Syracuse University, November 15, 2018), <https://er.educause.edu/-/media/files/library/2018/11/liila.pdf>.
32. Brundage and Bryson, “Smart Policies for Artificial Intelligence.”

## Further Reading

- AI Now Institute. *Algorithmic Accountability Policy Toolkit*. Toolkit 01. New York: AI Now Institute, New York University, October 2018. <https://ainowinstitute.org/aap-toolkit.pdf>.
- Broussard, Meredith. *Artificial Unintelligence: How Computers Misunderstand the World*. Reprint edition. Cambridge, MA: The MIT Press, 2019. <https://mitpress.mit.edu/books/artificial-unintelligence>.
- Dutton, Tim, Brent Barron, and Gaga Boskovic. *Building an AI World: Report on National and Regional AI Strategies*. Toronto, ON: Canadian Institute for Advanced Research, December 6, 2018. <https://www.cifar.ca/cifarnews/2018/12/06/building-an-ai-world-report-on-national-and-regional-ai-strategies>.
- Etzioni, Amitai, and Oren Etzioni. “Designing AI Systems That Obey Our Laws and Values.” *Communications of the ACM* 59, no. 9 (September 2016): 29–31. <https://doi.org/10.1145/2955091>.
- Groth, Olaf J., Mark J. Nitzberg, and Stuart J. Russell. “AI Algorithms Need FDA-Style Drug Trials.” *Wired*, August 15, 2019. <https://www.wired.com/story/ai-algorithms-need-drug-trials/>.
- Harwell, Drew. “Defense Department Pledges Billions toward Artificial Intelligence Research.” *The Switch*. *Washington Post*, September 7, 2018. <https://www.washingtonpost.com/technology/2018/09/07/defense-department-pledges-billions-toward-artificial-intelligence-research/>.
- Klutka, Justin, Nathan Ackerly, and Andrew J. Magda. *Artificial Intelligence in Higher Education: Current Uses and Future Applications*. Louisville, KY: Learning House, Wiley Education Services, November 26, 2018. <https://49hk843qjpwu3gfmw73ngy1k-wpengine.netdna-ssl.com/wp-content/uploads/2018/11/201811-AI-in-Higher-Education-TLH.pdf>.

Selbst, Andrew D., and Solon Barocas. “The Intuitive Appeal of Explainable Machines.” *Fordham Law Review* 87 (2018): 1085–1139. <https://doi.org/10.2139/ssrn.3126971>.

Whittaker, Meredith, Kate Crawford, Roel Dobbe, Genevieve Fried, Elizabeth Kaziunas, Varoon Mathur, Sarah Myers West, Rashida Richardson, Jason Schultz, and Oscar Schwartz. *AI Now Report 2018*. New York: AI Now Institute, New York University, December 2018. [https://ainowinstitute.org/AI\\_Now\\_2018\\_Report.pdf](https://ainowinstitute.org/AI_Now_2018_Report.pdf).

© 2019 Geneva Henry



This article is licensed under a Creative Commons Attribution 4.0 International License. To view a copy of this license, visit <https://creativecommons.org/licenses/by/4.0/>.

**To cite this article:** Geneva Henry. “Research Librarians as Guides and Navigators for AI Policies at Universities.” *Research Library Issues*, no. 299 (2019): 47–65. <https://doi.org/10.29242/rli.299.4>.

---

**Correction, September 20, 2019:** On page 8, the example of AI in research libraries highlighted in the first full paragraph was identified incorrectly in an earlier version of this publication. The example institution was The University of Oklahoma, not Oklahoma State University.