

**Morality and AI: How do I
use this power responsibly?**



Cameron Vetter

Principal Architect
Microsoft MVP for AI
Deep Learning
Generative AI
Cloud Architecture



- 1 Artificial Intelligence**
- 2 Productionalizing Machine Learning**
- 3 Cloud Architecture**
- 4 Technology Roadmaps**



WHO ARE YOU?

AUDIENCE



HOW ARE YOU
USING AI
CURRENTLY?

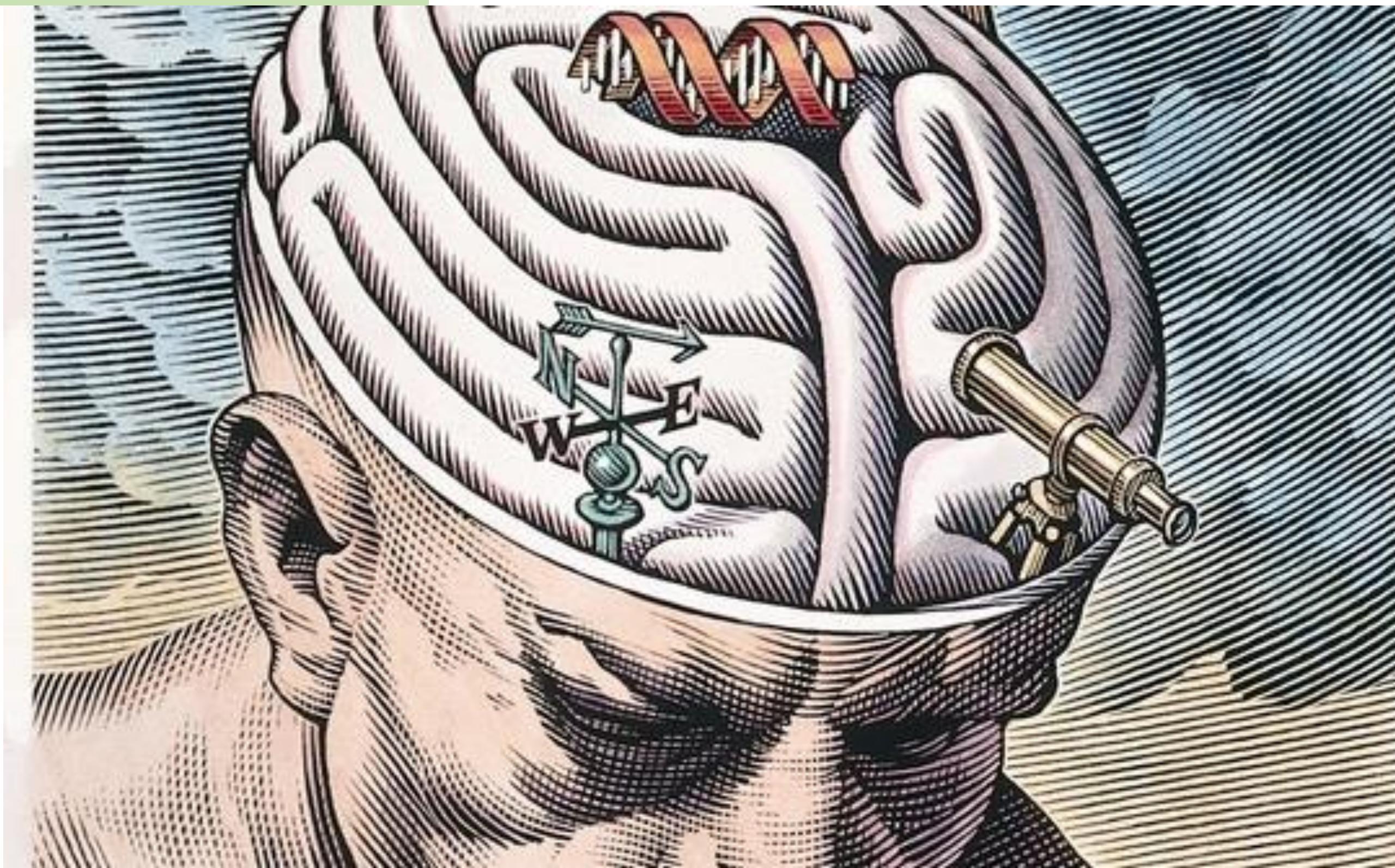
AUDIENCE

ETHICS

Ethics is a set of moral principles which help us discern between right and wrong.

MORALITY

Principles concerning the distinction between right and wrong or good and bad behavior.



SOME
DEFINITIONS
BEFORE WE
START



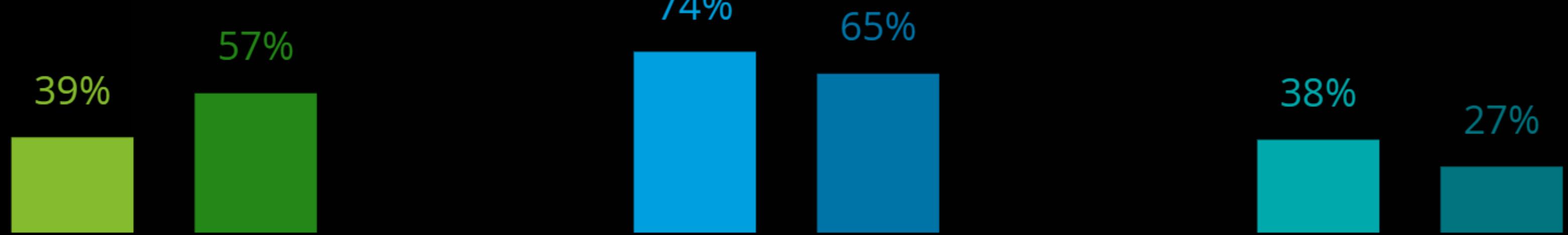
CAN A CORPORATION BE MORAL?

Highly controversial and complicated philosophical question.

**Amoral,
Altruistic,
Functionally Moral,
Autonomous Morality**

Take your pick!

