

Addressing the Ethical Risks of AI

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The Association of
Accountants and
Financial Professionals
in Business

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Agenda

- 1. Introduction**
- 2. What is AI?**
- 3. AI Ethical Risks Facing Management Accountants**
- 4. How to Protect Management Accountants from AI Risks**
- 5. Conclusion**





The AI Revolution

Poll Question 1:

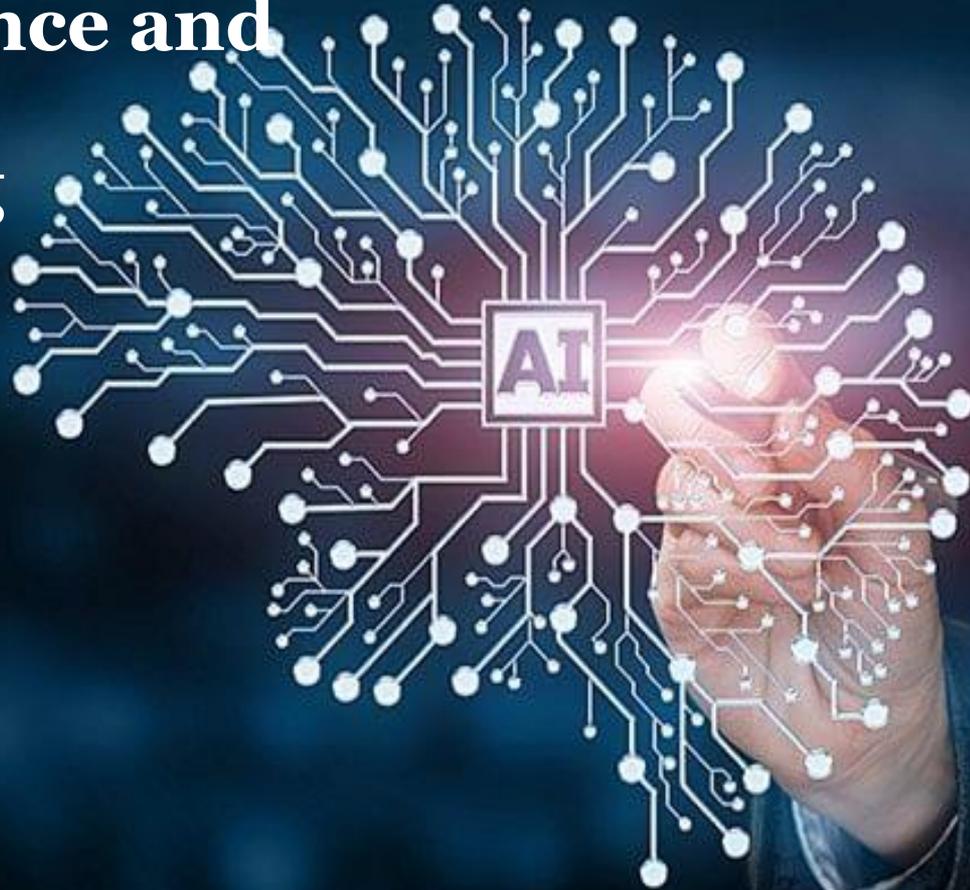
Please assess your AI knowledge.

- a. Limited
- b. Good.
- c. Expert.

Poll Question 1 Results: (Placeholder)

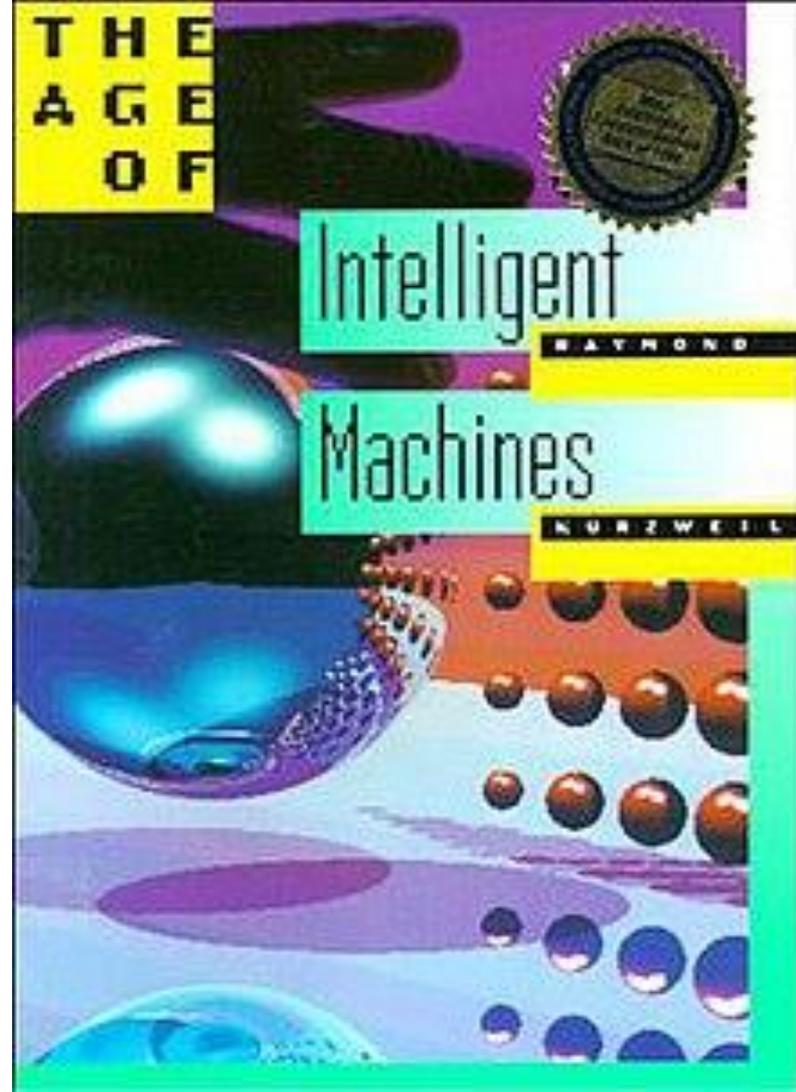
What is AI?

