

The background is a solid purple color. Overlaid on this background are white, stylized circuit lines. These lines are of varying thickness and form a complex network of paths. Some lines are straight, while others are bent at right angles. Small white circles are placed at various points along these lines, resembling nodes or solder points on a circuit board. The lines and nodes are more densely packed on the left side of the image and become sparser towards the right.

Levers To Move the World

Artificial Intelligence and Data Privacy
A View From The U.S. To Beyond

How Much Data?

“There are 2.5 quintillion bytes of data [2,500,000,000,000,000,000 bytes] created each day at our current pace, but that pace is only accelerating with the growth of the Internet of Things (IoT). **Over the last two years alone, 90 percent of the data in the world was generated.**”

(May, 2018)
<https://www.forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/#74a508e360ba/>

By 2020, 1.7 megabytes of new information will be created every second, per person.

Around 1/3 of all data will be processed through the cloud.

“The entire digital universe is expected to reach 44 zettabytes by 2020.”

44,000,000,000,000,000,000 bytes

<https://www.nodegraph.se/biq-data-facts>

<https://www.weforum.org/agenda/2019/04/how-much-data-is-generated-each-day-cf4bddf29f>

WEF

2019 *This Is What Happens In An Internet Minute*



Data Sources

People

“smart” objects (“IoT”)

“smart dust” (environmental sensors)

“Smart Cities”

“The overwhelming majority of images are now made by machines for other machines.”

<https://thenewinquiry.com/invisible-images-your-pictures-are-looking-at-you/>.

“Data Exhaust”

These extra data initially, at the beginning of all of this, were lying around, unused, considered data exhaust, waste material. Eventually it was discovered that they had significant predictive value and that's what was used to create the kind of prediction products of where people would click that became the basis for these new online advertising markets. So the idea here is that there is behavioral data that companies are collecting about us, that are being used to improve what they give us, but there is much more behavioral information that we are communicating that we don't know.”

– Shoshanna Zuboff - Surveillance Capitalism

How Much Data Analysis?

“Today, less than 0.5% of available data is actually being analyzed.”

<https://www.nodegraph.se/big-data-facts/>

[In 2013] “Facebook held an impressive 250 petabytes of data at the time, just one tenth of one percent of that data was actually queried each day.”

<https://www.forbes.com/sites/kalevleetaru/2019/01/09/how-do-we-define-big-data-and-just-what-counts-as-a-big-data-analysis/#48c40a631b66>



THE ROLE OF ARTIFICIAL INTELLIGENCE

“Give me a lever and a place to stand and I will move the earth.”

-Attributed to Archimedes of Syracuse (c. 287 BC – c. 212 BC)



AI SYSTEMS IN CONTEXT


“Specific actors in society are deploying AI to automate decision-making in particular fields of endeavor. They are doing so to achieve outcomes that they view as desirable, against the backdrop of social institutions that have their own, pre-existing human rights implications.”

<https://cyber.harvard.edu/publication/2018/artificial-intelligence-human-rights>

EFFECTS OF AI ON HUMAN RIGHTS

“Current implementations of AI impact the full range of Human rights guaranteed by international human rights instruments.”

<https://cyber.harvard.edu/publication/2018/artificial-intelligence-human-rights>

The image features a solid purple background. In the corners, there are decorative elements consisting of thin, light blue lines that resemble circuit traces or neural network connections. These lines end in small circles, some of which are filled with a light blue color. The lines are arranged in a way that suggests a network or data flow, with some lines extending from the edges towards the center.

“AI carries the serious risk of perpetuating, amplifying, and ultimately ossifying existing social biases and prejudices, with attendant consequences for the right to equality.”

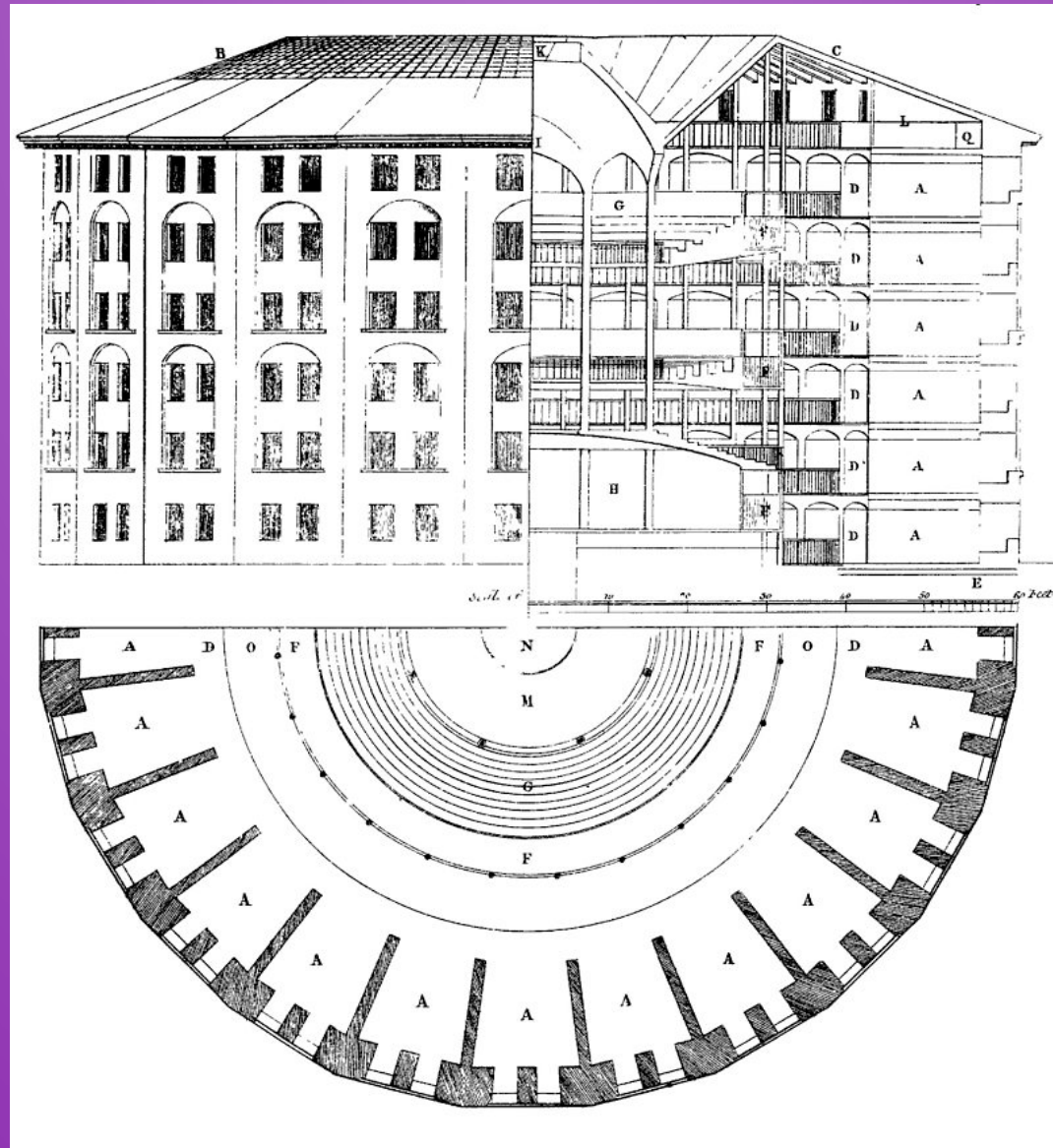
<https://cyber.harvard.edu/publication/2018/artificial-intelligence-human-rights>