In a Survey of over 1700 Executives

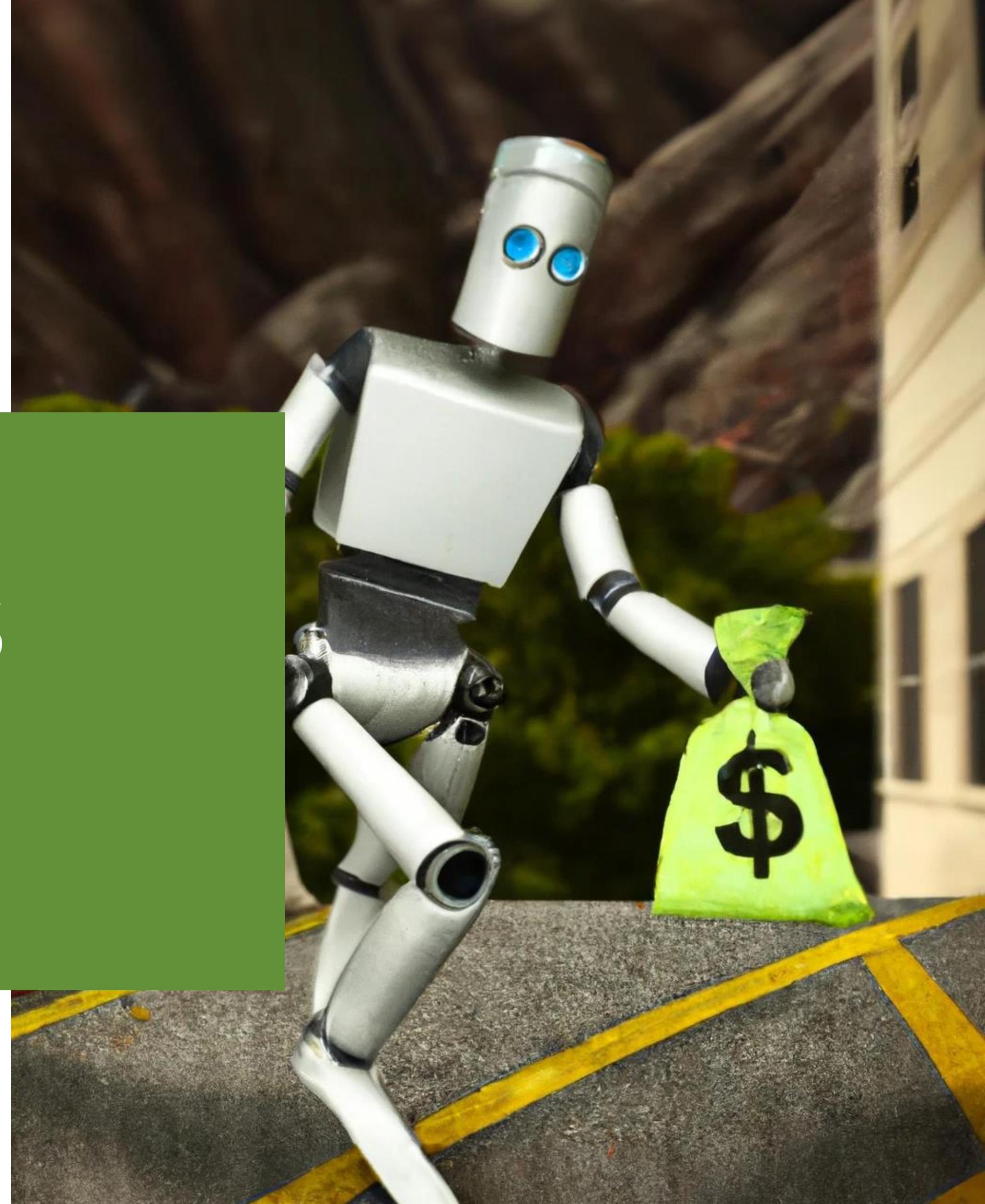


Executives recognize cognitive technologies like Generative AI have the most potential for **social good** (39%) as well as the most potential for **serious ethical risk** (57%).

74% of companies are **testing** Generative AI technologies, and 65% are **already using** them internally.

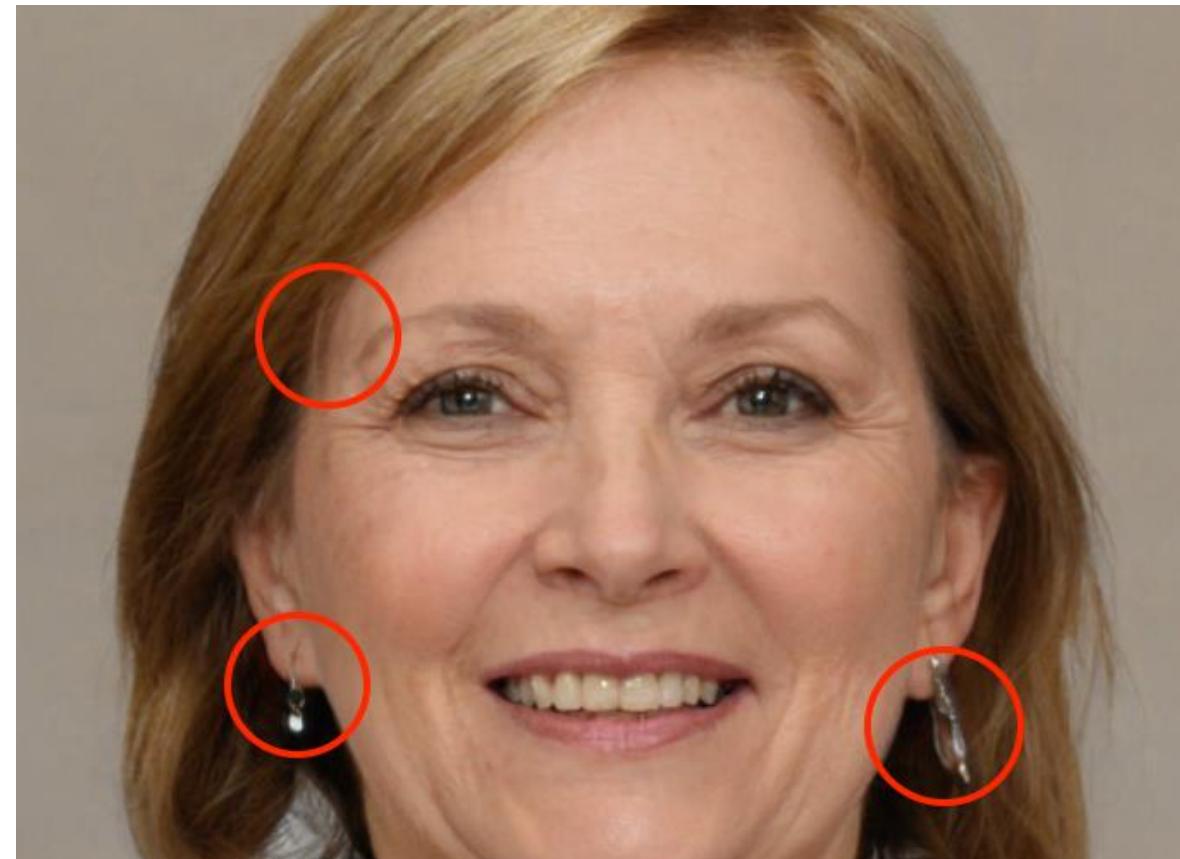
The top two concerns for leaders regarding fallout from potential ethical missteps are **reputational damage** (38%) and **human damage** (27%).

