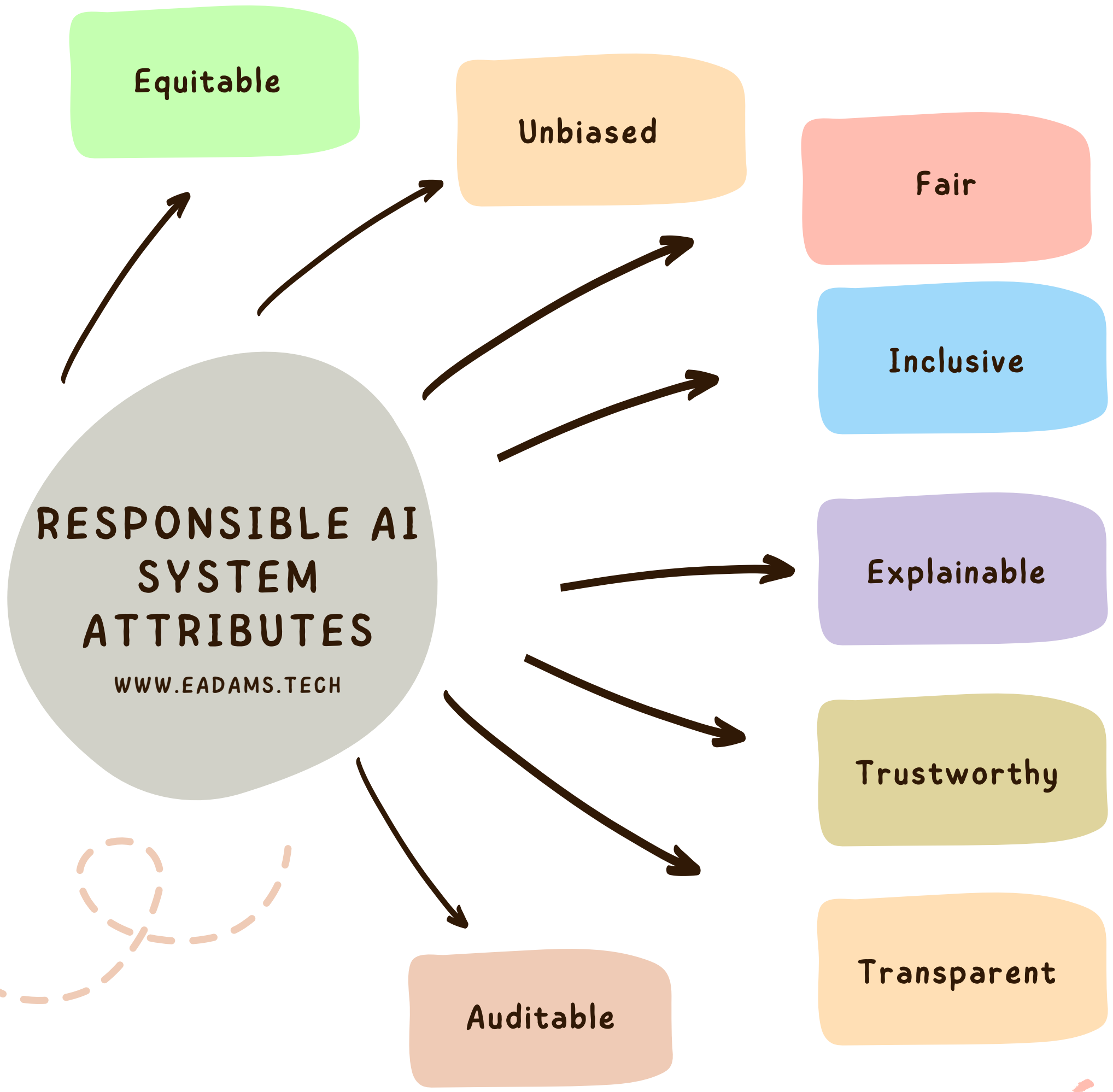


A Starter Guide for Teens



Elizabeth M. Adams
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The purpose of this guide is to expose a new generation of curious minds to topics related to Responsible Artificial Intelligence



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Equitable

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"Equitable" artificial intelligence (AI) refers to AI technologies that humans intentionally design, develop, and implement to result in equitable outcomes for everyone, including people with disabilities (www.peatworks.org)

We should consider the impacts of innovation on society to ensure innovative science is ethical, democratic and equitable.