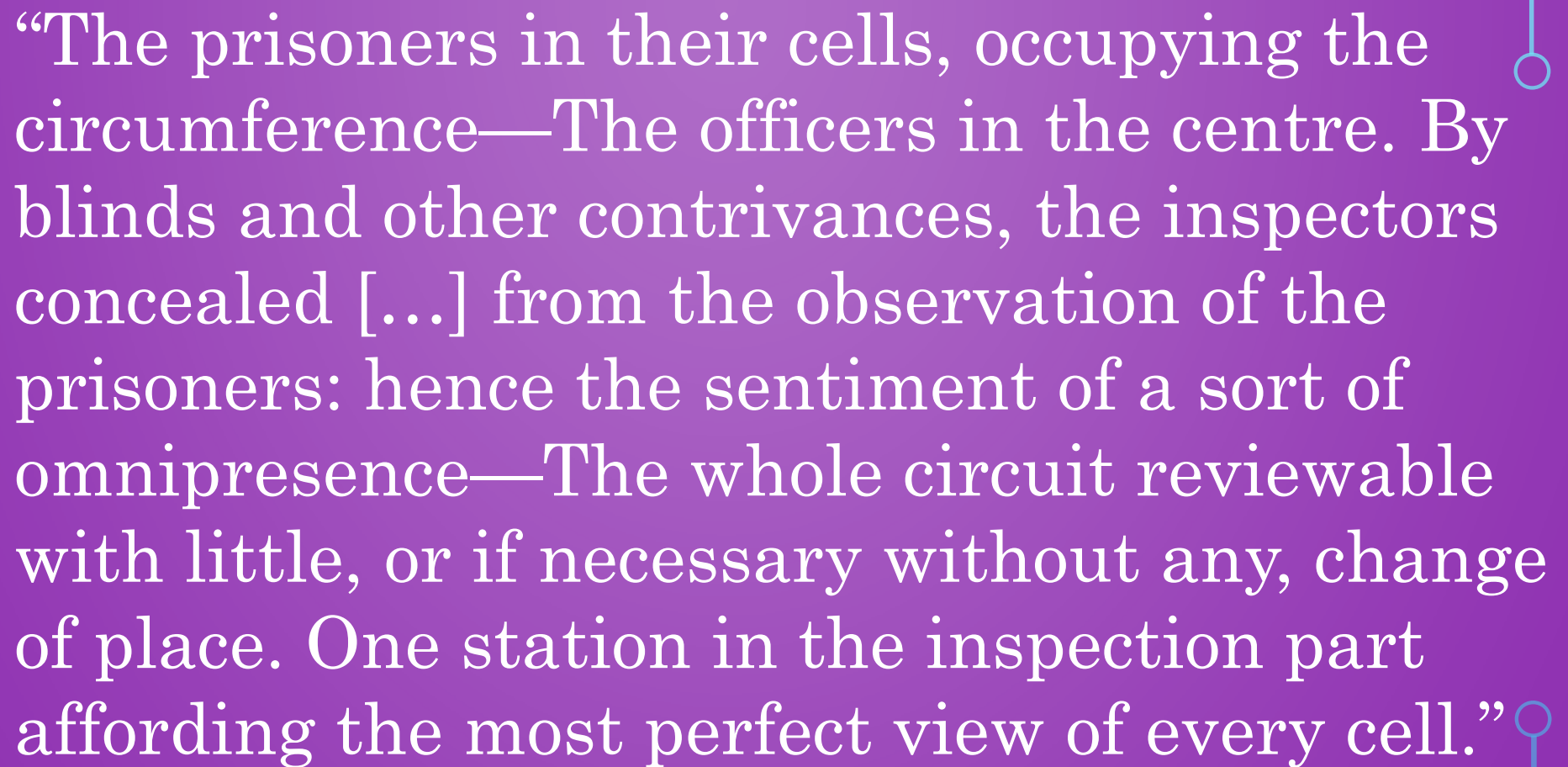
The image features a solid purple background. In the four corners, there are decorative elements consisting of light blue lines that resemble circuit traces or neural network connections, ending in small circles.

“PRIVACY IS THE SINGLE RIGHT
THAT IS MOST IMPACTED BY
CURRENT IMPLEMENTATIONS OF
AI.”


<https://cyber.harvard.edu/publication/2018/artificial-intelligence-human-rights>

Privacy and the Data “Panopticon”



The image features a solid purple background. In the corners, there are decorative elements resembling circuit board traces or stylized lines. These lines are light blue and end in small white circles, creating a geometric, abstract pattern. The lines are more dense in the top-left and bottom-left corners and more sparse in the top-right and bottom-right corners.

