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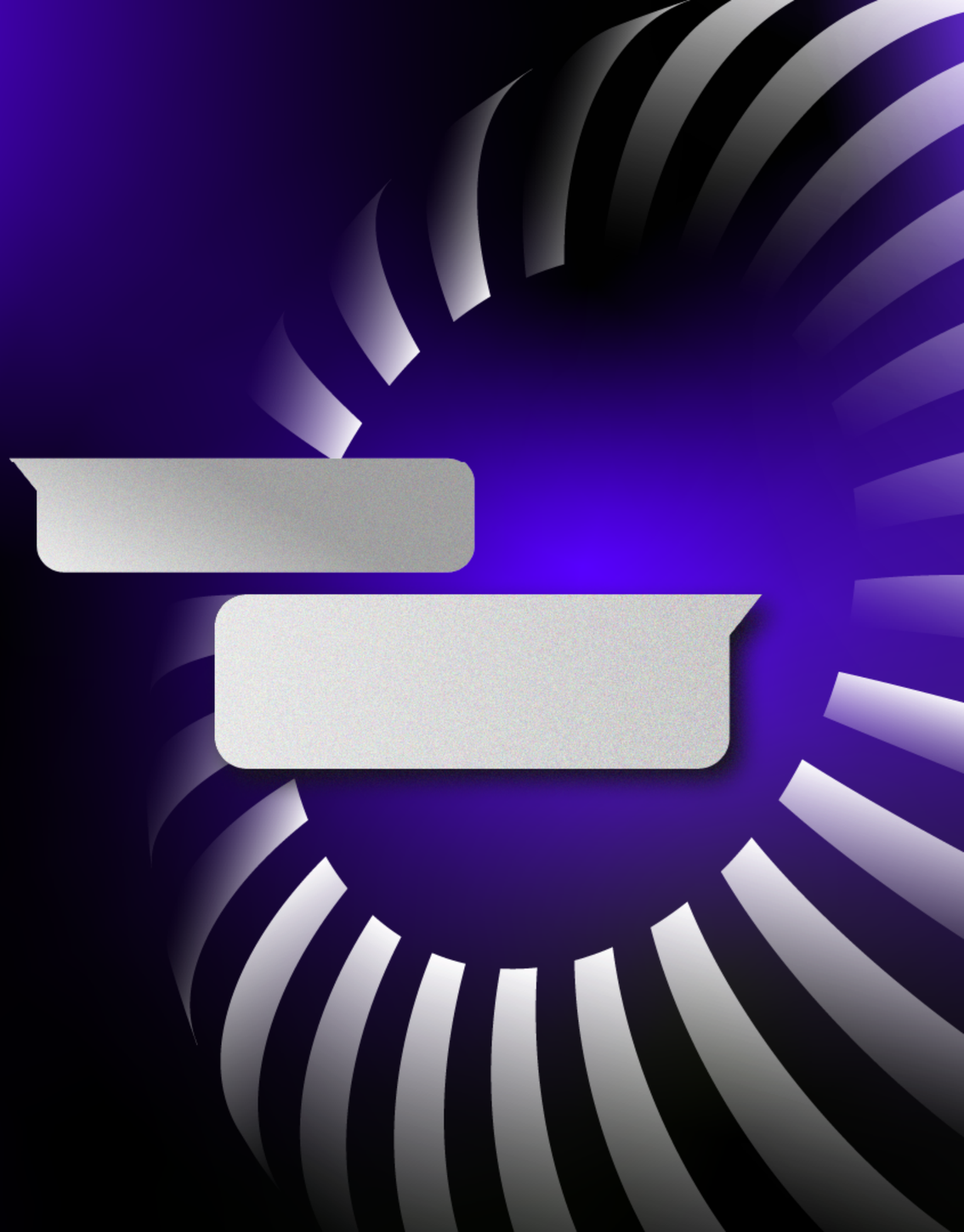
ChatGPT, AI & The Future of Business