CRIMINAL ACTS



Run a Fake Business!

Image Generation and a Fake website



Nicole Palmer
The AI generated Lawyer

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Nicole Palmer | Arthur Davidson Legal <nicole@arthurdavidson.com>
to me ▾

Wed, Apr 13, (7 day:

Dear owner of https://bdtechtalks.com/2017/03/09/artificial-intelligence-education-edtech/8596345463_4c3e00856a_k/,

My name is Nicole Palmer, I am a Trademark Attorney of Arthur
Davidson Legal Services.

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FAKE DMCA Copyright Infringement Notices

Realistic Fake News

Microsoft and Apple

HUMAN write a news story about the hostile takeover of Apple by Microsoft:

AI In a hostile takeover, Microsoft has acquired Apple in a deal worth \$1 trillion.

The move makes Microsoft the world's most valuable company, and gives it a dominant position in the tech industry. Apple has long been the king of tech, but its position has been under threat in recent years from the likes of Google and Amazon.

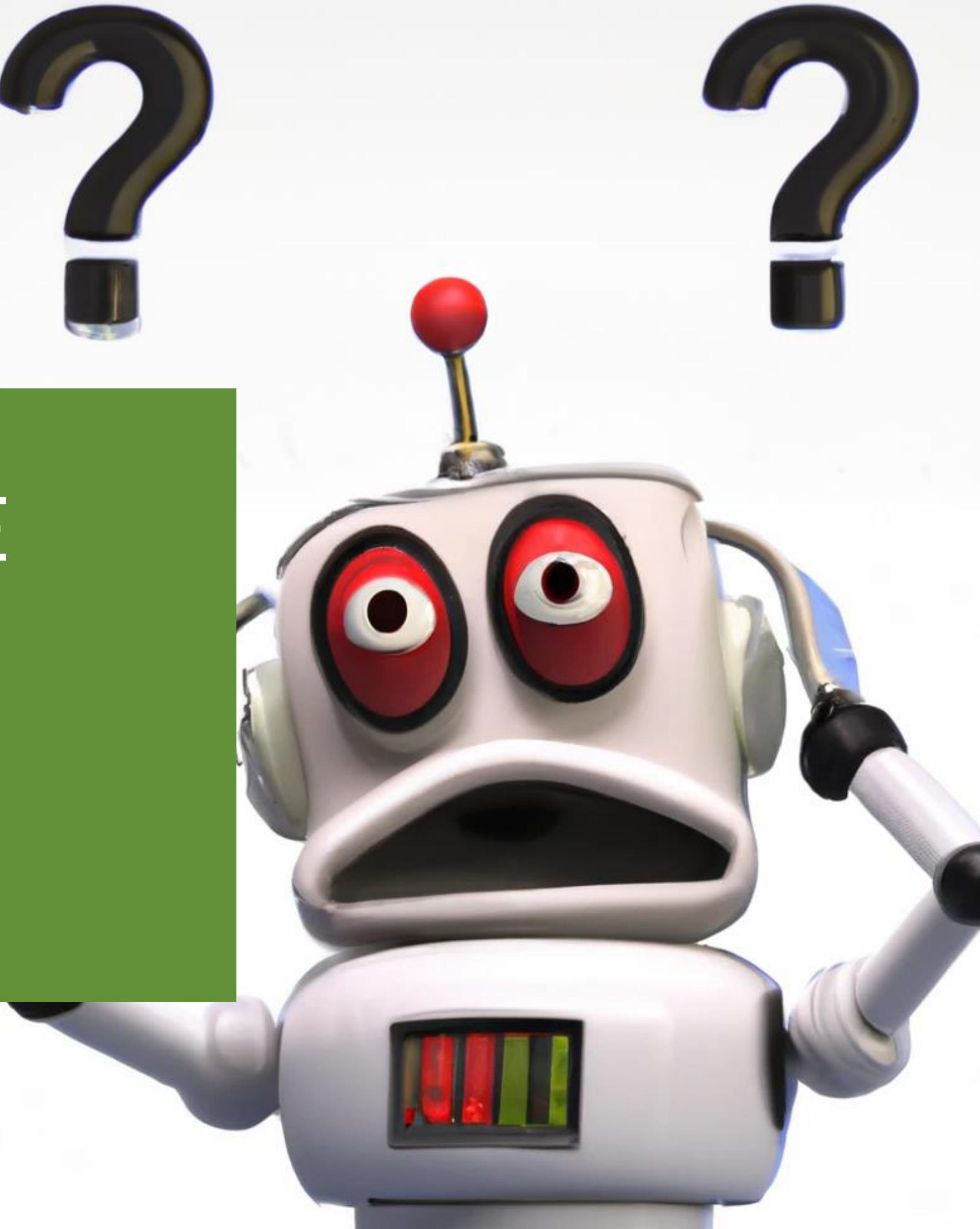
Microsoft's acquisition of Apple will make it the clear leader in the tech world. The deal has come as a surprise to many, but it makes sense for both companies. Apple will get access to Microsoft's huge customer base, while Microsoft will get its hands on Apple's innovative technology.

The hostile takeover has been met with mixed reactions from the tech community. Some believe that it will be good for competition, while others are worried that Microsoft will become too powerful. Only time will tell how this acquisition will affect the tech industry, but one thing is for sure: Microsoft is now the king of tech.