“The prisoners in their cells, occupying the circumference—The officers in the centre. By blinds and other contrivances, the inspectors concealed [...] from the observation of the prisoners: hence the sentiment of a sort of omnipresence—The whole circuit reviewable with little, or if necessary without any, change of place. One station in the inspection part affording the most perfect view of every cell.”

The background is a solid purple color. In the corners, there are decorative white line art elements resembling circuit boards or neural networks. These elements consist of thin white lines that branch out and terminate in small white circles, creating a sense of connectivity and technology.

“We are on the cusp of a fundamental change in the nature of surveillance — akin to a ‘phase transition’ in physics.”

<https://www.aclu.org/report/dawn-robot-surveillance>

AI & Big Data

The Terminator, or Terminator 2?



Photo credit: FRANCOIS GUILLOT/AFP/Getty Images

<https://www.mensjournal.com/health-fitness/hell-be-back-arnold-schwarzeneggers-new-terminator-movie-set-summer-2019/>



AI & Big Data As *The Terminator*

“Listen, and understand. That terminator is out there. It can’t be bargained with. It can’t be reasoned with. It doesn’t feel pity, or remorse, or fear. And it absolutely will not stop, ever, until you are dead.”

Terminator - screenplay by James Cameron,
Gale Anne Hurd, William Wisher Jr.



AI's Unwavering Attention

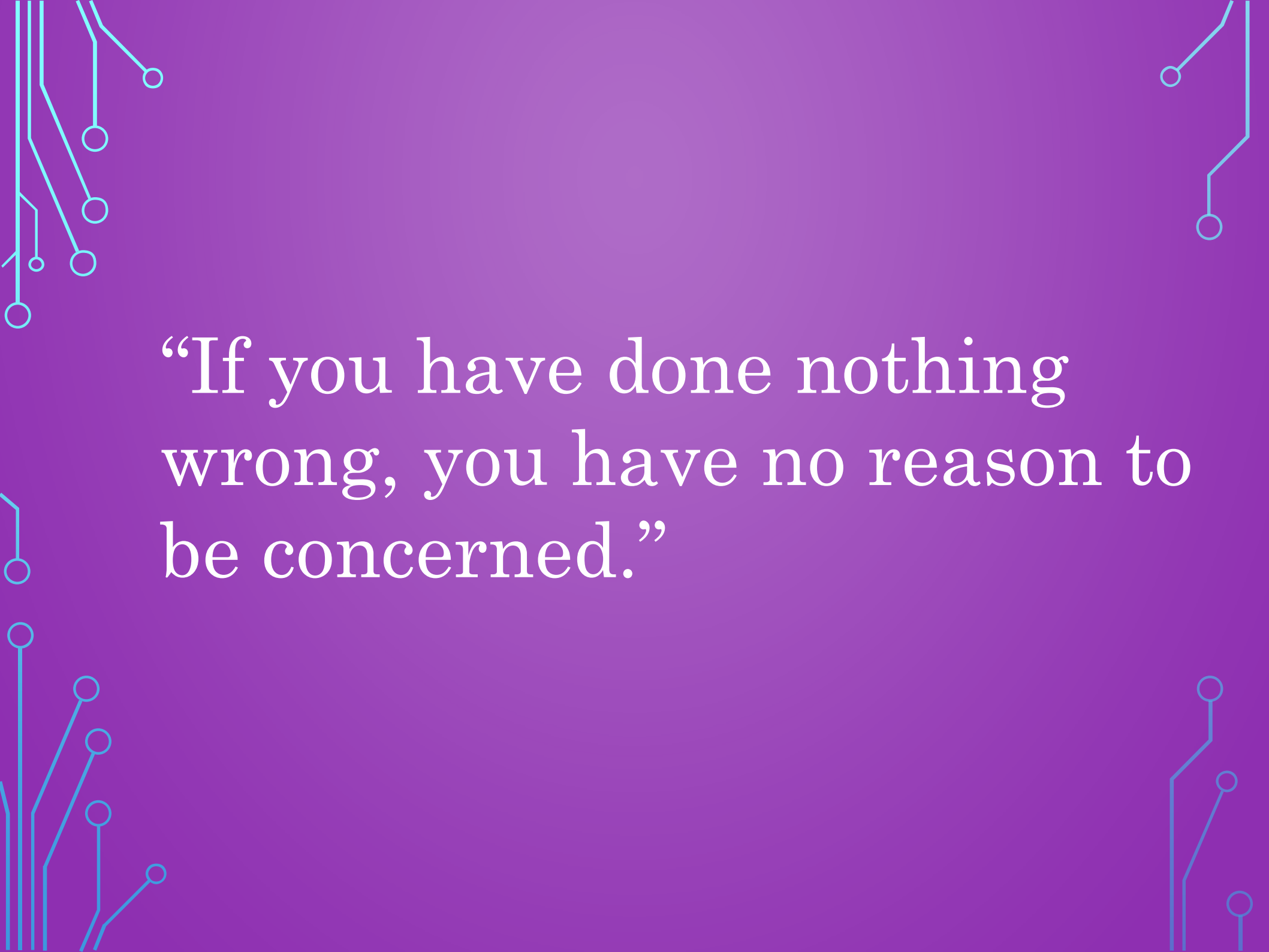
“[A]fter only 20 minutes of watching and evaluating monitor screens, the attention of most individuals has degenerated to well below acceptable levels.”

<http://files.eric.ed.gov/fulltext/ED436943.pdf>


AI's “Perfect” Memory*

“Guards who never sleep, who never miss a detail, who have total recall for everything they’ve seen, and who never fail to carry out the instructions they’ve been given, to the letter.”

*Unless it is forced to forget. cf. the European Union’s GDPR

The image features a solid purple background. In the corners, there are decorative elements consisting of thin, light blue lines that resemble circuit traces or a stylized network. These lines connect to small, empty circles, creating a geometric pattern in each of the four corners.