Reading Companions:

- AI Guide for Teens - UNICEF Office of Global Insight and Policy
- Little AI and Peety - emabooks.com
- A Blueprint for Equity and Inclusion in Artificial Intelligence - World Economic Forum
- Viral Justice, How We Grow the World We Want - Ruha Benjamin



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Unbiased

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The adoption of AI is not entirely beneficial to all sectors of society. People of color have been adversely affected by AI bias which has led to harm and has the potential to perpetuate systemic inequity as a consequence of poor technology design and development.

AI bias occurs when algorithms are produced with outcomes that unfairly disadvantage some groups and advantage others. It is important to understand the different things that can cause bias.

Before providing data for the algorithm to learn from, be sure the data is fair, balanced, and **unbiased** (free from bias). Machines don't question the data provided as humans do. If the data being used is biased from the start, a machine has no way of recognizing the problem (www.uopeople.edu).

Reading Companions:

- AI Bias Types - Leadership Guide, www.eadams.tech
- Creating Fair and **Unbiased** Artificial Intelligence - University of the People
- Bias and AI: The Case for Inclusive Tech - EMA Advisory Services, with Practical Law Intellectual Property & Technology



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"Fairness" refers to treating others as one wishes to be treated by ensuring algorithms do not automate technology discrimination. Following agreed-upon societal standards and algorithmic fairness is a crucial issue in AI (Teodorescu et al., 2021).



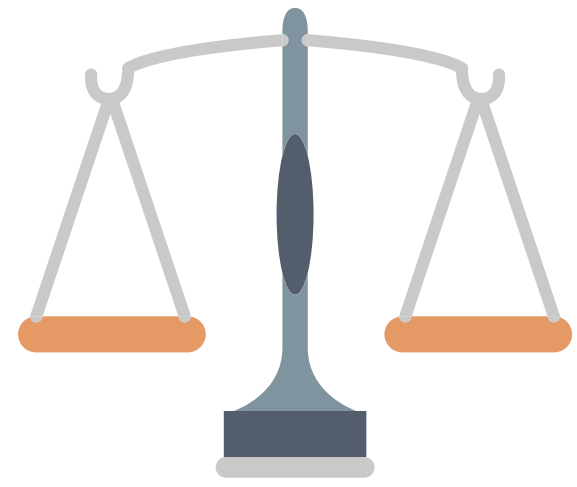
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Achieving AI fairness is not just a technical problem; it also requires governance structures to identify, implement and adopt appropriate tools to detect and mitigate bias in data collection and processing on the one hand, and frameworks to define the necessary and appropriate oversight for each specific use case on the other. - IBM

Reading Companions:

- Teodorescu, M. H., Morse, L., Awwad, Y., & Kane, G. C. (2021). Failures of Fairness in Automation Require a Deeper Understanding of Human-ML Augmentation. MIS Quarterly, 45(3)
- **Fairness - IBM**
- Responsible Artificial Intelligence, How to Develop and Use AI in a Responsible Way - Virginia Dignum



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Inclusive

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"**Inclusive**" AI: another subfield of ethical AI, is AI which accounts for different needs, and therefore benefits all of society including minority, marginalized, and underrepresented groups. It does this through reducing bias and discrimination within and resulting from AI systems, as well as trying to reduce the inequality of access to these systems and the digital literacy required to use them. (Women's Forum for the Economy & Society)

We should seek to ensure that varied stakeholder groups are represented and actively engaged (for example, citizens, practitioners, and policymakers) so that their opinions and points of view are taken into consideration during AI design and development processes.