WHITE PAPER | MJV 2023



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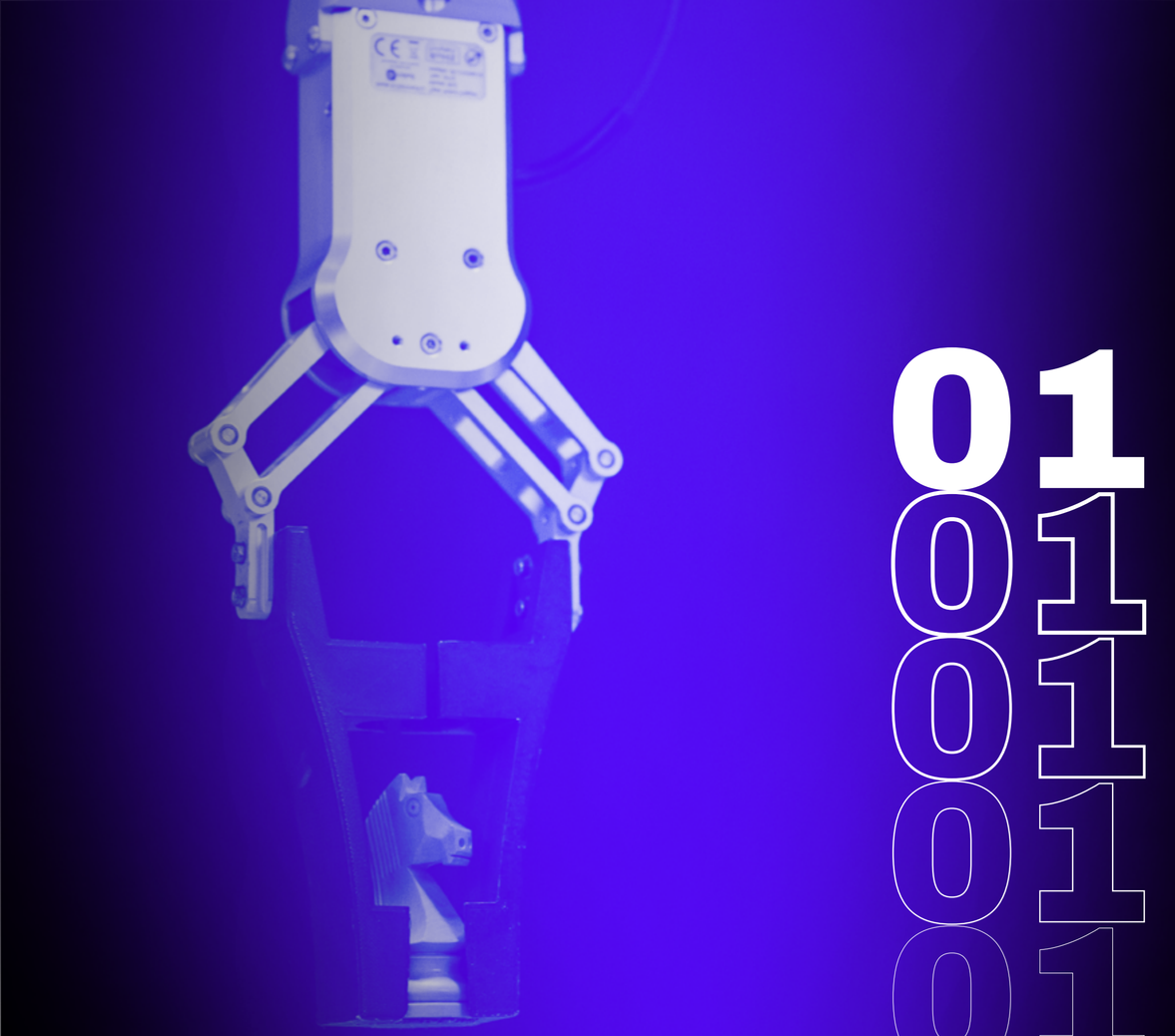

01

How ChatGPT Has Changed the Game

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01

How ChatGPT Has Changed the Game

Unless you've been hiding under a rock for the past few months, you've undoubtedly heard about ChatGPT and other generative AI models that are sweeping industries and the internet by storm.

A **Generative Pretrained Transformer**, or GPT, **is a type of large language model** (LLM) **that uses deep learning to generate "human-sounding" text.** These programs can also scour the internet for information in order to answer user questions.

We call it:

— Generative
because they can generate new text depending on the input they receive.

— Pretrained
because they are trained by using a massive body of text data. Where this data comes from and how they're trained is controversial and not entirely clear yet.

— Transformer
because all this is run on a **transformer-based neural network architecture** that processes input text to generate answers.

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The nitty-gritty of how these AIs work goes way over most people's heads, but that hasn't stopped companies from investing in them. **Stability AI** (text-to-image) **and Jasper** (LLM), **for example**, have recently raised $101 million and $125 million in funding, respectively.

So companies are placing substantial bets on generative AI, but what are they really good for, besides assisting crafty students with their English homework?

The use cases that are currently being discussed include everything from new search engine architecture and helping build apps from scratch; to describing complex algorithms and scientific concepts.

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But the applications of these generative AIs are far-reaching. They're being used to create advertisements, video content, and much more.

The real reason that AI is on everyone's minds and lips is because of the frightening rate at which it's improving. So much so that tech leaders and AI experts warn that the technology could "pose profound risks to society and humanity."

In a recent development, **more than 2,600 (and counting) people have signed an open letter calling for a six-month pause on the training of AI systems more powerful than OpenAI's GPT-4.** They hope that within these six months, legislators and programmers alike will be able to agree on a set of protocols in order to ensure that future AI development is "safe beyond a reasonable doubt."