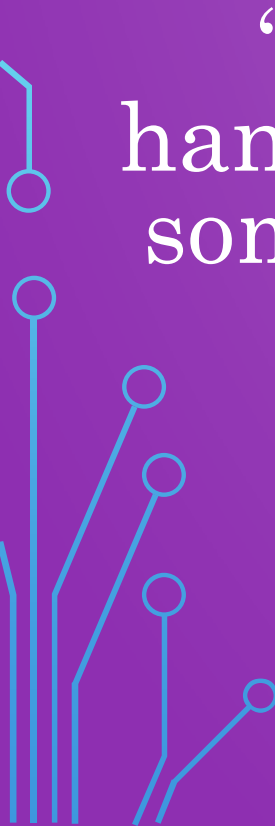
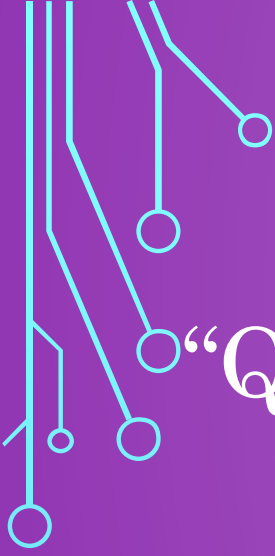
“If you have done nothing
wrong, you have no reason to
be concerned.”



"The 'nothing-to-hide' argument . . . is an argument that the privacy interest is generally minimal, thus making the contest with security concerns a foreordained victory for security."

Solove, Daniel J. "Why Privacy Matters Even if You Have 'Nothing to Hide'." The Chronicle of Higher Education. May 15, 2011.

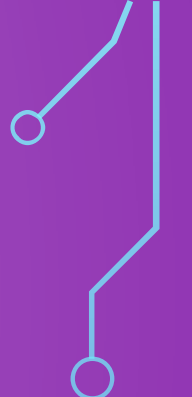
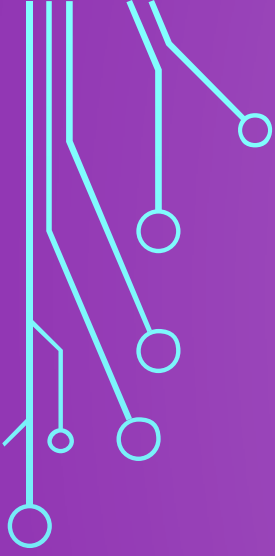




“Qu'on me donne six lignes écrites de la main du plus honnête homme, j'y trouverai de quoi le faire pendre.”

“If you give me six lines written by the hand of the most honest of men, I will find something in them which will hang him.”

Attributed to Cardinal Richelieu



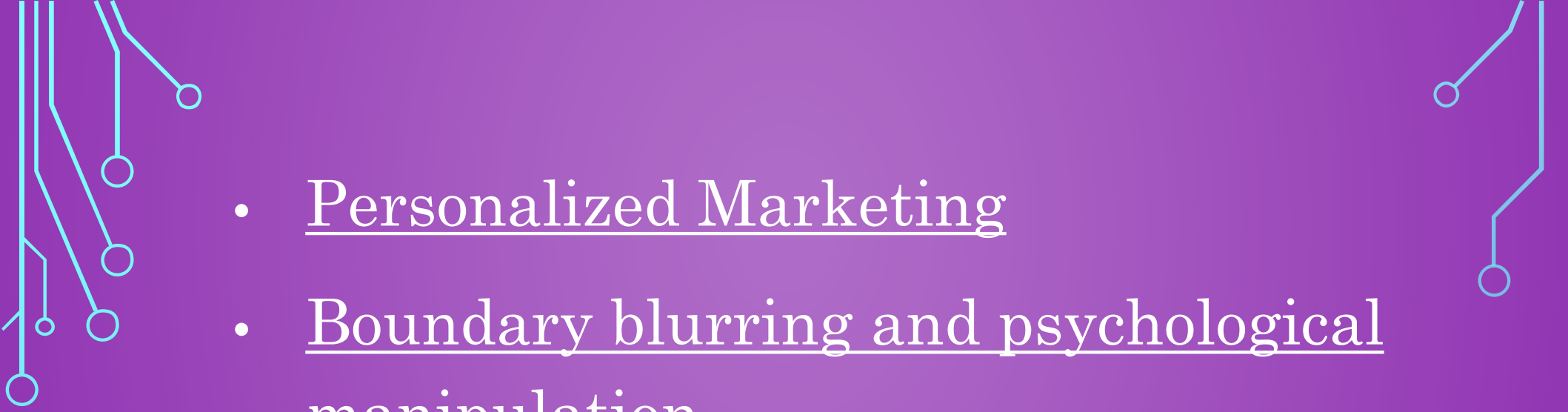
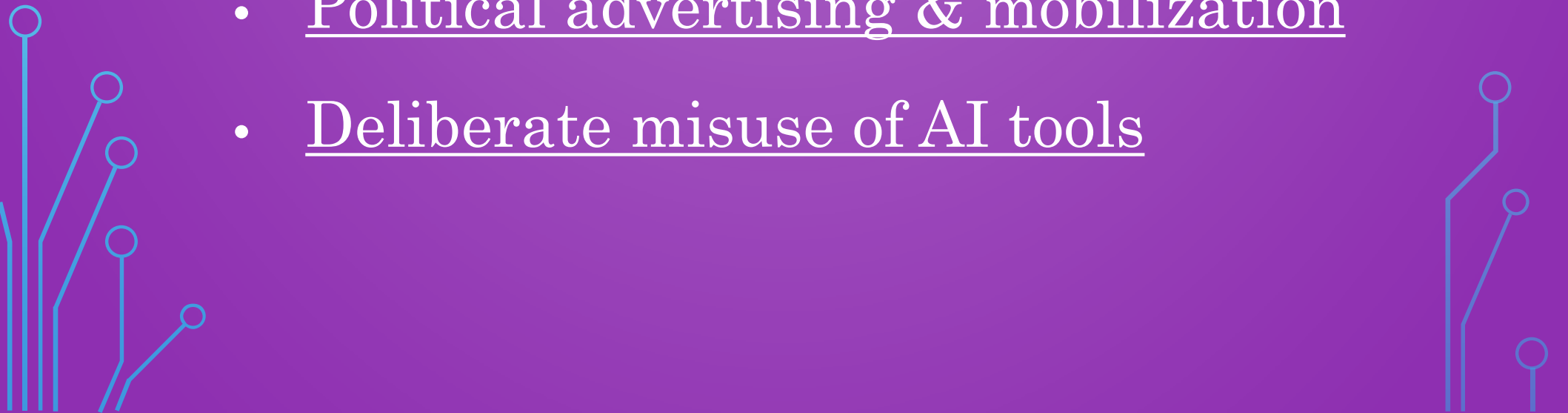
“AI techniques can be used to discover some of our most intimate secrets by drawing profound correlations out of seemingly innocuous bits of data.”