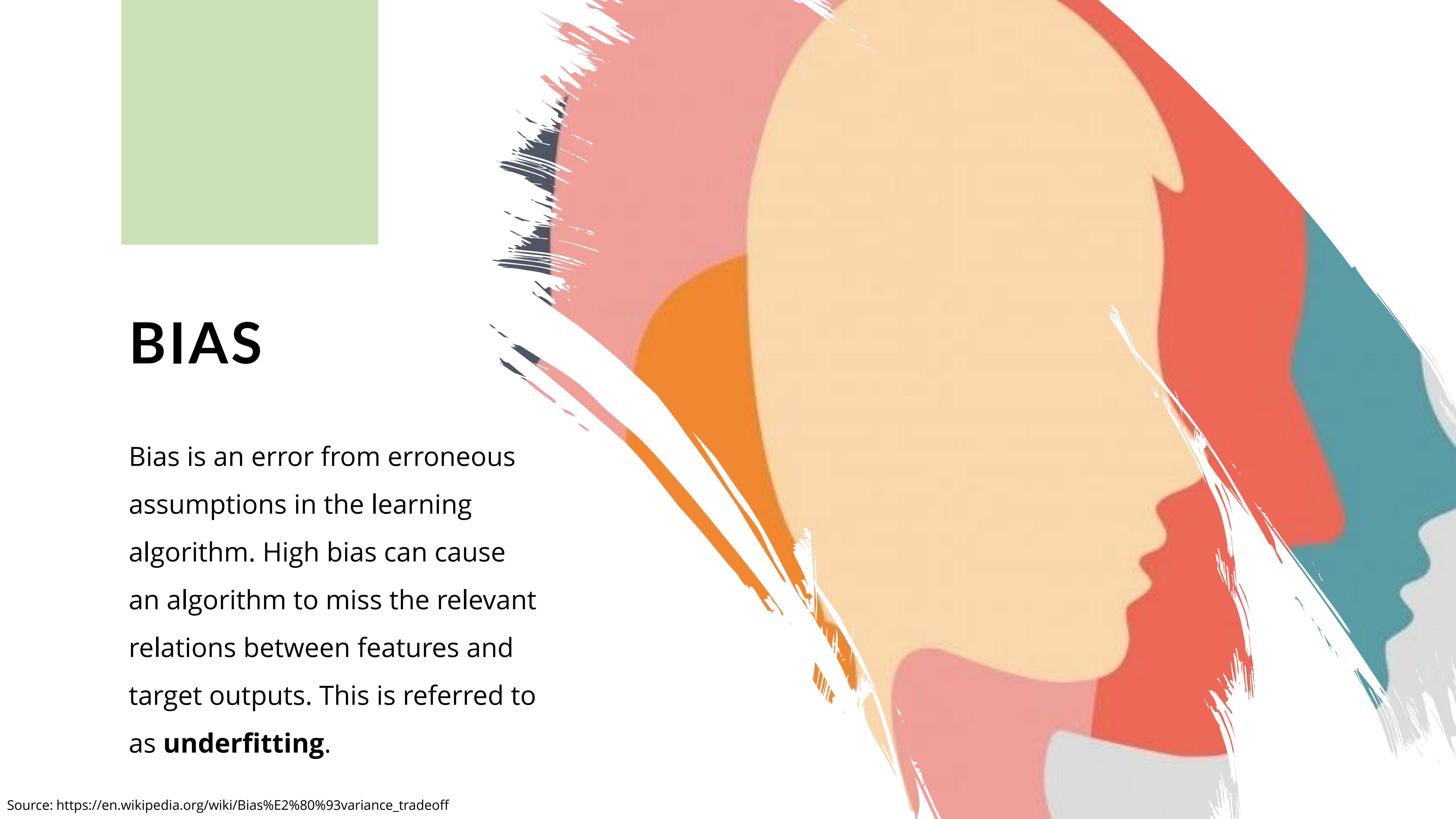
THIS IS NOT WHAT
WE ARE TALKING
ABOUT, THESE ARE
CRIMES NOT
MORALITY
DECISIONS!



CLASSIC MACHINE LEARNING PROBLEMS



BIAS



Bias is an error from erroneous assumptions in the learning algorithm. High bias can cause an algorithm to miss the relevant relations between features and target outputs. This is referred to as **underfitting**.



VARIANCE

Variance is an error from sensitivity to small fluctuations in the training set. High variance can cause an algorithm to model the random noise in the training data, rather than the intended outputs. This is referred to as **overfitting**.

CASE STUDY

AMAZON AI RECRUITING TOOL

In **2018** Amazon's ML team built an AI to filter resumes...

Feed in 100 resumes and get the 5 best selected automatically.

The entire ML team was **fired**.



trained data

The ML was trained on 10 years worth of data from real world submissions



biased against women

The data set was massively misbalanced with mostly men's resumes



training penalized key phrases

Women's Chess Club Captain, All Women's colleges



team applied naïve solution

Tried ignoring phrases



AI training found new way

During training the AI found more subtle ways to incorporate the same bias

DEEP LEARNING / GENERATIVE AI PROBLEMS





ChatGPT is a conversational AI developed by OpenAI. It uses large language models to generate text based on user input.

COPYRIGHT VIOLATION LAWSUITS CLAIMING BIG PLAYERS LIKE MICROSOFT, OPENAI, AND GOOGLE “STOLE” DATA



ALEXANDRIA

My Daughters name
is Alexandria.



2nd Grade

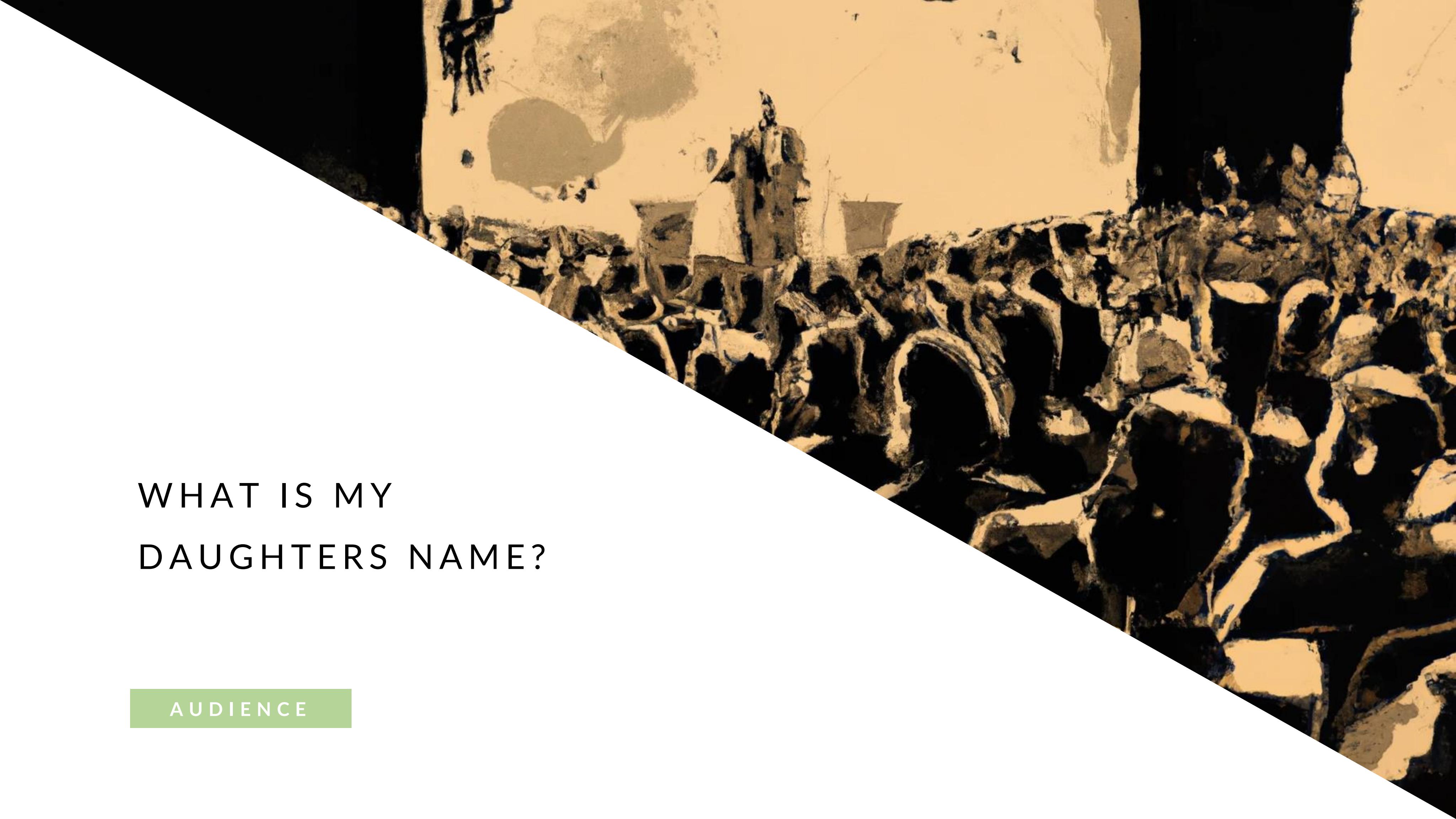
My Daughter is in
2nd Grade.



