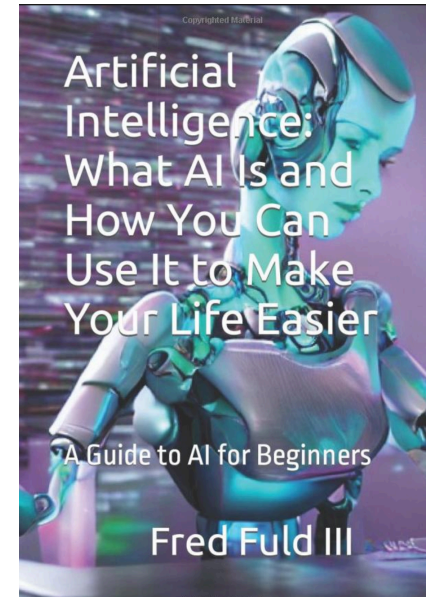




AI in Your Portfolio: Maximizing Returns with Artificial Intelligence



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Author:

**Artificial Intelligence: What AI Is and How
You Can Use It to Make Your Life Easier:
A Guide to AI for Beginners**

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What Will Be Covered

- What AI is
- How Investors can Use AI
 - Especially Chatbots
- Top AI Stocks

Ben Franklin from \$100 Bill

- Made him younger with facial hair, and smiling more - ArtBreeder



Video



Powered by | **elai.**

What is Artificial Intelligence?

- The ability of machines to perform tasks that typically require human intelligence
 - learning
 - reasoning
 - problem solving
 - decision-making
- Improve performance over time based on the data that's analyzed

OpenAI

- Artificial intelligence research laboratory
 - Founded in 2015
 - Elon Musk one of the founders
- Goals:
 - develop advanced AI technologies
 - ensure that the benefits of AI are shared widely
- Created a Chatbot called ChatGPT

ChatGPT

- Chat Generative Pre-trained Transformer
- Chatbot developed by OpenAI 11/30/2022
- Trained on large amounts of text data
- Learns patterns and relationships
- Generates new text in response to prompts
 - predicting the most likely next word or sequence of words (Sept 2021)
- Fastest-growing consumer software application in history

Major Chatbots

- OpenAI
 - ChatGPT chat.openai.com
- Google (GOOG) (GOOGL)
 - Bard bard.google.com
- **Microsoft (MSFT)**
 - Bing Chat bing.com
- Meta [Facebook] (META)
 - LLaMA ai.meta.com