Artificial Intelligence and Machine Learning



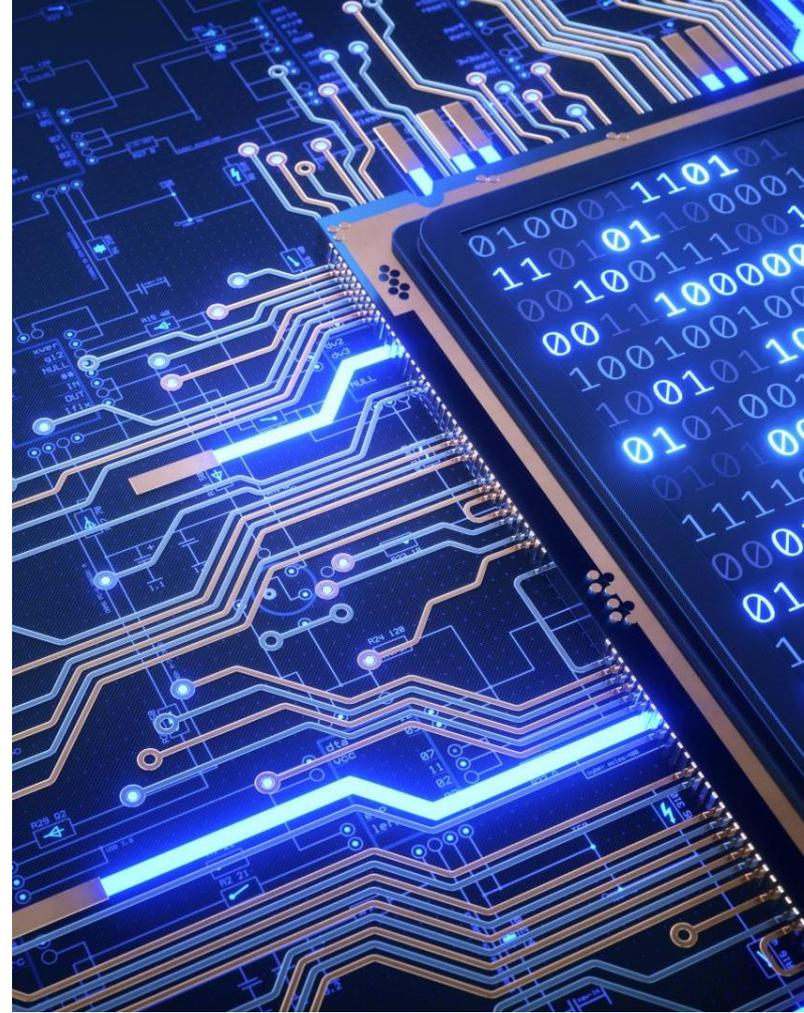
Ray Kurzweil

- **The Age of Intelligent Machines (1990)**
 - **An Advanced Computer Program Could Replicate and Could be Better than Human Intelligence**
 - **Based on Pattern Recognition Using Vision and Knowledge Representation**



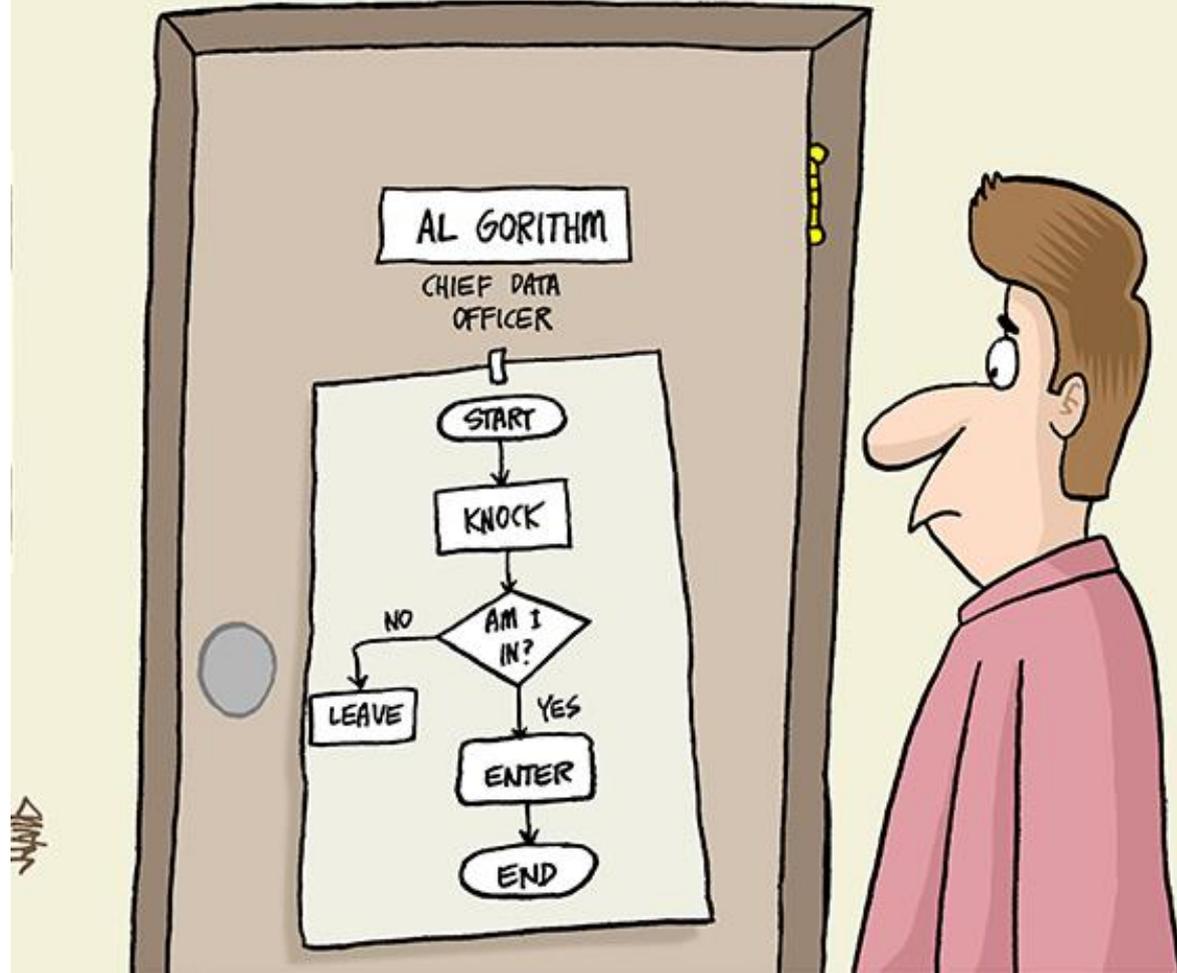
What is Artificial Intelligence?