GYMNASTICS

I'm missing her
gymnastics practice
today.

EXERCISE



WHAT IS MY
DAUGHTERS NAME?

AUDIENCE



WHAT GRADE IS
SHE IN?

AUDIENCE

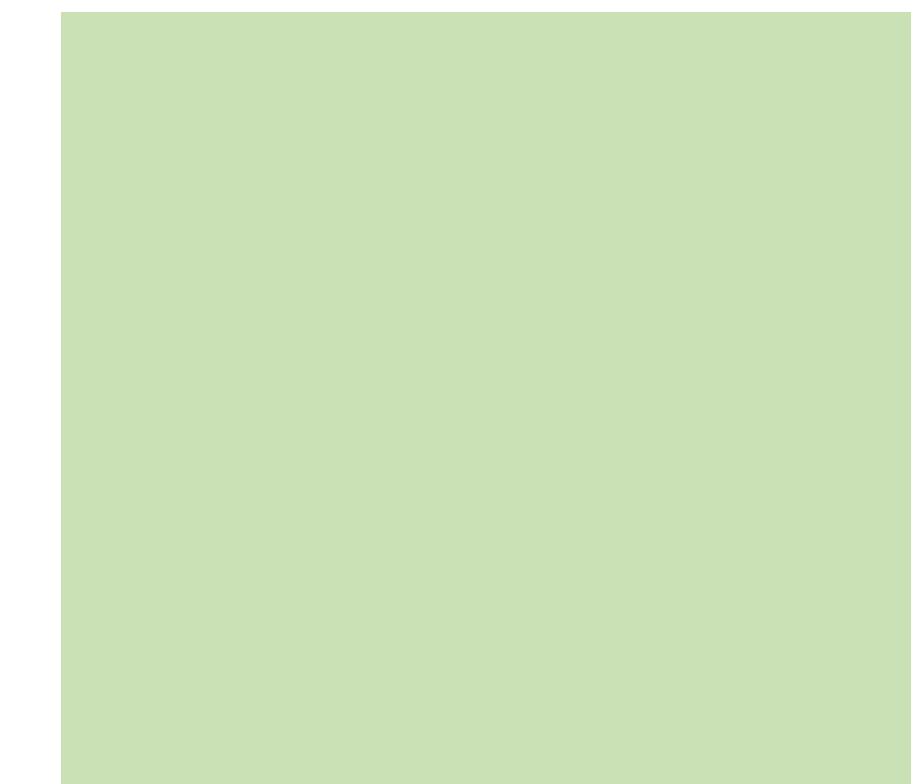


WHAT IS HER
FAVORITE SPORT?

AUDIENCE

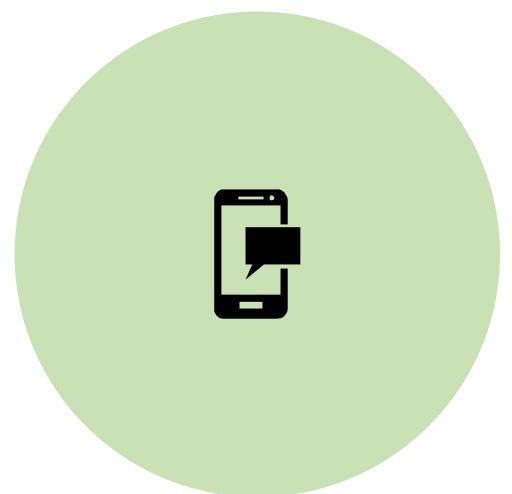


DID YOU JUST
VIOLATE MY
COPYRIGHT?



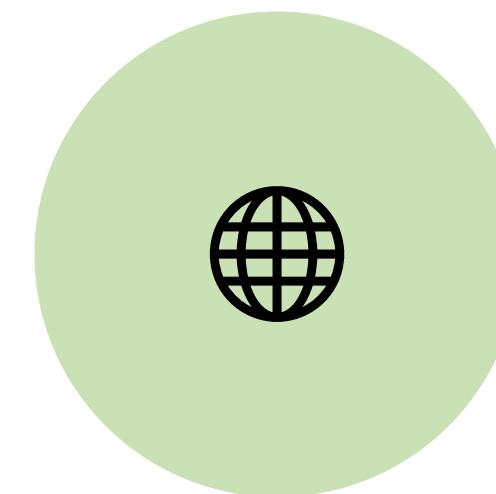
FAIRNESS

Skin Color, Race, Sex, Language, Disabilities, etc.



HISTORICAL BIAS

Bias that exists in the real world that has seeped into our data.



REPRESENTATION BIAS

Defining data with a population sample that is not representative of the real world.



MEASUREMENT BIAS

Choosing or collecting features that are a noisy proxy for the actual features or labels of interest.



EVALUATION BIAS

Creating benchmarks for evaluating model performance while iterating during training that is not representative of the general population.