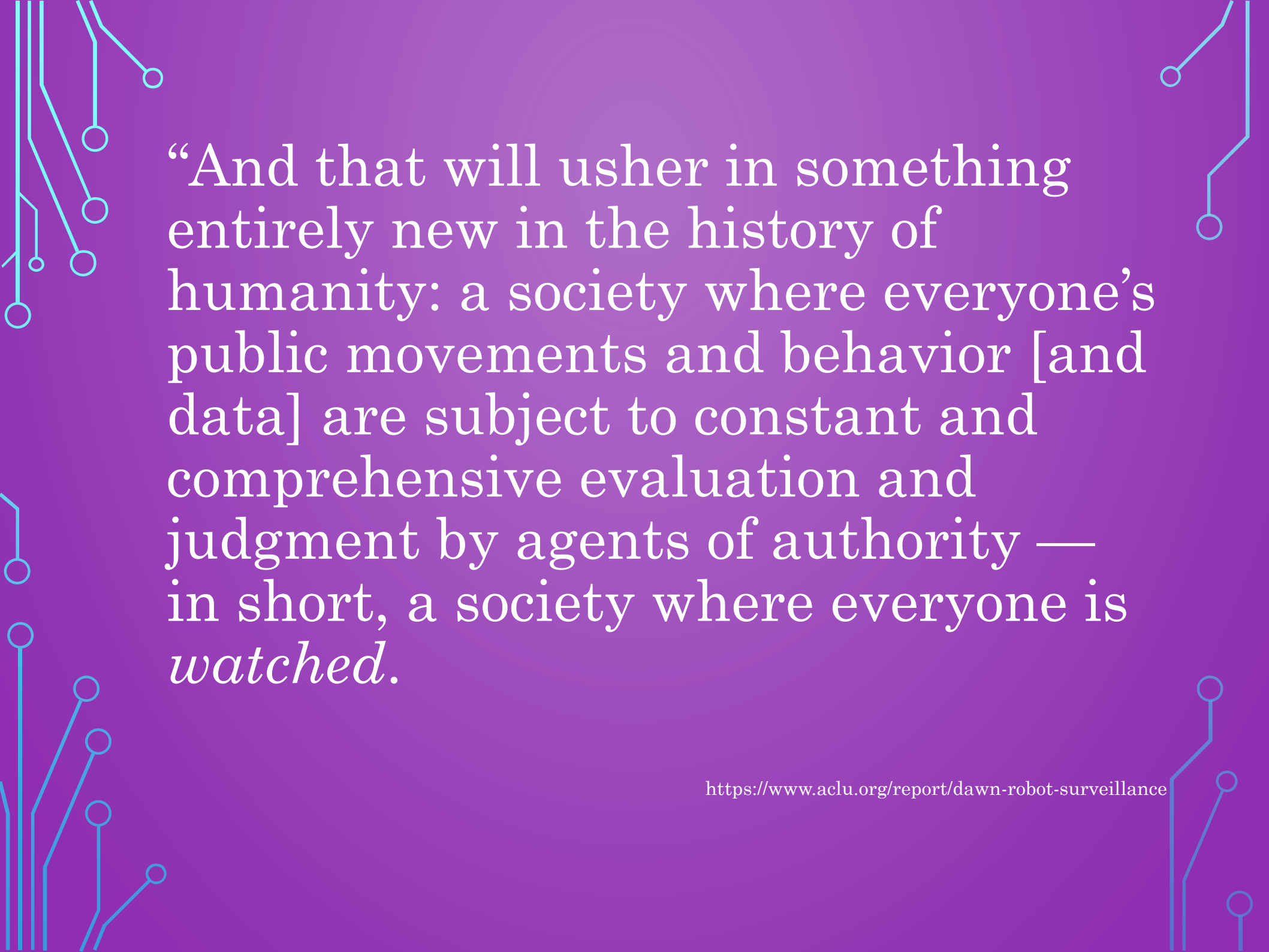
<https://cyber.harvard.edu/publication/2018/artificial-intelligence-human-rights>



Some Downsides of AI's “Perfect View”

- Over-enforcement
- Retro-enforcement
- Ubiquitous implicit collection
- Inherent Bias
- Data Penumbras
- Chilling effects and statistical normalization
- Moving the “Overton Window”

- 
- Personalized Marketing
 - Boundary blurring and psychological manipulation
 - AI-amplified Workplace Taylorism
 - Monitoring and Incentivization
 - Political advertising & mobilization
 - Deliberate misuse of AI tools
- 

The image features a solid purple background. In the corners, there are decorative elements consisting of light blue lines that resemble circuit traces or a stylized network, with small circles at various points along the lines.

“And that will usher in something entirely new in the history of humanity: a society where everyone’s public movements and behavior [and data] are subject to constant and comprehensive evaluation and judgment by agents of authority — in short, a society where everyone is *watched*.