- **Machine or Software Driven Intelligence Software Instead of Humans**
- **Computers Perform Human Intelligence Tasks**
 - Logical Thinking
 - Rational Actions
 - Visual Perception
 - Speech Recognition
 - Language Translation
- **Market Growth Projections**
 - 2022 \$428 billion
 - 2023 \$515 billion
 - 2030 \$2.03 trillion



Algorithms Power AI

- **S**et of Instructions for Problem-solving Operations by a **C**omputer.
- Used for Analysis and Problem Solving

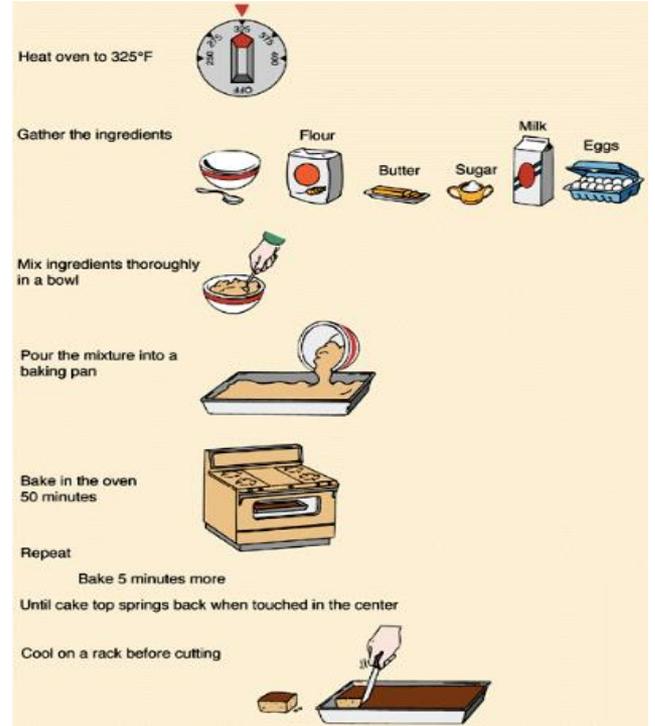


Algorithms

$$= 2,168 + 12,648 + 7,800$$
$$= 66817,39$$
$$M_1^2 = M_{\frac{y_1 - y_2}{x_1 - x_2}} = \frac{2,168 + 12,648}{5 + 7 - 2} \left(\frac{1}{5} + \frac{1}{7} \right) = 0,508$$
$$M_2^2 = M_{\frac{y_1 - y_3}{x_1 - x_3}} = \frac{2,168 + 7,8}{5 + 9 - 2} \left(\frac{1}{5} + \frac{1}{9} \right) = 0,1582$$
$$M_3^2 = M_{\frac{y_2 - y_3}{x_2 - x_3}} = \frac{12,648 + 7,8}{7 + 9 - 2} \left(\frac{1}{7} + \frac{1}{9} \right) = 0,3709$$

$M_1 = 0,71$ $M_2 = 0,508$ $M_3 = 0,609$

Source: http://dbrodersen.com/wordpress/wp-content/uploads/2012/08/algorithm_lecture_2.pdf



Poll Question 2:

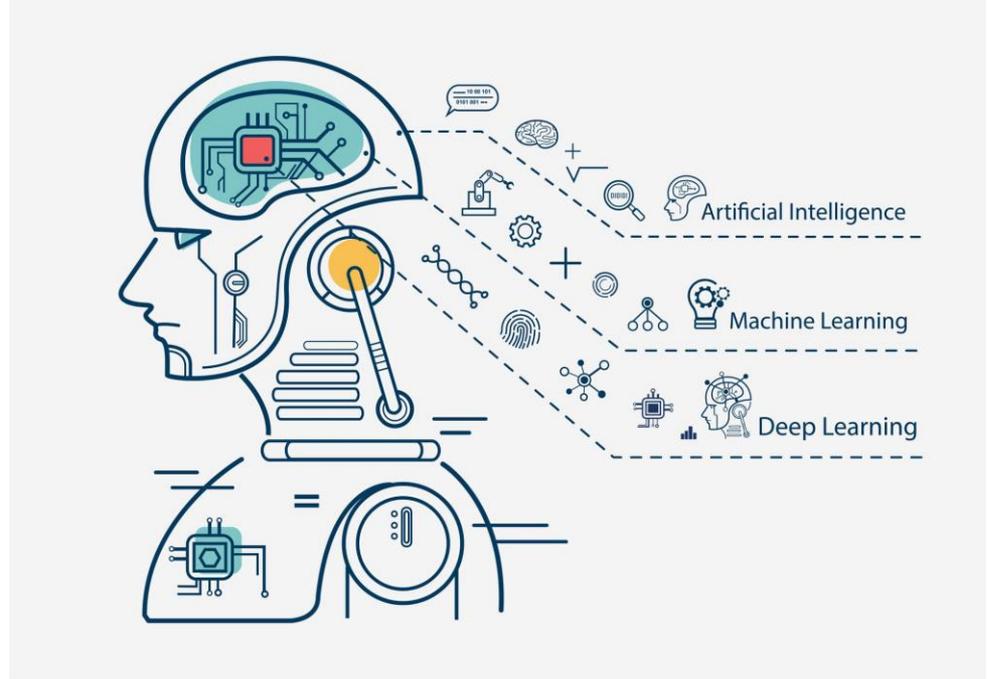
Please assess your AI Ethics knowledge.

- a. Limited
- b. Good.
- c. Expert.