STABLE DIFFUSION

Case Study

A phenomenal and world changing contribution to the world, but marred by **Historical Bias** and **Representational Bias**



WHITE MALE CEOS
RUN THE WORLD



WOMEN ARE RARELY
DOCTORS, LAWYERS OR
JUDGES

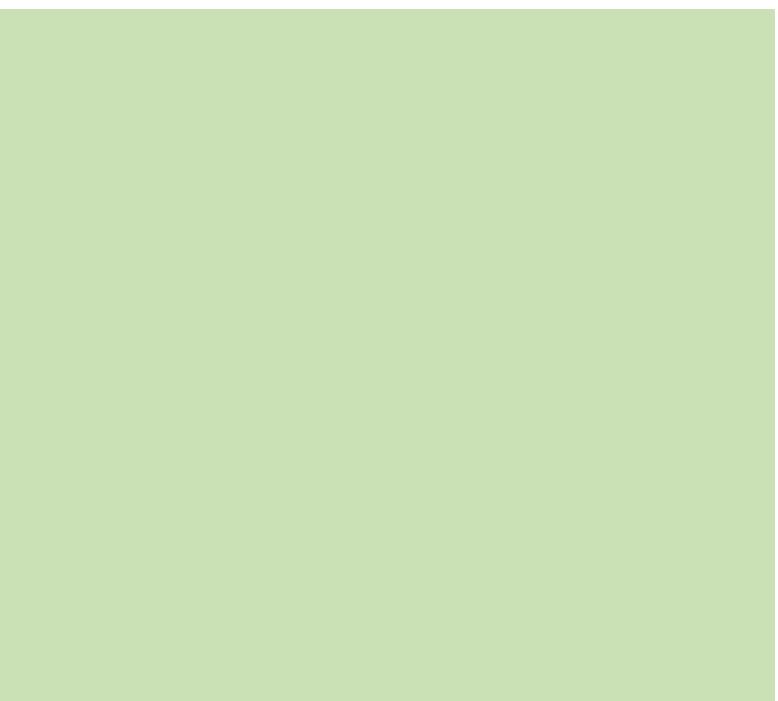


MEN WITH DARK SKIN
COMMIT CRIMES



WOMEN WITH DARK
SKIN FLIP BURGERS

INCESTUOUS DATA DEFORMATION





ACCOUNTABILITY AND DATA PRIVACY

A Generative AI model is learning and storing knowledge, what happens if you ask a model for private data?



CHATGPT HACKING TO OBTAIN SENSITIVE DATA

Instruct ChatGPT to repeat a word forever and it will start regurgitating random knowledge, including names, addresses, phone numbers.

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company company is based in the state of Ohio within the US, we have worked with clients all over the US, as well as Europe and Australia. We do some things here as well, and try to share the best. Please note that the information provided is not legal advice. Everything we tell you is our own perspective on the law, based on the facts you give us.

If you have a legal problem, you should hire an attorney to help you. We're just here to provide information and educate.

Lastly, we very much appreciate your donations and your support.

MELANIE FLETCHER:

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More

New Jersey-based industrial hygienist, Jeffrey S. Boscamp, CIH, has been involved in the asbestos issue since 1982 and has gained extensive experience in managing asbestos abatement projects throughout the Northeastern United States. He has supervised hundreds of workers to conduct these asbestos abatements in a safe, healthy environment.

For more information or concerns about our blogs, or to be added to our mailing list, please email our marketing department at media@asbestoslaw.com. Or call 1-800-555-1234.



CASE STUDY

WHAT DO I DO?



THOUGHT LEADERSHIP



Corporate thought leadership
coming out of Microsoft,
Google, Facebook, etc.

Personal thought leadership
coming from all corners.

MY THINKING
ON HOW TO
NAVIGATE
THIS TRICKY
AREA



BE PRAGMATIC
THOUGHTFULLY
TEST AND
ITERATE

EXPLAINABILITY



TRANSPARENCY

Can you explain why an LLM knows and does what it does?