> "These protocols should ensure that systems adhering to them are safe beyond a reasonable doubt. This does not mean a pause on AI development in general, merely a stepping back from the dangerous race to ever-larger unpredictable black-box models with emergent capabilities."
>
> **A quote ripped directly from the letter in question.**

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The letter was brought to the public by the Future of Life Institute, a non-profit organization working to reduce global existential risks to humans, particularly with regard to the advance of technology, more specifically Artificial Intelligence. One of the founders of the organization is the Estonian billionaire and investor Jaan Tallinn, who also founded Skype.

Some of the business leaders and tech researchers who signed:

Elon Musk
CEO of Tesla, SpaceX, Owner of Twitter, and former PayPal

Steve Wozniak
Co-founder of Apple

Emad Mostaque
Stability AI's director

Yuval Noah Harari
PhD from the University of Oxford, Professor at Hebrew University of Jerusalem, and best-seller author of Sapiens and Homo Deus

Stuart Russel
AI expert, PhD from Stanford and Professor at UC Berkeley

Yoshua Bengio
AI expert, PhD from McGill University and Professor of University of Montreal

Jaan Tallinn
Co-founder of Skype & co-founder of the Future of Life Institute

Evan Sharp
Co-founder and Chief Creative Officer of Pinterest

You can read the full document here.

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So whether or not we completely understand how ChatGPT and similar generative AIs work, or even the possible risks behind the steady race to the top that many AI developers are currently engaged in, we can't deny the signs that this new technology is not only here to stay;

it's going to seriously change the game.

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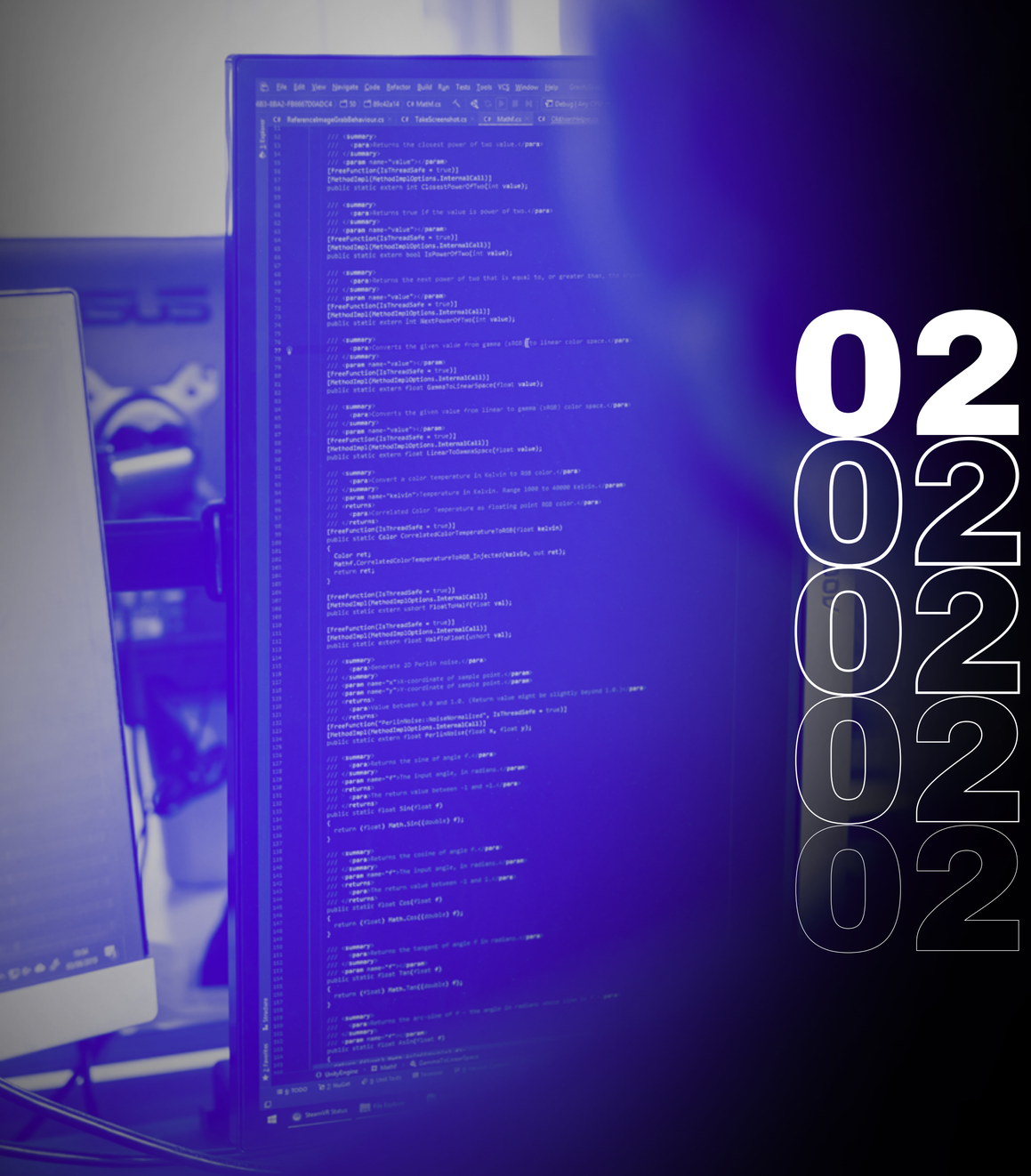