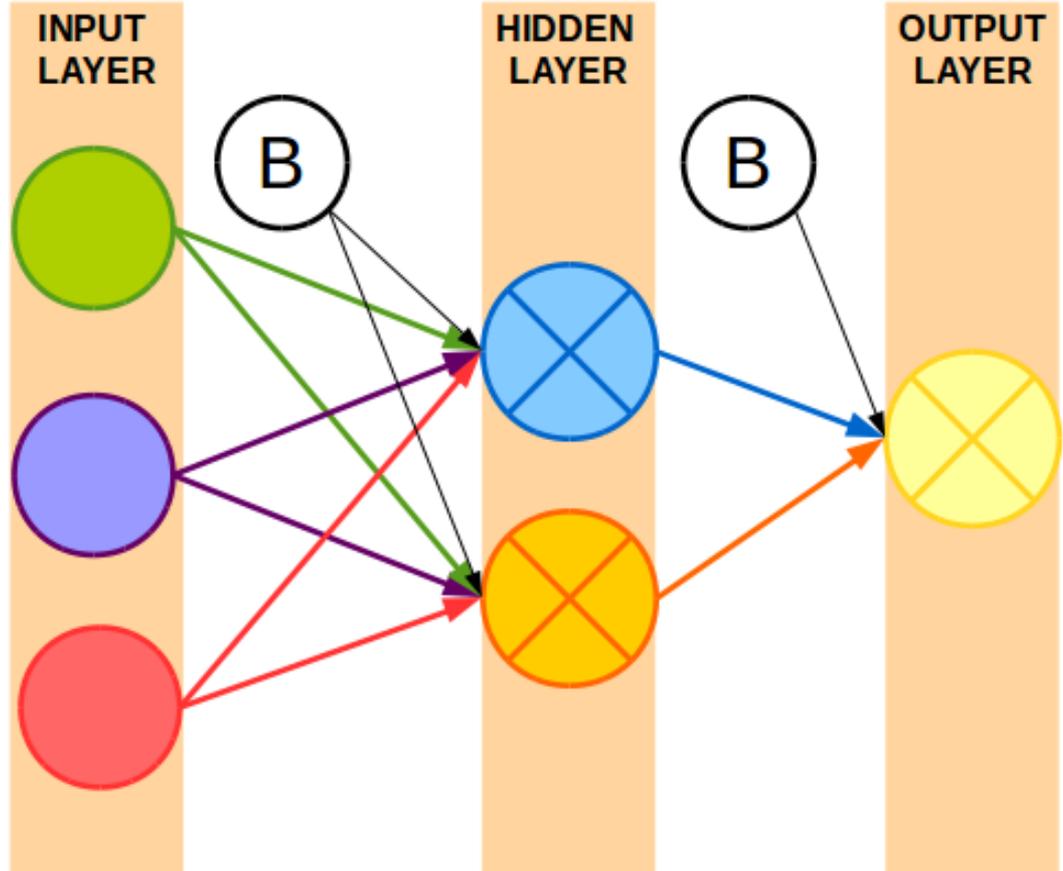
Poll Question 2 Results: (Placeholder)

What is Machine Learning?

- **Machine Learning is a Type of AI**
- **Deep Learning is a Type of Machine Learning**
- **Machine Learning Involves the Computer's Ability to learn from experience rather than specific instructions.**

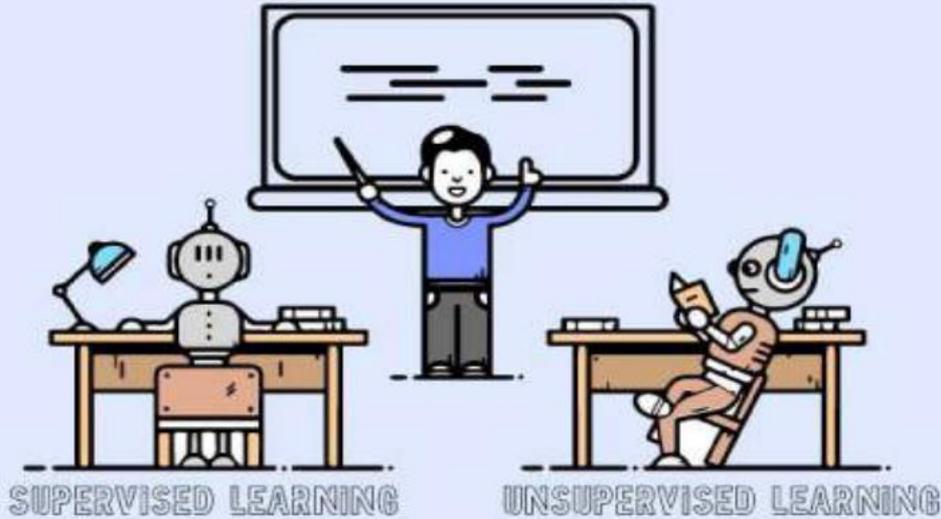


Neural Network



Source: <http://www.learnbymarketing.com/methods/neural-networks/>

Supervised vs. Unsupervised Learning



AI Ethical Risks Facing Management Accountants and the Impact

Security Risks



Source: <https://itchronicles.com/artificial-intelligence/the-dangers-of-ai/>

Rise of Techno Power Elite



Source: <https://www.saveetha.ac.in/images/sec/2021/AIDS/add.jpg>

Job Loss



AI Bias and Discrimination

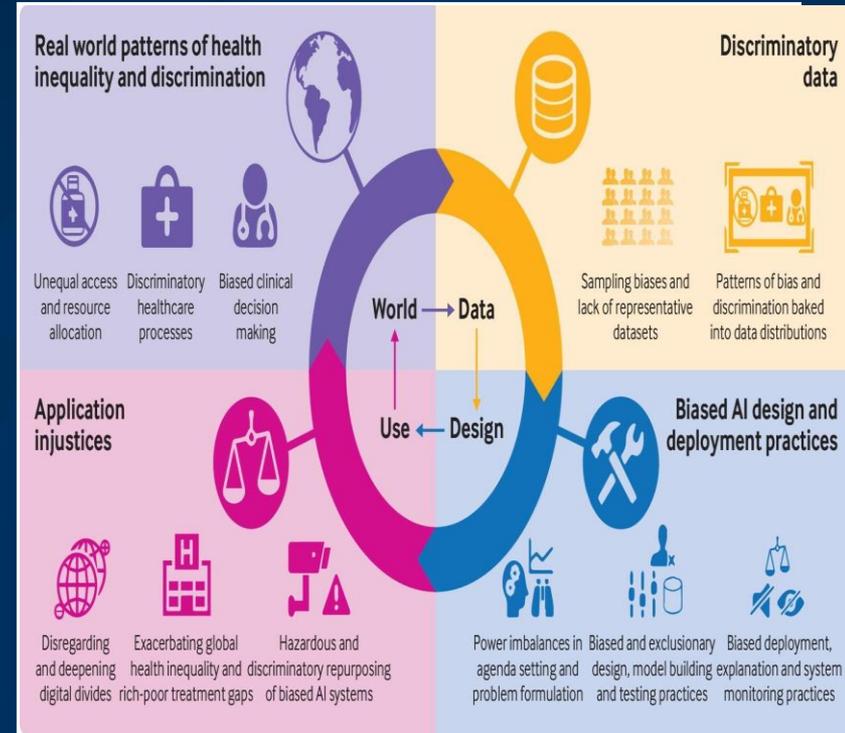
“AI bias is an anomaly in the output of machine learning algorithms, due to the prejudiced assumptions made during the algorithm development process or prejudices in the training data.”