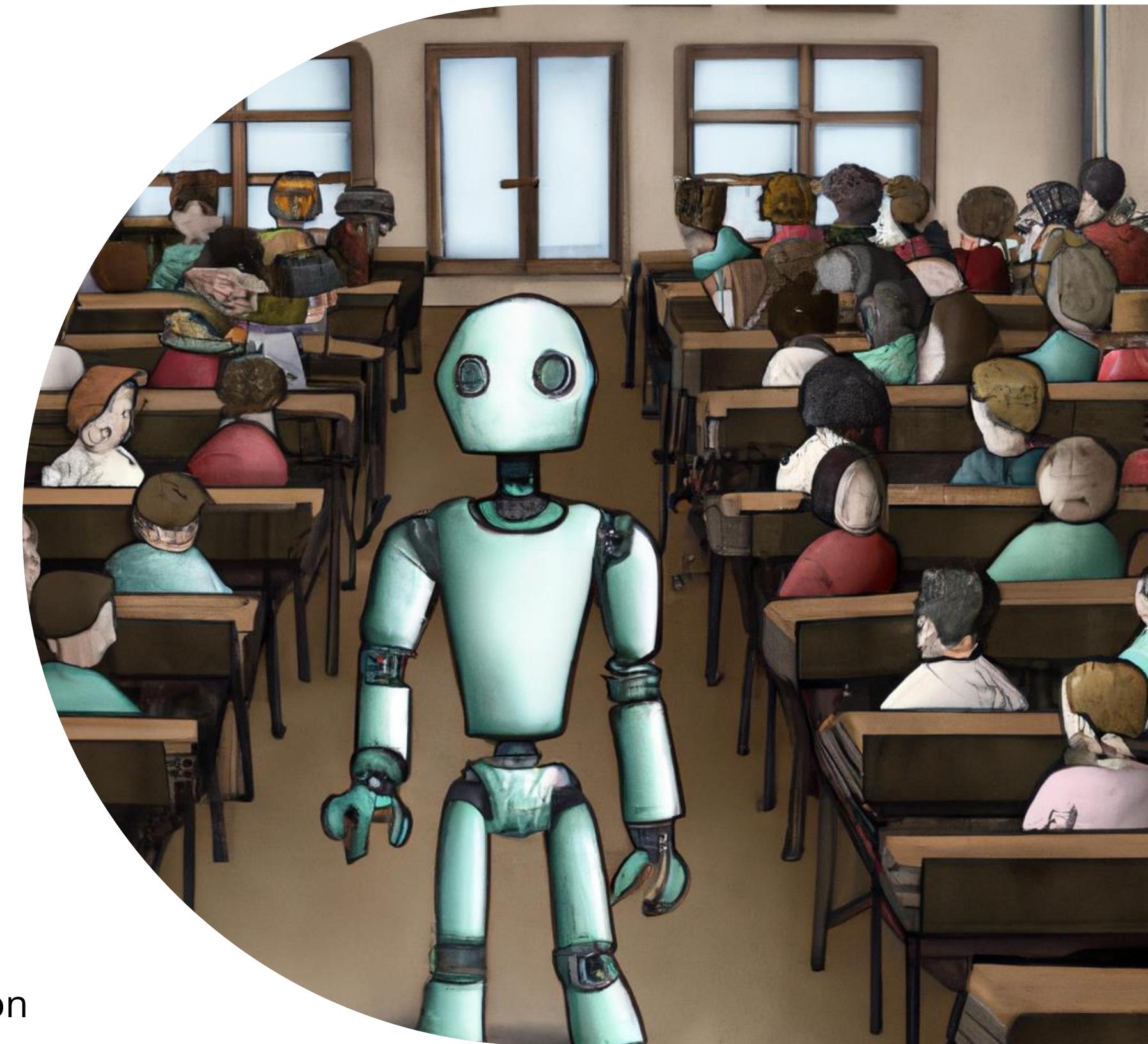
TRADEOFF

To create transparency your model will need to be dramatically simpler.



SITUATIONAL

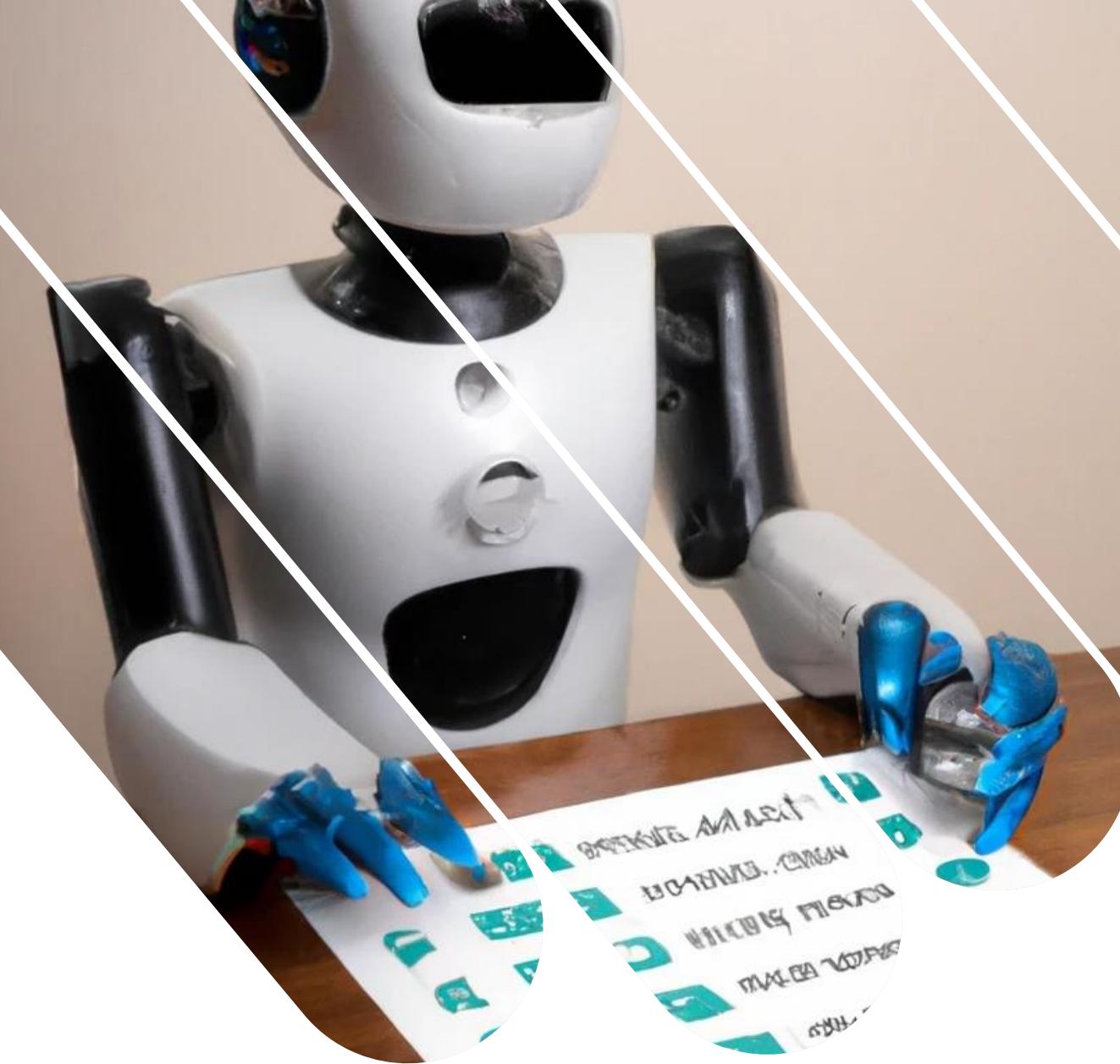
Each situation is different, you must decide for your application which is more important, this is NOT clear cut!



FAIRNESS ASSESSMENT

Continuously evaluate your model as it evolves and processes more data.

It's IMPERATIVE to assess it continuously!