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The Current State of AI

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The Current State of AI

The AI we have available on the market today is surprisingly accurate and can produce incredibly detailed responses. That includes text, images, and code. But in reality, this is only the beginning.

The reason it's so difficult to encapsulate the current state of AI today is the fact that the technology continues to evolve at an exponential rate. What might be true about the current state of AI as of the publication date of this white paper will be completely outdated in a few months' time.

In order for you to truly grasp the incredible strides being made with generative AI, you'll have to ask the experts in the field. Luckily the experts have already weighed in on this topic.

Bill Gates has recently written an article titled "The Age of AI has Begun." In it, he details his impressions of what is to come for generative AI and his impressions of current generative technologies.

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> The development of AI is as fundamental as the creation of the microprocessor, the personal computer, the Internet, and the mobile phone. It will change the way people work, learn, travel, get health care, and communicate with each other. Entire industries will reorient around it. Businesses will distinguish themselves by how well they use it.

— Bill Gates

Forrester estimates that almost 100% of organizations will be using AI by 2025, and the artificial intelligence software market will reach $37 billion by the same year. This prediction might seem insane, but ever since the internet changed the game, companies have had their eyes peeled for the next big thing, and AI is it.

100% of organizations will be using Artificial Intelligence by 2025.

— Forrester

The AI software market is expected to reach US$ 37 billion.

— Forrester

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Companies have already started to incorporate artificial intelligence into their daily activities. In retail, Nordstrom and Panera have already begun to leverage AI and automation to enhance their operations.

Meta Platforms Inc. also focused more on artificial intelligence in an earnings call in March 2023. It seems that all the big players like Amazon, Apple, Meta, Microsoft, and Alibaba are all seriously investing in artificial intelligence.

We could say that the current state of AI is the same as the final moments before a space launch. Years of work, technological advancements, and funding have accumulated to the point where the industry is almost ready for liftoff. Soon it will bring us closer to places we have only dreamed of.

For you to get an idea of just how quickly things are moving along, here is a timeline with all the latest generative AI developments in just the last few months.

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The AI Timeline

Since the launch of the free version of ChatGPT-3 until the closing of this paper, here are the latest discussions to follow on AI.