Source: <https://research.aimultiple.com/ai-bias/>



Types of AI Bias

- Cognitive
- Incomplete Data



Sarah Wysocki – Fired from D.C. Public School System

- 2010-11 school year, Wysocki received a poor AI driven score on her IMPACT evaluation in 2011
- Scoring system known as value-added modeling
- Score **generated by an algorithm**, counted half of her overall evaluation, **outweighing positive reviews from school administrators and the community**. Sarah and 205 other teachers with low IMPACT scores were fired



DISTRICT OF COLUMBIA
PUBLIC SCHOOLS

Poll Question 3:

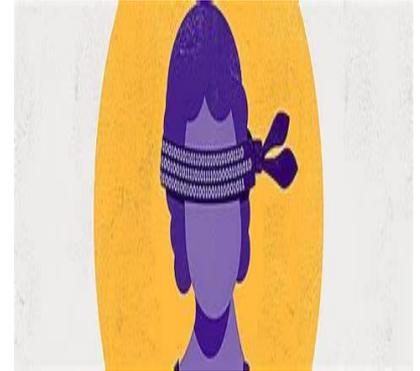
My organization uses AI applications.

- a. Yes
- b. No
- c. I don't know.

Poll Question 3 Results: (Placeholder)

AI Bias Creep

- AI bias: How tech determines if you land job, get a loan or end up in jail
 - USA Today 10/2/2019
- “There is a lack of testing AI products throughout their development cycle to detect potential harms they may do to humans socially, ethically, or emotionally once they hit the market. One way to remedy this is by adding bias testing to a new product’s development cycle.”
 - Harvard Business Review, February 9, 2018



Source:
https://cdn.dogtownmedia.com/wp-content/uploads/2018/02/18142938/Digitalist_Q1_AI-Bias_F.jpg

AI Drift

"Drift" Occurs When Large Language Models (LLMs) Behave in Unexpected or Unpredictable Ways that Stray From the Original Parameters and Sometimes Deteriorating Results

Is 17077 a prime number? Think step by step and then answer [Yes] or [No].



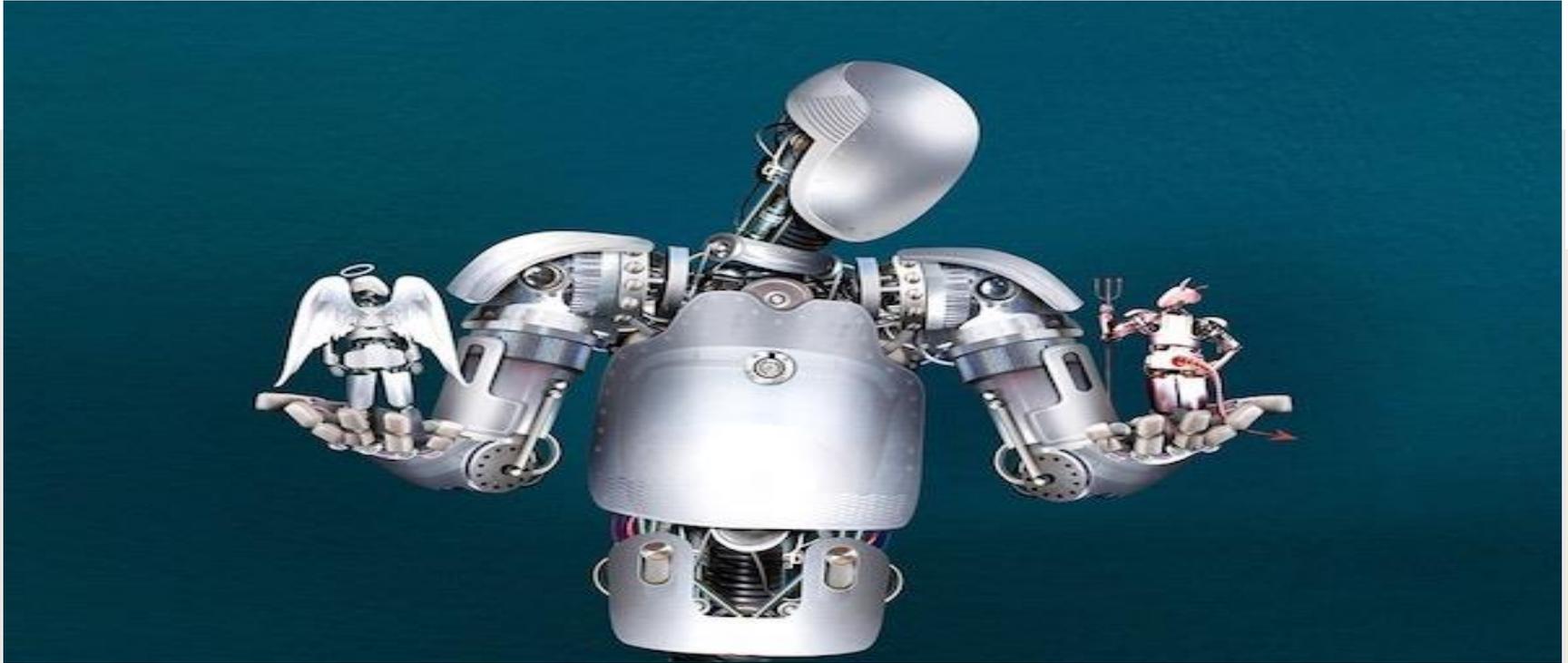
(a) Math I: Prime vs Composite (n=1000)

How many happy numbers are there in [7306, 7311]? Think step by step and then answer within "\boxed".