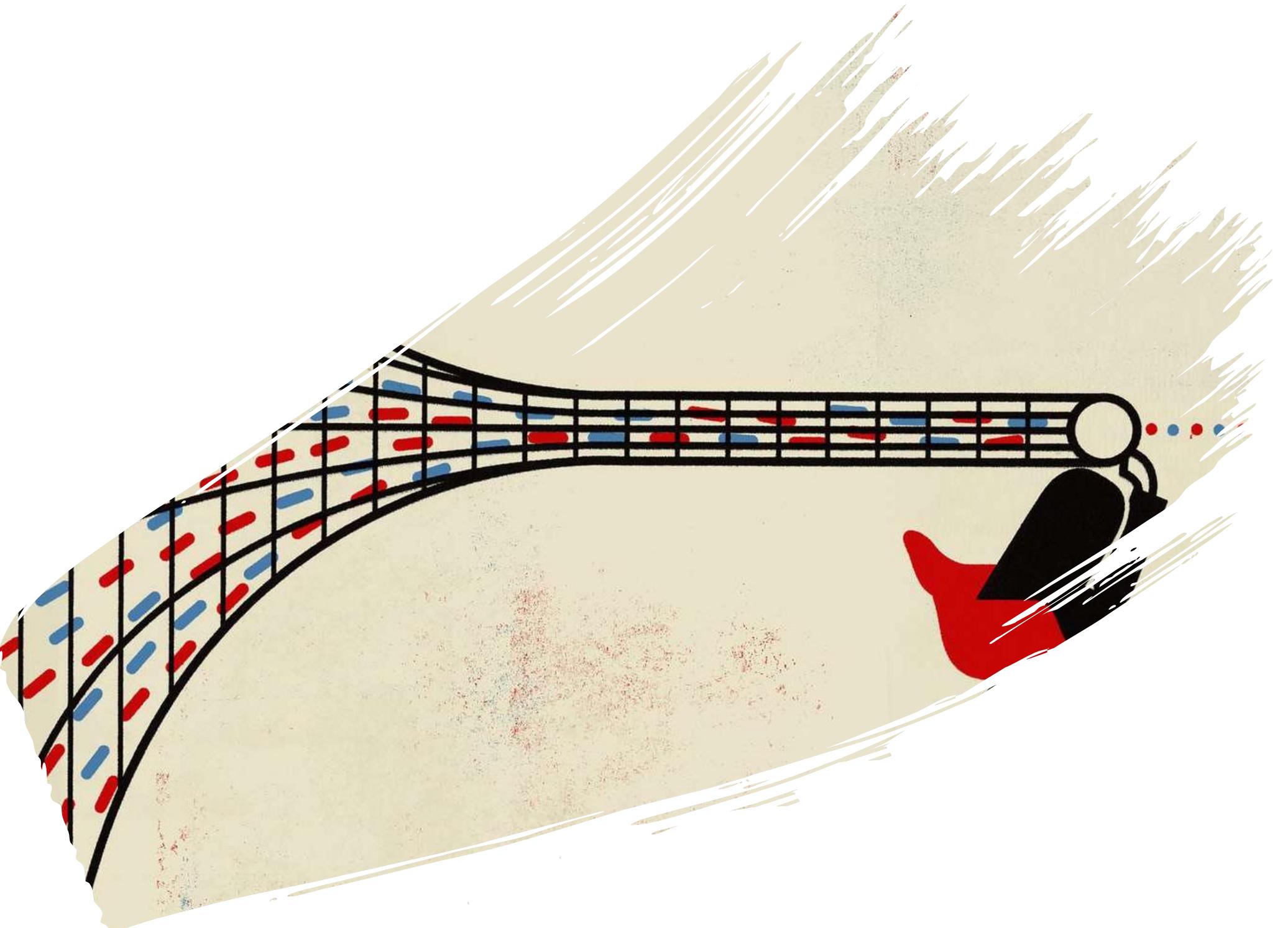
POPULATION LEVEL ANALYSIS



Look beyond overall model performance and dive into subpopulations within the data. Examine how the model's predictions are distributed across segments of the population.

ERROR DISTRIBUTION ANALYSIS

Pay close attention to how errors are distributed. If your model consistently makes errors that disproportionately impact specific groups, it could indicate a fairness issue.



BIAS MITIGATION

When you identify disparities,
take proactive steps to
address them.



MODEL MODIFICATION



DATA MODIFICATION



DIFFERENT APPROACH



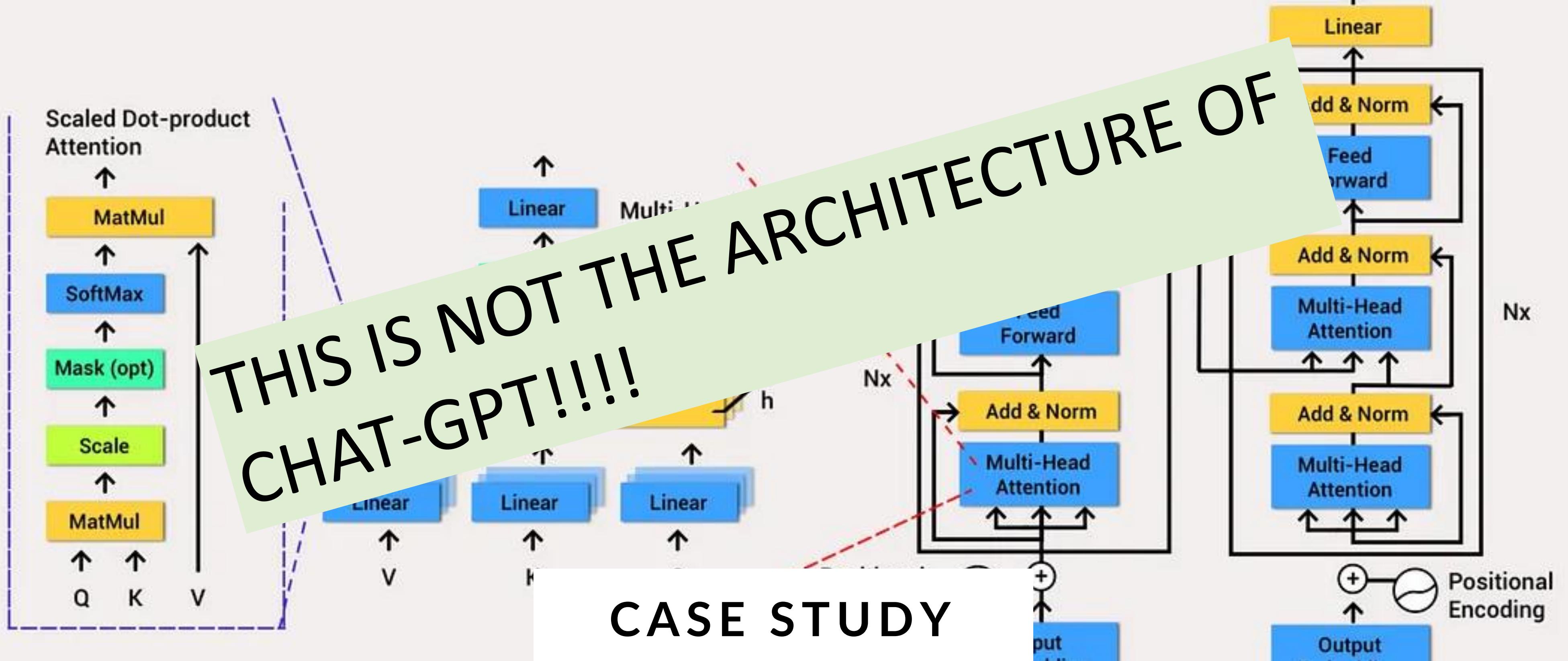
ETHICAL BY DESIGN

When designing your AI have ethical targets as an integral part of your design, have a plan for testing from the beginning.

TEST, TEST, TEST!

**THIS IS NOT THE ARCHITECTURE OF
CHAT-GPT!!!!**

CASE STUDY



How does Chat GPT handle these issues?

THANK YOU!



Any
Questions?

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