<https://www.aclu.org/report/dawn-robot-surveillance>

- “In Stores, Secret Surveillance Tracks Your Every Move”
- “Are you ready? Here is all the data Facebook and Google have on you”
- Smile, Your City Is Watching You
- “Google Sorry It Forgot to Mention Nest Security Systems Have Secret Microphones”

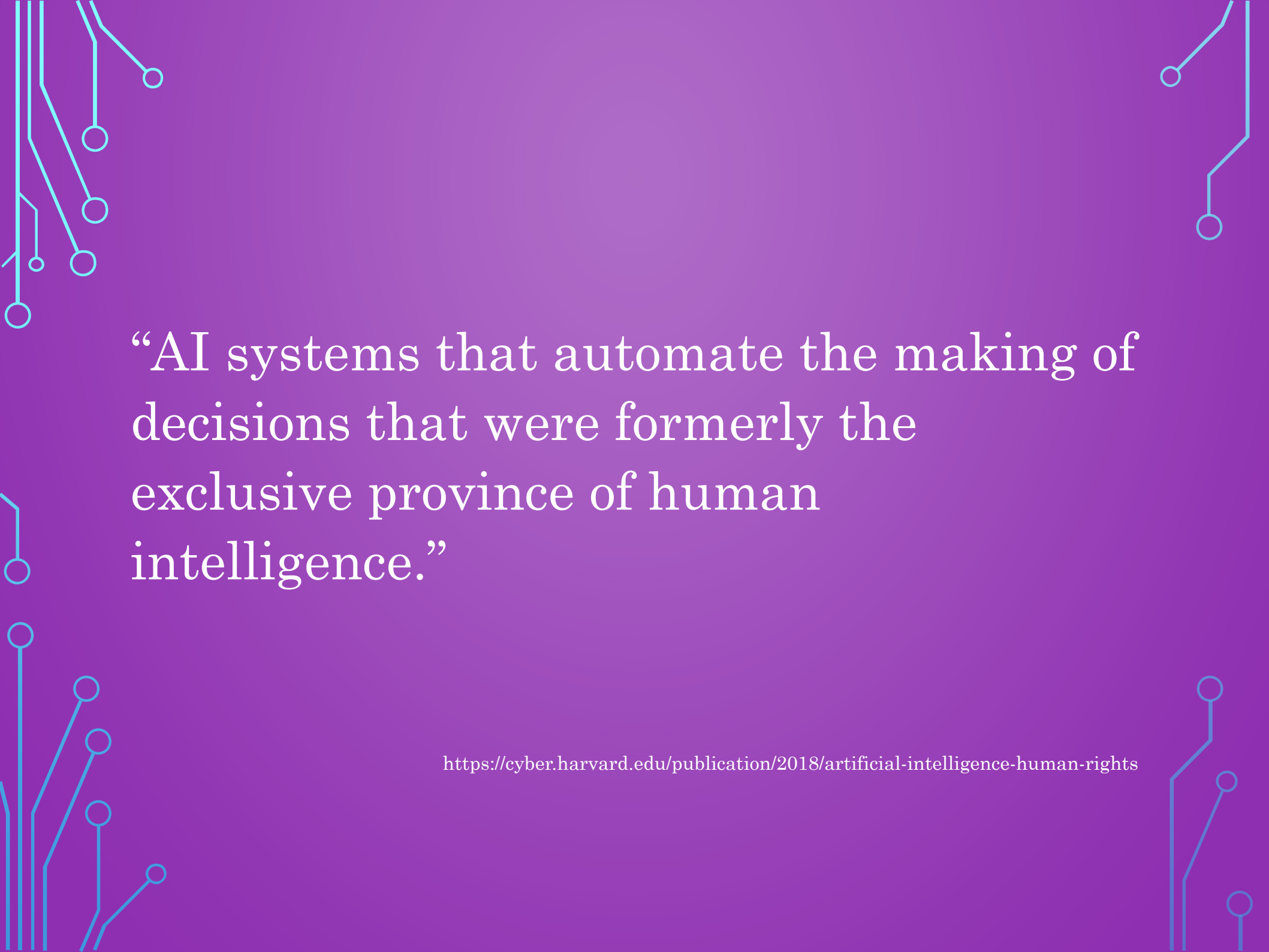
<https://www.nytimes.com/interactive/2019/06/14/opinion/bluetooth-wireless-tracking-privacy.html>

<https://www.nytimes.com/interactive/2018/12/10/business/location-data-privacy-apps.html>

<https://www.nytimes.com/2019/06/27/opinion/cities-privacy-surveillance.html>

<https://www.theguardian.com/commentisfree/2018/mar/28/all-the-data-facebook-google-has-on-you-privacy>

<http://nymag.com/intelligencer/2019/02/google-sorry-it-forgot-to-mention-secret-microphones.html>

The background is a solid purple color. In the corners, there are decorative white line art elements resembling circuit boards or neural networks. These elements consist of thin white lines that branch out and terminate in small white circles, creating a symmetrical, abstract pattern in each corner.

“AI systems that automate the making of decisions that were formerly the exclusive province of human intelligence.”

<https://cyber.harvard.edu/publication/2018/artificial-intelligence-human-rights>

DECISIONS REGARDING

- Criminal Justice
- Finance System
- Healthcare
- Online Content Moderation
- Human Resources
- Education
- Infrastructure and Supply Chains
- ??

AI Won't Stop Until You Are...

- Marketed to
- Numb /Desensitized
- Complacent
- Tracked
- Confined
- Silenced
- ???

“Come with me if you want to live....”



AI & Big Data as *Terminator 2*

- “Watching John with the machine, it was suddenly so clear. The Terminator would never stop. It would never leave him. It would never hurt him, never shout at him, or get drunk and hit him, or say it was too busy to spend time with him. It would always be there. And it would die to protect him. Of all the would-be fathers who came and went over the years, this thing, this machine was the only one that measured up. In an insane world, it was the sanest choice.”


– Terminator 2; Screenplay by James Cameron & William Wisher






Some *Positive* Applications for AI & Big Data

- Environmental
 - Resource management
 - Healthcare & medicine
 - Participatory democracy / civic engagement
 - Criminal Justice
 - Financial
 - Infrastructural
- 
- 

The image features a solid purple background. In the corners, there are decorative elements consisting of white lines that resemble circuit traces or neural network connections, ending in small white circles.

“[AI systems] require constant attention by those who are responsible for the design and operation of such systems to ensure that their outputs are consistent with evolving notions of fairness.”

<https://cyber.harvard.edu/publication/2018/artificial-intelligence-human-rights>




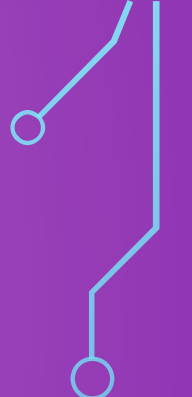
Currently, in the United States, although particular industries may be specifically regulated or may have their own internal codes of conduct, there is no comprehensive national legislation regarding the gathering or storage of data, personal or otherwise, although there is a patchwork of law and regulation at the state level.