(b) Math II: Happy Numbers (n=500)

Unintended Consequences



Source: https://istart.com.au/wp-content/uploads/2022/02/AI_Gone_Wrong_AI_Bias.jpg

Protecting Management Accountants from AI Ethical Risks

Promote an Ethical Compass

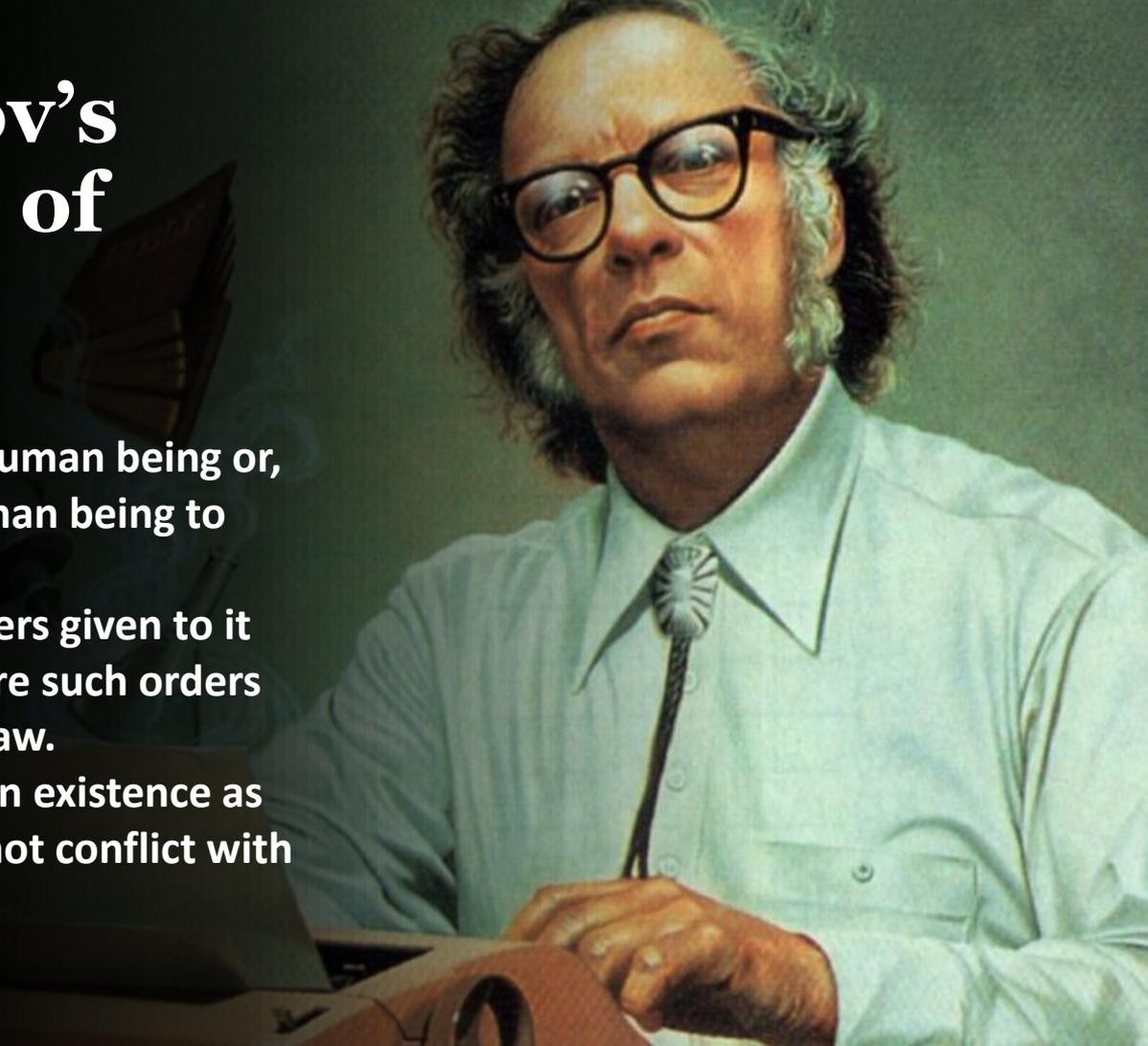
“In no other field is the ethical compass more relevant than in artificial intelligence. These general-purpose technologies are reshaping the way we work, interact, and live. AI technology brings major benefits in many areas, but without the ethical guardrails, it risks reproducing real world biases and discrimination.”

Gabriela Ramos, Assistant Director-General for Social and Human Sciences of UNESCO

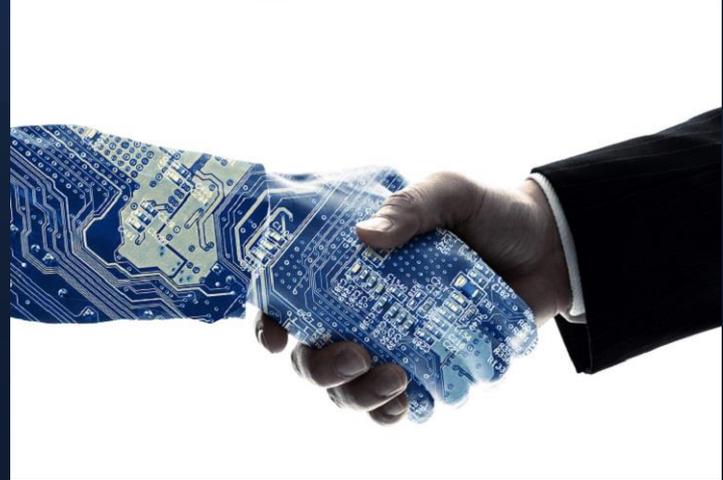


— Isaac Asimov's Three Laws of Robotics

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey any orders given to it by human beings, except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.