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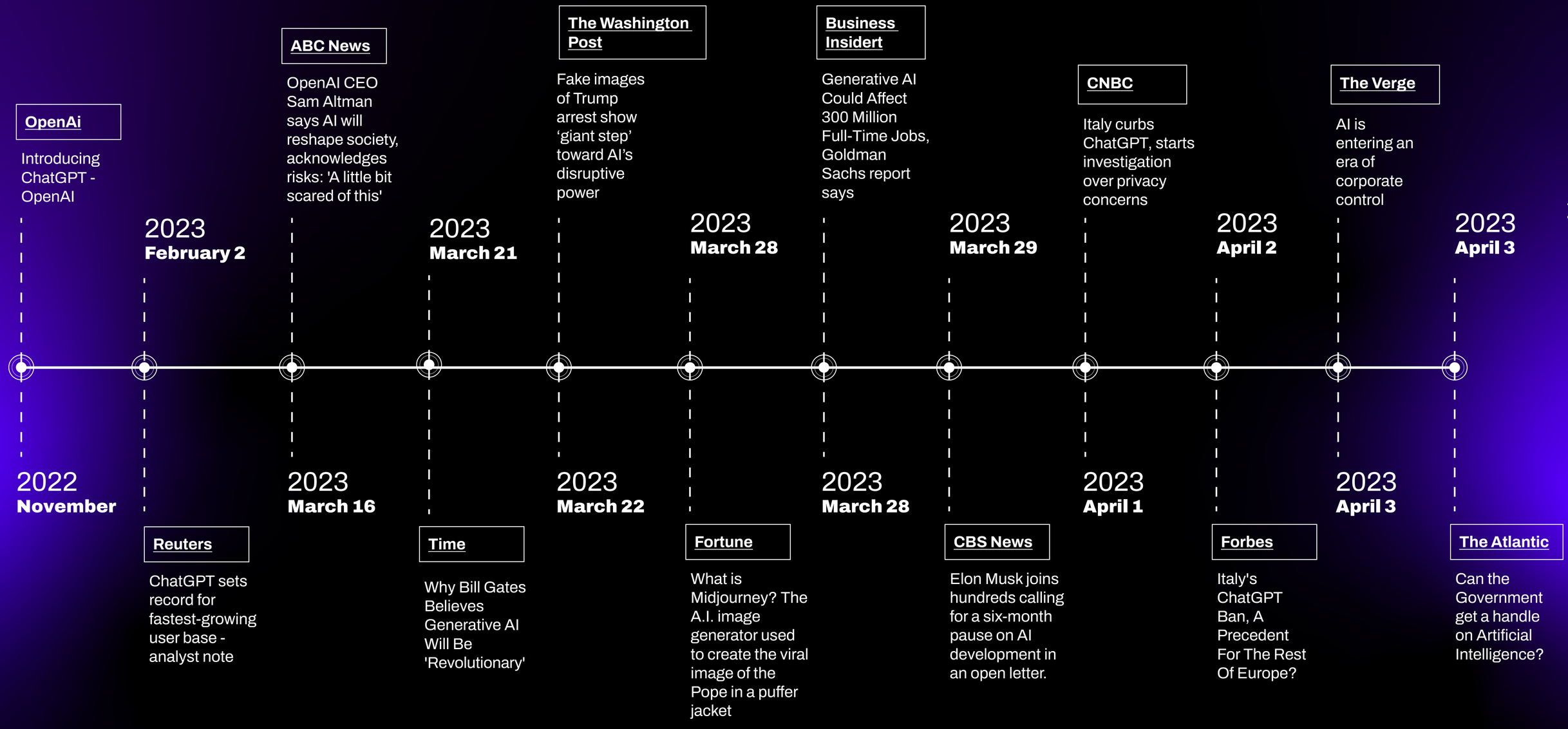

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What can Generative AI do?

When we think of AI, many of us turn to works of fiction that present AI as a stand-in for human intelligence. **It might look like the machine is actually thinking, but in reality, it's only predicting what words should naturally come next.**

The AI we see in sci-fi is what we call "general AI," which is completely different from generative AI and is metaphorical lightyears away from our current technology.

Generative AI like **ChatGPT can produce what some might call A- grade text** (if you were to give it an essay prompt, for example). Programs like DALL-E can produce incredible images, but still struggle to draw things like hands and feet.

In the end, the output is only as good as the input, but most of these programs can edit a response if given the proper direction on how to improve it. The thing is that **these programs are very skilled at making their responses "look good" even if they really aren't.**

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StackOverflow, a popular program troubleshooting website, has actually banned the use of ChatGPT for answering queries for just that reason. StackOverflow moderator Richard Erickson put it best when he said:

> **“The primary problem is that while the answers that ChatGPT produces have a high rate of being incorrect, they typically look like they might be good — and it’s very easy to produce.”**

The real kicker here is that these programs are getting better by the day. As more and more users take advantage of the platforms and provide adjustments to responses, generative AIs are learning how to provide the right answer on the first try.

While these programs might be limited as of the conclusion of this white paper, **if you’re reading this six months from now** (especially if OpenAI doesn’t intend to sign that open letter), **these limitations could be a thing of the past.**

The truth is that, in time, these programs will become so refined that you won’t be able to tell the difference between an AI-generated text or image, and something made by a bestselling author or master painter.

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The Impact of Generative AI on Business

So far, the use cases of generative AI in business have been pretty minimal. The biggest issue that companies are being wary of is the fact that legislation surrounding AI is still in the works. **As it stands, AI-generated content cannot be copyrighted under current US copyright law.**

What's even worse is that some propose that companies shouldn't even be allowed to monetize content made by generative AIs at all. This would make using them for certain business applications very risky. Even with all of that in mind, many suggest that, in the future, AI will play as central a role in business as the internet.

This doesn't mean that future generative AIs are going to replace workers, but rather that workers who work in tandem with AI will replace those who don't.

All of this is, of course, speculation. We have still yet to see how good generative AIs can get as well as how strict the laws surrounding them will be. But at the very least, companies are certainly investing in them, and it can't hurt to ride the wave and see where it leads.

Let's take a look at some of the generative AI that these companies are investing in.

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The Biggest Players and Their Solutions

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The Biggest Players and Their Solutions

So you know how generative AIs work (or at the very least how to use them) and what they can do, but where can you find them, and which one should you use for your specific problem?

Let’s go through a list of the biggest players in the generative AI market today and what their capabilities are:

OpenAI

Main functionalities

— **ChatGPT**

Natural language processing and generation, translation, image and video captioning, speech recognition, and generation.

— **Dall-E**

Image generation and manipulation, style transfer, image captioning, object detection, and visual reasoning.