<https://iclg.com/practice-areas/data-protection-laws-and-regulations/usa>



Specific Laws and Regulation

- **Healthcare related personal information and data**
Health Insurance Portability and Accountability Act (HIPPA)
- **Student educational records**
Family Educational Rights and Privacy Act (FERPA)

- 
- 
- **Data pertaining to the online activities of children under 13.**

Children's Online Privacy Protection Rule
("COPPA")

- Various other sector-specific regulation, including banks, driving, phone calls and more.

All of these are mostly focused on data security, not consumer or human rights, or ethical usage.






Senator Ron Wyden (D-OR) released a draft Consumer Data Protection Act (2018)

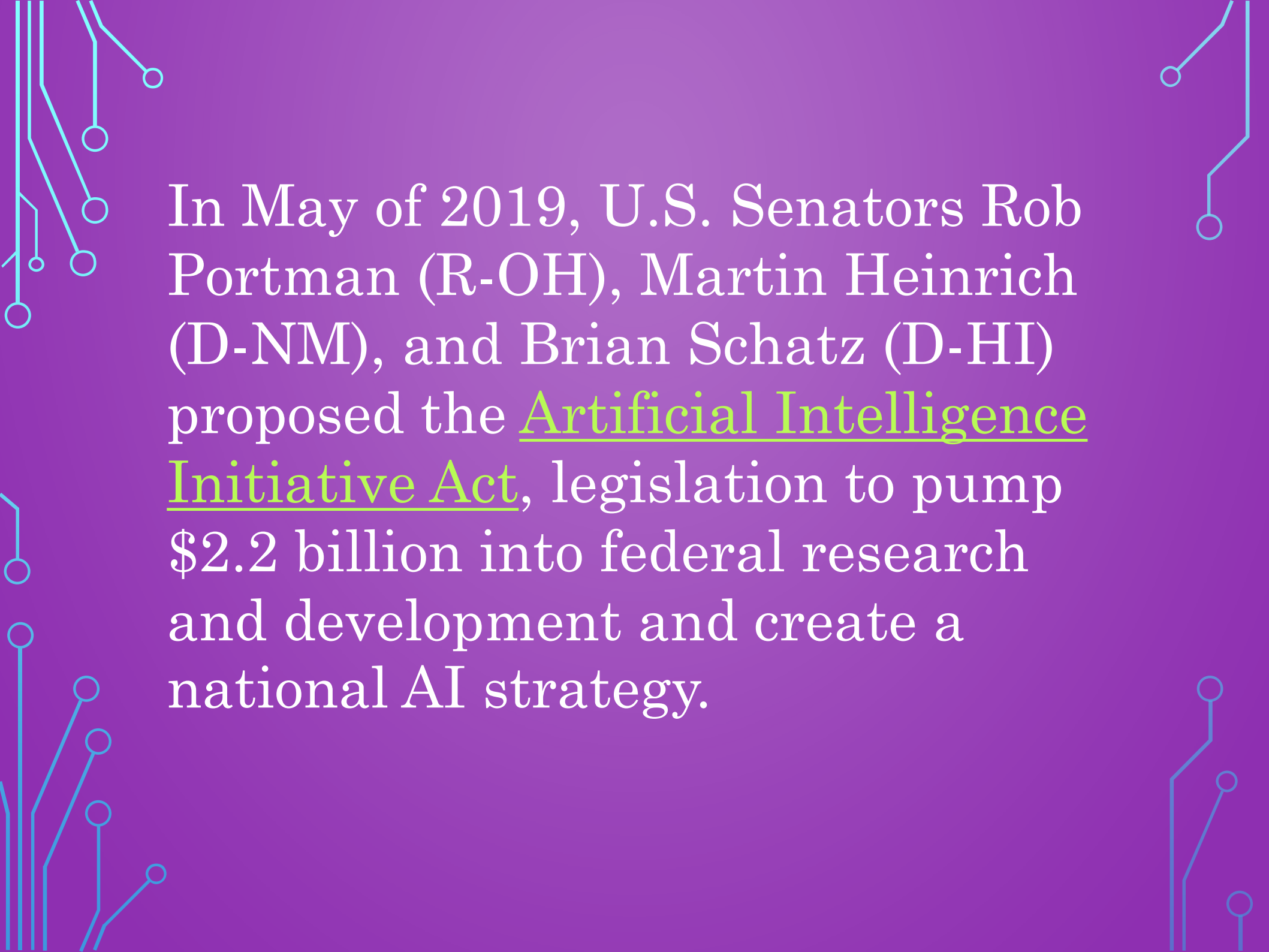
Senator Brian Schatz (D-HI) released a draft Data Care Act (2018)

Senator Marco Rubio (R-FL) announced a new privacy bill, the American Data Dissemination Act (ADDA) (2019)

The background is a solid purple color. In the corners, there are decorative white line art elements resembling circuit boards or neural networks, with lines and small circles connecting them.

The Information Technology and
Innovation Foundation has
controversially proposed that
“Congress should repeal and replace
existing federal privacy laws with a
common set of protections.”

<https://itif.org/publications/2019/01/14/grand-bargain-data-privacy-legislation-america>


The image features a solid purple background. In the corners, there are decorative white line art elements resembling circuit boards or neural network connections, with lines and small circles extending from the edges.

In May of 2019, U.S. Senators Rob Portman (R-OH), Martin Heinrich (D-NM), and Brian Schatz (D-HI) proposed the Artificial Intelligence Initiative Act, legislation to pump \$2.2 billion into federal research and development and create a national AI strategy.

State level law and regulation

Only a few U.S. states are addressing data security or privacy in a comprehensive way. Most state laws regarding AI and data are still sector-specific, if they exist at all.

California's Consumer Privacy Act is a rare exception, with a New York law possibly to follow soon, but both assume data will be gathered.

The image features a solid purple background. In the corners, there are decorative elements consisting of light blue lines that resemble circuit traces or neural network connections, ending in small circles.

“Many of the existing formal and informal institutions that govern various fields of social endeavor are ill-suited to addressing the challenges posed by AI.”