Trust and Trust

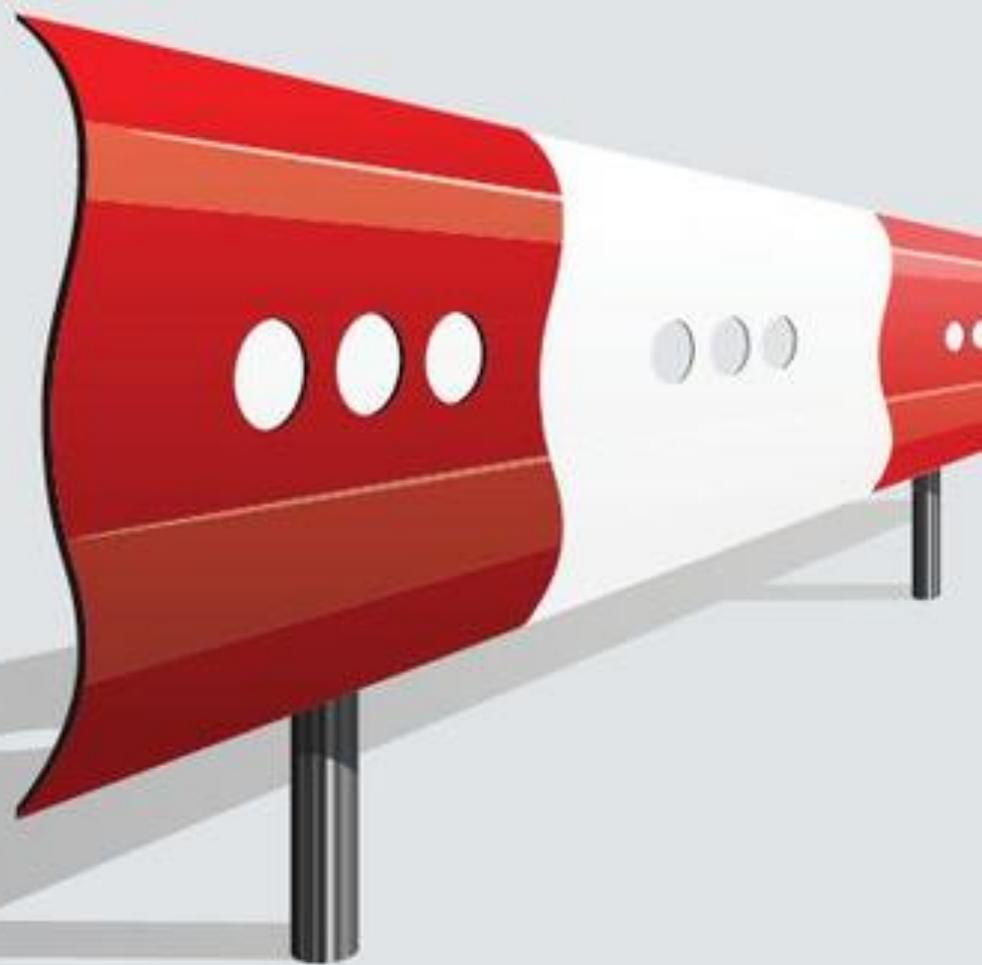


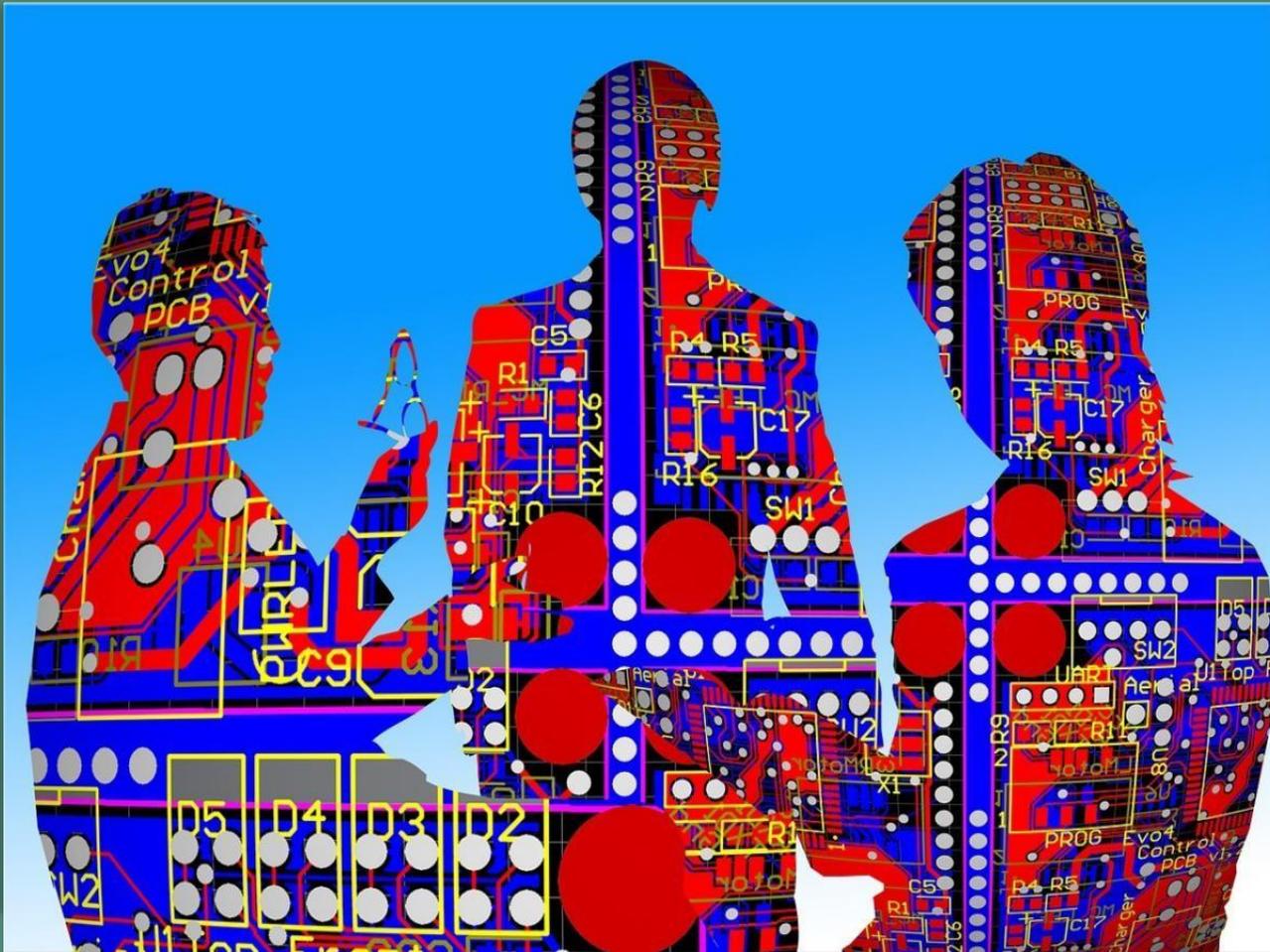
And More Trust

1. AI Black Box Concept
2. AI integrity
3. AI Explainability
4. AI and Data and Information Architecture



The Board's Role in Setting Up AI's Ethical 'Guardrails'





AI Chief Technical Officer (CAIO)

Source: Computerworld

Colonel Dr. David Barnes, Ph.D.
Chief AI Ethics Officer, US Army,
Professor, United States
Military Academy (USMA)



Chief AI Ethics Officer

A promotional image for the movie Top Gun. It features Tom Cruise and Kelly McGillis in the foreground, both wearing flight jackets and sunglasses, looking at each other. In the background, other pilots and a fighter jet are visible on an airfield.