The company was founded in 2015 by a group of individuals, including Elon Musk, Sam Altman, and Greg Brockman. OpenAI has since become one of the leading AI research institutions in the world. In terms of investment perspectives, **OpenAI has received funding from a range of investors, including tech giants like Microsoft and Amazon, as well as venture capital firms like Khosla Ventures and Founders Fund.**

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Google

Main functionalities

— Bard

Natural language processing and generation, translation, image and video captioning, speech recognition and generation.

Google's Bard is a generative AI language model, similar to ChatGPT. While it is still a relatively new technology, Bard has shown promise in a range of applications, from text completion to dialogue generation. **As a product of Google's research in the field of natural language processing, Bard is likely to play an important role in Google's future product offerings, which could attract further investment.**

Midjourney

Main functionalities

Customer segmentation, predictive analytics, marketing campaign optimization, product recommendation, sales performance analysis, and real-time customer insights.

Midjourney is a startup that uses AI to help businesses optimize their sales and marketing efforts. Their platform uses machine learning algorithms to analyze customer behavior and preferences, allowing businesses to tailor their marketing campaigns and product offerings to better meet customer needs.

The startup has already received investment from a number of venture capital firms, and its technology has been adopted by a range of businesses across different sectors. As the market for AI-powered marketing solutions continues to grow, Midjourney is well-positioned to capitalize on this trend and attract further investment.

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Cohere

Main functionalities

Language models, text classification, named-entity recognition, question answering, language translation, text summarization, chatbots, and speech recognition.

Cohere is an AI platform that enables companies to build and deploy natural language processing (NLP) models at scale. Cohere's investment perspective is focused on supporting innovative AI startups that are using NLP and related technologies to solve complex problems in various industries. They are particularly interested in startups that are building solutions in the areas of healthcare, education, and finance, among others.

NVIDIA

Functionalities

Deep learning training, high-performance computing, data center infrastructure, multi-node scaling, pre-trained models, computer vision, natural language processing, and autonomous machines.

NVIDIA is a technology company that specializes in graphics processing units (GPUs) and is a leader in the field of artificial intelligence (AI). Their AI platform, NVIDIA DGX, is designed to accelerate the development and deployment of AI models. The platform includes hardware and software components that can be used to train and deploy large-scale AI models.

NVIDIA's investment perspective is focused on supporting startups that are developing innovative AI solutions across various industries, including healthcare, finance, and autonomous vehicles. They also have a strong focus on promoting AI research and education through initiatives such as their Deep Learning Institute.

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DeepMind

Functionalities

Deep learning training, high-performance computing, data center infrastructure, multi-node scaling, pre-trained models, computer vision, natural language processing, and autonomous machines.

DeepMind is an AI research company that focuses on developing general-purpose learning algorithms that can be applied to a wide range of problems. Their AI platform is designed to support research in various fields, including healthcare, science, and engineering. The platform includes tools for building and training AI models, as well as tools for testing and evaluating their performance.

DeepMind's investment perspective is focused on supporting research and development in AI, particularly in areas such as reinforcement learning, unsupervised learning, and multi-agent systems. They are also committed to promoting the ethical use of AI and ensuring that AI benefits society as a whole.