<https://cyber.harvard.edu/publication/2018/artificial-intelligence-human-rights>

Practical Next Steps

Ethical Guidelines

For praxis, design, evaluation and regulation

Due Diligence

Impact Assessments

Specifically targeted laws and regulations
(e.g., GDPR)

Codes of Conduct

Transparency and Explainability

More Practical Next Steps

- “Data Fiduciaries”
- Tiered data access
- “Humans In The Loop”
- Global agreements as to best practices?
- Differential Privacy
- Better redress mechanisms
- Pre-deployment assessment of human rights impacts
- Public/Private Alignment
- GDPR-style storage and erasure of PII?



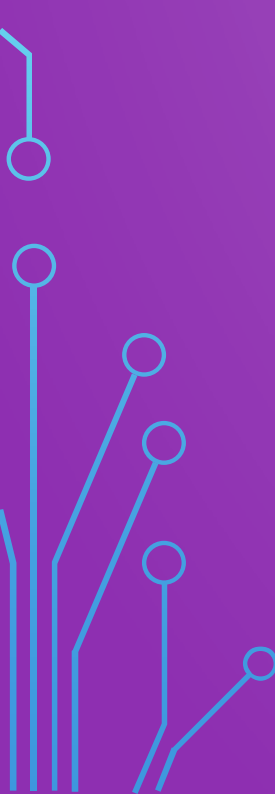

“STEAM ENGINE TIME” FOR ETHICS OF AI, PRIVACY AND “BIG DATA”?


Efforts underway in:

- Africa
 - EU
 - North America
 - Latin America
 - Asia
 - The “Global South”
- 
- 

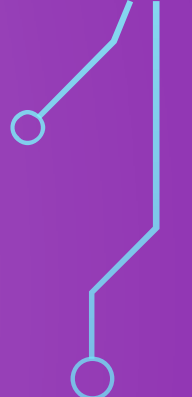



SOME SAMPLE PRINCIPLES, MAPPING, SURVEYS, AND CONSENSUS



- Beijing AI Principles
 - EU Efforts
 - OECD
 - Berkman Klein Center
- 
- 

The image features a solid purple background. In the four corners, there are decorative white line art elements that resemble circuit traces or neural network connections, with small circles at the end of the lines.

In May of 2019, The Beijing Academy of Artificial Intelligence (BAAI) released a 15-point set of guiding principles or working with AI.



Last week, at the G20 summit, Japanese Prime Minister Shinzo Abe proposed a global data standard, the “Osaka Track” “Data Free Flow with Trust,”



With it, Japan hopes to create what it calls “Society 5.0,” a supersmart society where the so-called internet of things, AI and big data generate innovation to help expand the economy and resolve social problems.

EU EFFORTS

SIENNA (Stakeholder-Informed Ethics for New technologies with high socio-economic and human rights impact)

will develop ethical protocols and codes for human genomics, human enhancement and AI & robotics.

<http://sienna-project.eu/>



OECD REPORT “ARTIFICIAL INTELLIGENCE IN SOCIETY”

“This report helps build a shared understanding of AI in the present and near-term by mapping the AI technical, economic, use case and policy landscape and identifying major public policy considerations. It is also intended to help coordination and consistency with discussions in other national and international fora.”



PRINCIPLED ARTIFICIAL INTELLIGENCE: MAPPING CONSENSUS AND DIVERGENCE IN ETHICAL AND RIGHTS- BASED APPROACHES”

“Our data visualization presents thirty-two sets of principles side by side, enabling comparison between efforts from governments, companies, advocacy groups, and multi-stakeholder initiatives.”

<https://ai-hr.cyber.harvard.edu/primp-viz.html>



PRINCIPLED ARTIFICIAL INTELLIGENCE

A Map of Ethical and Rights-Based Approaches

DRAFT: July 4, 2019

Authors: Jessica Fjell, Hannah Hilgoss, Mele Achter,
Maia Linzy Daniel, Joshua Feldman, Sally Kagan

Design: Arushi Singh (arushisingh.net)

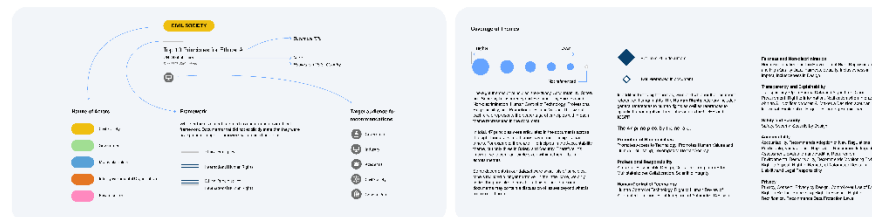
Alongside the rapid development of artificial intelligence, we've seen a proliferation of AI "principles" or guidelines for how AI should be built or used. Is there enough commonality among these efforts to suggest the emergence of sectoral norms? Where are the most significant points of divergence?

This visual tool presents thirty-two sets of principles side by side, enabling comparison between efforts from governments, companies, advocacy groups, and multi-stakeholder initiatives. It highlights eight shared themes: privacy, accountability, bias and non-discrimination, human control of technology, privacy, professional response to bias, promotion of human values, safety and security, and transparency and explainability. A set of documents whose references is linked to international human rights. Our dataset is not exhaustive, but rather a sample of pre-norm, recent AI principles.

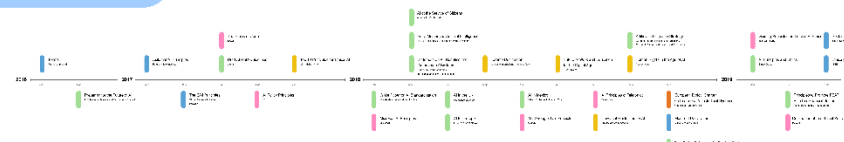
The PRincipled Artificial Intelligence project will also publish a white paper and the dataset itself at ai-hr.cyber.harvard.edu, where you can learn more about our assumptions, methodology, and key findings. It is our hope that this project will be a starting point for further scholarship and advocacy.



How to Read



Document Timeline



<https://ai-hr.cyber.harvard.edu/primp-viz.html>

Thank you.





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It makes use of the works of Mateus Machado Luna.