Embed AI Wingmen and Women
in Your Organizations

**THE ORIGINAL FIRST RULE:
NEVER LEAVE YOUR WINGMAN**



UNESCO

Recommendation on the Ethics of Artificial Intelligence

Adopt Practical Strategies to
Contribute to Responsible
Developments

• Source: <https://www.unesco.org/en/artificial-intelligence/recommendation-ethics>



Always Be Data Ethical

- **Principles of Data Ethics in Artificial Intelligence and Big Data**
 - **See the Humans**
 - **Do No Harm**
 - **Take Only What you Need**
 - **Take Personal Responsibility**

- **Neil O'Farrell, Founder of Ethicause**





An Ethical Lens

Always Be Data Ethical

- **What if employees could always see sensitive data through an ethical or moral lens?**
- **Would that change the way they view, handle, protect data?**
- **Could that personal responsibility reduce security and privacy failures?**

Poll Question 4:

My organization has an AI Ethics policy.

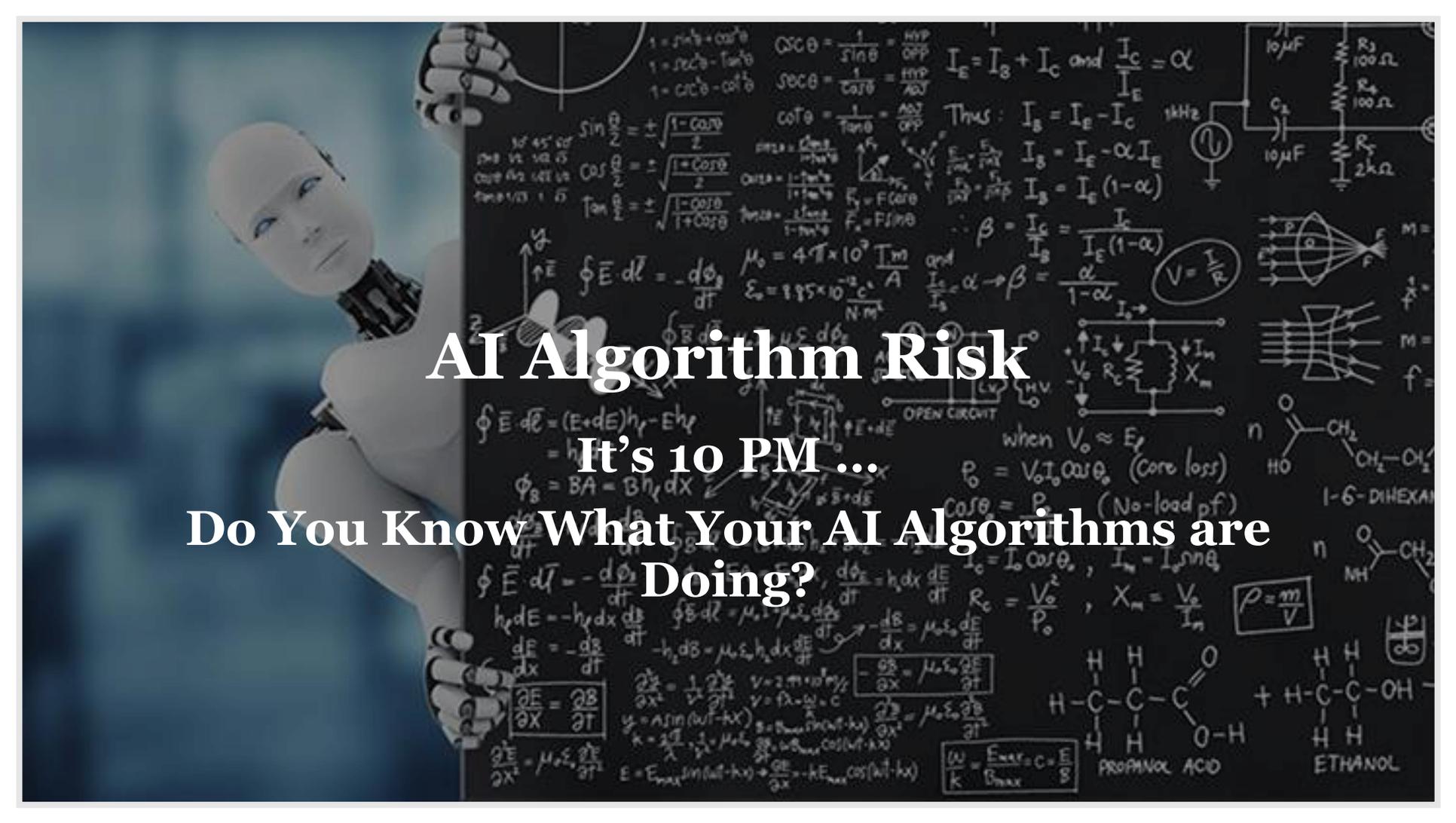
- a. Yes
- b. No
- c. I don't know.

Poll Question 4 Results: (Placeholder)

Final AI Ethical Thought

A stylized map of the United States is depicted using a network of glowing blue nodes and lines, resembling a data visualization or a neural network. The map is centered on the continent, with the nodes forming the outlines of the states. The background is a dark blue gradient, and the overall aesthetic is futuristic and technological.

• Source: www.cio.com

A robot with a white head and blue eyes is holding a large chalkboard. The board is covered in handwritten mathematical and scientific equations, including trigonometric identities, vector calculus, circuit diagrams, and chemical structures. The robot is positioned on the left side of the board, looking towards the viewer.

AI Algorithm Risk

It's 10 PM ...

Do You Know What Your AI Algorithms are Doing?

Resources

- **Strategic Finance**
- **Ethical Principles Apply to AI: The IESBA chair says it's challenging but necessary to apply ethics standards to AI and other new, transformative technologies.**
 - Daniel Butcher August 2023
- **AI AND DIGITAL DISCRIMINATION: By contributing to responsible AI practices and risk mitigation, management accountants and other financial professionals can minimize AI discrimination.**
 - Arif Perdana and Eric Lee, December 2022

Conclusion

Questions and Answers



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Thank you!

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