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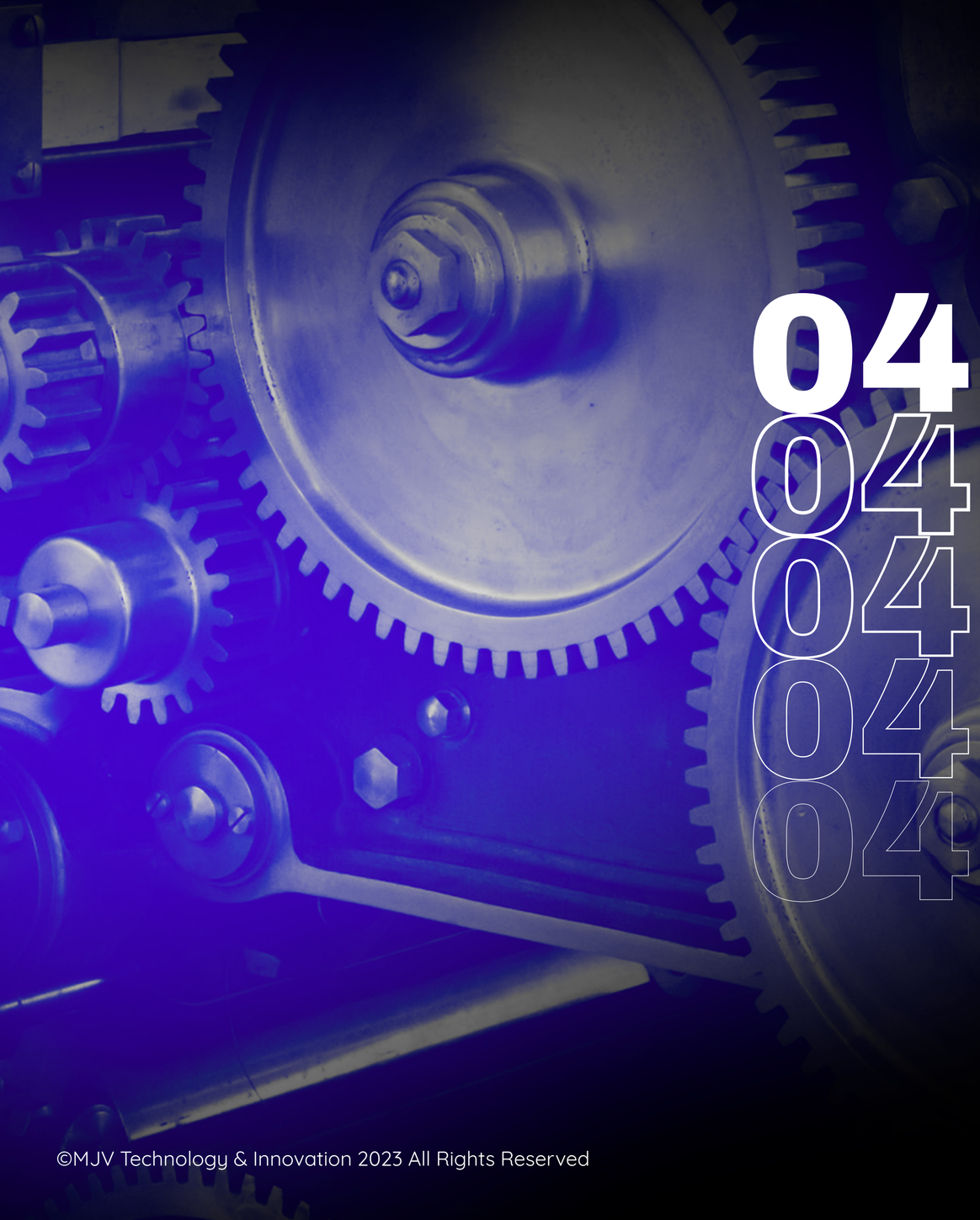

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How Industries Are Expected to Change

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How Industries Are Expected to Change

As we've stated before, the AI industry is here to stay. The question isn't if generative AI is going to change the way industries operate. It's when.

What you should be asking yourself is:

How is generative AI going to change my industry?

Alongside all of these changes, there will undoubtedly be legislation regarding the ethical and legal use of generative AI in each and every industry it operates in, but we'll touch on that later. For now, here's a quick list of just a few industries and how we expect them to change.

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— Retail

Personalized Product Recommendations

AI can analyze customer data and preferences to generate personalized product recommendations, increasing customer satisfaction and driving sales by providing customers with more relevant products.

Improved Product Design

Designers can use AI to create new products by generating and testing different design variations, reducing the time and cost of product development while ensuring that the final product meets customer needs.

Inventory Optimization

AI can also help retailers optimize their inventory by predicting demand and suggesting the optimal mix of products, reducing waste and improving profitability.

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— Financial Services & Insurance

Fraud Detection

AI can help financial institutions and insurance companies detect fraudulent claims by analyzing large volumes of transaction data to identify suspicious patterns. This prevents financial losses and improves security for customers.

Risk Assessment

It can also assist in risk assessment by analyzing large volumes of data to identify potential risks and develop risk profiles. This technology can help financial institutions and insurance companies make more informed decisions and improve profitability.

Investment Analysis

AI can assist financial analysts in analyzing investment opportunities by generating and testing different investment strategies. This technology can help analysts make more informed investment decisions and increase profitability.

Trading

Financial traders can use AI to analyze market data and generate trade recommendations, allowing traders to close more profitable deals and increase revenue.

Claims Processing

AI can also assist in processing claims by analyzing claims data to generate automated responses to common claims. This technology can help improve response times and reduce claims processing costs.

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— Art

New Art Forms

Create entirely new forms of art that were not possible before. For example, artists can use generative AI to create unique and complex patterns, shapes, and designs that would be difficult or impossible to create by hand.

Collaboration

Generative AI can be used as a tool for collaboration between artists and AI systems. Artists can work with generative AI systems to create new works of art, exploring new possibilities and pushing creative boundaries.

Preservation

Generative AI can also assist in preserving and restoring art. Generative AI can, for example, can be used by curators to generate missing parts within the artwork or create digital replicas of lost pieces.

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The Risks Involved With Generative AI

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The Risks Involved With Generative AI

At the end of the day, every new technology comes with risk attached to it. While generative AI can be a real asset to people and companies, it can also cause serious harm, both directly if used maliciously, and indirectly even when used as intended.