Reading Companions:

- How to Foster Inclusion & Trust in Artificial Intelligence Work Groups - Elizabeth M. Adams, LinkedIn
- Diversity & Inclusion Leadership Skills Needed In Artificial Intelligence - Elizabeth M. Adams, LinkedIn
- Action Toolkit on **Inclusive AI** - Women's Forum for the Economy & Society
- Responsible Tech Guide - All Tech is Human



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Explainable

"Explainable" AI is a set of processes and methods that allows human users to comprehend and trust the results and output created by machine learning algorithms. - Violet Turri, Carnegie Mellon University)

Explainability is the capacity to express why an AI system reached a particular decision, recommendation, or prediction. Developing this capability requires understanding how the AI model operates and the types of data used to train it. AI engines get "smarter" over time by continually ingesting data, gauging the predictive power of different algorithmic combinations, and updating the resulting model - McKinsey

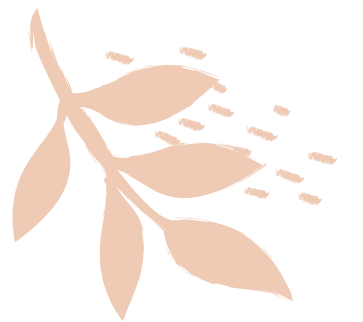


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Reading Companions:

- What is **Explainable AI**? - Violet Turri, Carnegie Mellon University
- Why businesses need **explainable AI**—and how to deliver it - McKinsey
- What is **Explainable AI (XAI)**? - NVIDIA



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Trustworthy

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"Trustworthy AI" refers to the design, development, acquisition, and use of AI in a manner that fosters public trust and confidence while protecting privacy, civil rights, civil liberties, and American values, consistent with applicable laws. - Trustworthy AI Playbook, DHHS

Trust must be instilled in the core of AI, not only on its surface. To ensure that trust is "built-in," we must operationalize trustworthy characteristics into the processes that give rise to AI products and services. - Deloitte

Reading Companions:

- Trustworthy AI Playbook - Department of Health and Human Services
- Trustworthy AI - Deloitte
- Trustworthy AI: A Business Guide for Navigating Trust and Ethics in AI - Beena Ammanath



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Transparent

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"Transparent" AI ensures, individuals should be able to understand how their data is being used and how AI systems make decisions; algorithms, attributes, and correlations should be open to inspection. - Trustworthy AI Playbook, DHHS

If we have a clear line of sight into the algorithms and ML processes that go towards making an AI model function, then we have transparency into the processes, tools, data and 'actors' (mathematical models of computation) involved in the production of the total AI process itself. - Lori Witzel



Reading Companions:

- Transparency and Responsibility in Artificial Intelligence - Deloitte
- A new intelligence seen through transparent AI - Lori Witzel
- What does Transparent AI mean? - AI Policy Exchange



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Auditable

"Auditable" AI provides the documentation and records necessary to pass a regulatory review. - Fico

Auditable AI should answer questions like:

- What data was used to build the machine learning model?
- Is the data representative of a production environment
- How were data biases addressed if/when they were discovered in the development phase?
- What are the derived variables used in the model?
- Are they biased?
- Are the variables approved for use in the model by a governance team?

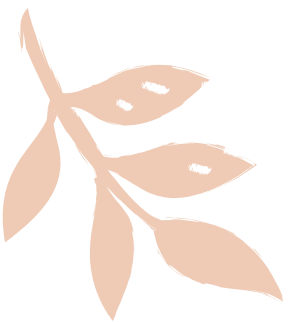
It's important to note that although the word "audit" has an after-the-fact connotation, **Auditable AI** emphasizes laying down (and using) a clearly prescribed record of work while the model is being built and before the model is put into production. - Fico

Reading Companions:

- Can Your AI Pass Muster With Regulators? - Fico.com
- A DIY Approach to Algorithmic Audits - Stanford University, Human-Centered AI
- Bable News - bable.ai

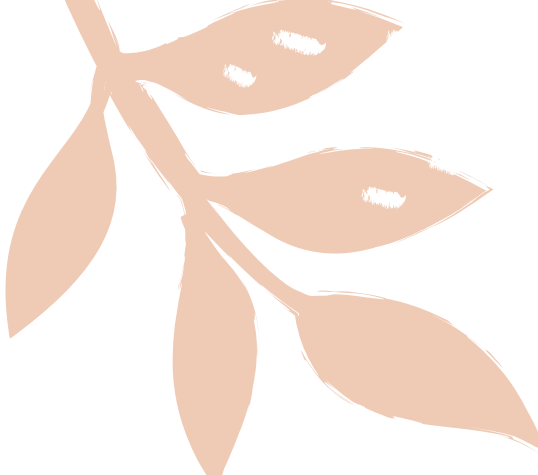
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5
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"SHAPING ARTIFACTS"

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Shaping artifacts are documents created to guide the design and development of Responsible AI Systems

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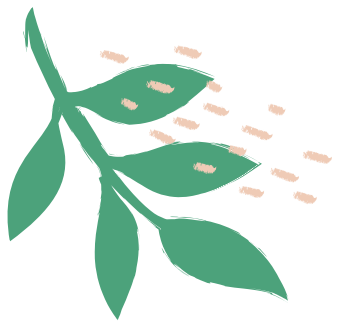
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RAI "shaping artifacts" are stakeholder created physical or digital materials that shape the nature of RAI systems through their influence on design, development and implementation.

Reading Companions:
Free Guides -

1. Responsible AI Shaping Artifacts
2. Artificial Intelligence Bias Types
3. Mapping Stakeholder Theory to Responsible AI
4. Responsible Leadership in a Stakeholder Society
5. Ethical Principles of Responsible AI
6. Responsible Research & Innovation
7. Artificial Intelligence as Digital Agency
8. Organizational Learning & Development

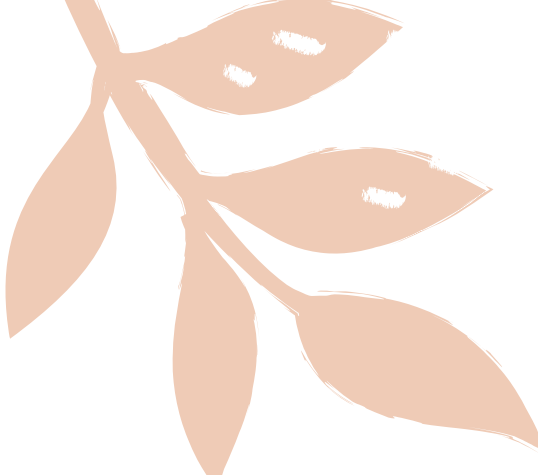
All can be found at www.eadams.tech/leadership-guides



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Shaping Artifacts



Scientific

Include components of Information Systems Design and Development that guide a scientific and systematic approach to reasoning, perceiving, decision-making and learning from machine learning, data science and training data.

Ethical & Principled

Ensure AI systems are developed with principles such as but not limited to: AI Virtues, Ethics, Fairness, and Justice.



Legal

Ensure adherence to applicable laws such as but not limited to privacy, discrimination, explainability, and transparency.

AI Agency

Account for the power of computers to act autonomously but on behalf of people, organizations, and institutions.

Stakeholder Participation

Ensure artifact development is inclusive of impacted groups especially people who represent groups impacted by AI bias.

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ADDITIONAL READING SUGGESTIONS

Artificial intelligence as digital agency. *European Journal of Information Systems*, 29(1), 1–8. <https://doi.org/10.1080/0960085x.2020.1721947>

Haenlein, M., & Kaplan, A. (2019). A Brief History of Artificial Intelligence: On the Past, Present, and Future of Artificial Intelligence. *California Management Review*, 61(4), 5–14. <https://doi-org.lib.pepperdine.edu/10.1177/0008125619864925>

Kordzadeh, N., & Ghasemaghaei, M. (2022). Algorithmic bias: review, synthesis, and future research directions. *European Journal of Information Systems*, 31(3), 388–409. <https://doi.org/10.1080/0960085x.2021.1927212>

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