This is precisely the reason why companies and tech leaders are asking for a six-month pause on training more powerful AI systems.

Let’s quickly go over a few reasons why people are so tenuous when it comes to generative AI.

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— Bias

This is one of the most important ethical questions surrounding AI in general. Human society isn't perfect, and that means that the data we produce is often a reflection of us. Turns out, if you just plug a machine directly into the internet, it can oftentimes produce outputs that mimic the bias in the data it was trained on.

This means that even generative AI like ChatGPT when asked to provide a list of philosophers, for example, will favor Western, caucasian, male philosophers over others. This has been seen in other forms of AI and even common algorithms.

Facial recognition having a difficult time recognizing darker-skinned individuals, story generators favoring male protagonists over female ones, and even interactive Twitter bots becoming racist xenophobes overnight are all real-life examples that developers need to keep in mind when training AI.

A good way to go about keeping this in check is making sure that the teams that work on AI models are diverse enough to make sure subconscious biases don't make their way into our technology.

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— Copyright

One of the biggest reasons why people are so worried about generative AI comes down to how they're trained. In order to properly train these programs, developers need to provide them with an insane amount of data. Very few companies own enough proprietary data to train these AIs on their own, so a lot of it comes straight from the internet.

This has been especially worrisome for the art industry, where generative AI like DALL-E has caused a huge commotion surrounding copyright infringement. Some AI models are even able to be trained on work from a specific artist to generate new art that mimics their personal style.

For you to get an idea of the scope of this problem, **there are currently several pending class action lawsuits pertaining to the use of copyrighted images in generative AI training.**

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— Data Privacy

Another big risk to take into consideration when dealing with AI is data privacy. Italy recently banned the use of ChatGPT over allegations that the platform leaked private information to users.

While OpenAI stated that private information was not used to train their generative AI, the massive amounts of data used to do so are not publicly available. Investigations into these allegations are still pending, but it is yet another example of how dangerous these platforms can be.

Regulation is certainly underway, but the real issue is just how quickly these AI platforms are evolving. GDPR has changed every tech company's relationship with data, and AI should not be excluded from that list.

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— Deepfake

Possibly one of the scariest examples of malicious generative AI use is that of deepfake voices and videos. Generative AI models have become so good at mimicking voices that some content creators have built their entire platforms around having Joe Biden, Donald Trump, and Barack Obama rank their favorite video games.

These kinds of applications are mostly harmless, but the real danger comes from how frighteningly realistic these models are becoming. In the very near future, AI-generated video and audio will become indistinguishable from the real thing.

This kind of sophisticated software could be used to produce fake political scandals, slanderous videos, and even fabricated damning evidence. The technology isn't there yet, but it will be, and that has some people understandably frightened.

Midjourney has recently suspended free trials for its platform indefinitely, following backlash from users generating deepfakes that caused a stir online. Namely the photos of Donald Trump getting arrested and Pope Francis in a puffer jacket.

While some might think these images show clear signs of AI generation, the average Instagram scroller might not notice. With fake news running rampant in this day and age, the increasing sophistication of AI image generation poses a serious threat that we need to keep an eye out for.

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Regulation as a Solution

The best way to make sure that generative AI is developed safely and ethically is to have structured regulation surrounding its development. Right now, AI creation and training are sort of a black-box. We don't know exactly how these companies are training them, and a lot of AI is self-learning so part of their development can be a mystery even to the people who are designing them.

The goal is to have a clear set of rules, laws, and regulations that cover issues ranging from where developers can pull training data from and the diversity of the datasets used to train them, to what we consider acceptable and unacceptable outputs.

It's important to remember that generative AI progression is only just getting started, and the future of what these models can do is incredibly promising. Even so, we need to approach the future development of generative AI with caution and decide together what we want that future to look like.

Parts of this white paper were actually written by ChatGPT. Can you spot which sections were written by AI?

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About MJV

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Mauricio Vianna
CEO, PhD
mvianna@
mjvinnovation.com

Ysmar Vianna
Chairman, PhD
yvianna@mjvinnovation.com

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NORTH AMERICA:

UNITED STATES

Atlanta
atl@mjvinnovation.com

SOUTH AMERICA:

BRAZIL

Rio de Janeiro
rio@mjvinnovation.com

Sao Paulo
spo@mjvinnovation.com

SP Alphaville
alp@mjvinnovation.com

Curitiba
cwb@mjvinnovation.com

COLOMBIA

Bogota
bgt@mjvinnovation.com

EUROPE:

UNITED KINGDOM

London
ldn@mjvinnovation.com

PORTUGAL

Lisbon
lis@mjvinnovation.com

ITALY

Rome
rom@mjvinnovation.com

FRANCE

Paris
par@mjvinnovation.com

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