Specific Examples of Applications

1. **Healthcare:**

- Medical Imaging
- Personalized Medicine
- Drug Discovery

2. **Finance:**

- Fraud Detection
- Investment Analysis
- Customer Service

3. **Retail:**

- Inventory Management
- Customer Behavior Analysis
- Visual Search

4. **Transportation:**

- Autonomous Vehicles
- Traffic Management
- Fleet Management

5. **Manufacturing**

- Predictive Maintenance
- Quality Control
- Supply Chain Optimization

6. **Agriculture**

- Precision Farming
- Livestock Monitoring

7. **Entertainment**

- Content Recommendation
- Game Development
- Story Ideas

8. **Legal**

- Research
- Contract Review

9. **Energy**

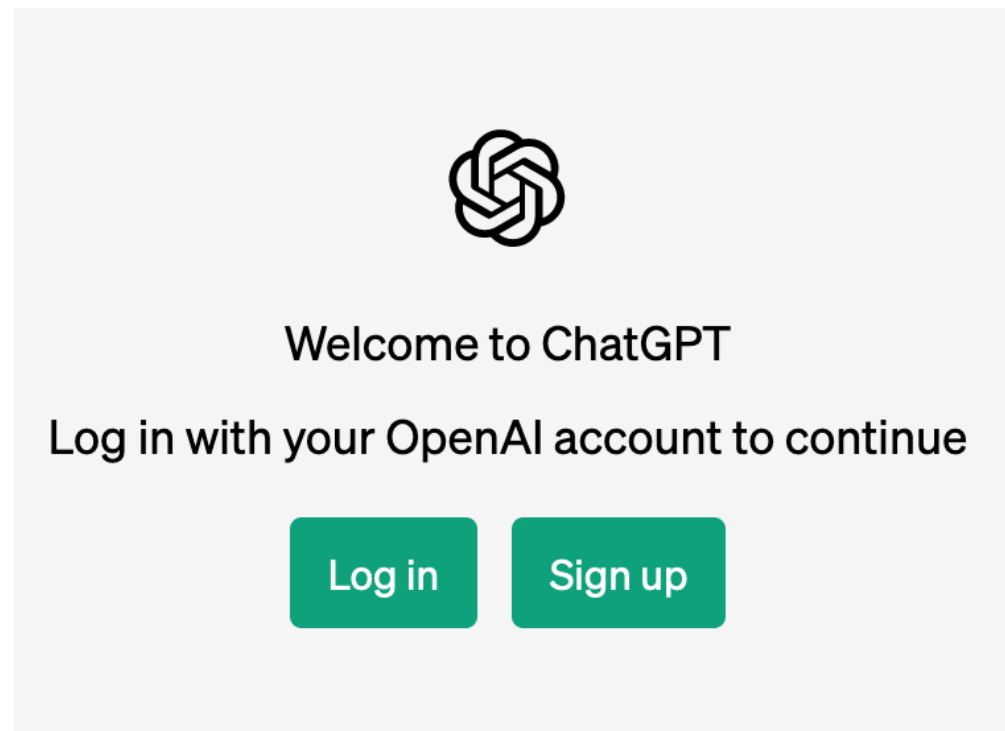
- Smart Grids
- Predictive Maintenance

Benefits of AI

- Improved Efficiency
 - Automate repetitive tasks
- Improved Accuracy
 - Analyze vast amounts of data
 - High accuracy and speed
 - Reducing errors
 - Improving decision-making
- Improved Productivity

Where to Start – ChatGPT – Text AI

- Chat.OpenAI.com



ChatGPT cont.

- Are you human?






Verify you are human



ChatGPT Text

- Type in a detailed question in the box at the bottom of the page (PROMPT)

ChatGPT

 Examples	 Capabilities	 Limitations
"Explain quantum computing in simple terms" →	Remembers what user said earlier in the conversation	May occasionally generate incorrect information
"Got any creative ideas for a 10 year old's birthday?" →	Allows user to provide follow-up corrections	May occasionally produce harmful instructions or biased content
"How do I make an HTTP request in Javascript?" →	Trained to decline inappropriate requests	Limited knowledge of world and events after 2021

How Investors Can Use AI

- Historical Stock Market Information
- What happened to a company?
- Stock risks
- Find competitors of a stock
- Quick math calculations, e.g. mortgages
- Financial education
- Diversification strategies
- and much more

Historical Market Info

- List all the years that there was a government shut down and how the S&P 500 performed during the following month

1. November 14-19, 1995, and December 16, 1995, to January 6, 1996:
 - The S&P 500 declined during the initial shutdown in November 1995 but then rebounded.
 - During the December 1995 to January 1996 shutdown, the S&P 500 initially declined but later recovered.
2. October 1-17, 2013:
 - The S&P 500 experienced some volatility during this shutdown, but it ultimately ended higher in the month following the resolution.
3. December 22, 2018, to January 25, 2019:
 - The S&P 500 declined during this period, but it rebounded in the month following the resolution.
4. December 22, 2018, to January 25, 2019 (Partial shutdown):
 - The S&P 500 declined during the partial government shutdown but rebounded in the month following the resolution.

List the average Federal Funds rate and the Annual S&P 500 Return

- **2019:**
 - Average Federal Funds Rate: Approximately 2.16% (source: Federal Reserve)
 - S&P 500 Annual Return: Approximately +28.88% (source: S&P Dow Jones Indices)
- **2018:**
 - Average Federal Funds Rate: Approximately 1.83% (source: Federal Reserve)
 - S&P 500 Annual Return: Approximately -6.24% (source: S&P Dow Jones Indices)
- **2017:**
 - Average Federal Funds Rate: Approximately 1.00% (source: Federal Reserve)
 - S&P 500 Annual Return: Approximately +21.83% (source: S&P Dow Jones Indices)
- **2016:**
 - Average Federal Funds Rate: Approximately 0.40% (source: Federal Reserve)
 - S&P 500 Annual Return: Approximately +11.96% (source: S&P Dow Jones Indices)
- **2015:**
 - Average Federal Funds Rate: Approximately 0.13% (source: Federal Reserve)
 - S&P 500 Annual Return: Approximately +1.38% (source: S&P Dow Jones Indices)
- **2014:**
 - Average Federal Funds Rate: Approximately 0.09% (source: Federal Reserve)
 - S&P 500 Annual Return: Approximately +13.69% (source: S&P Dow Jones Indices)
- **2013:**
 - Average Federal Funds Rate: Approximately 0.10% (source: Federal Reserve)
 - S&P 500 Annual Return: Approximately +32.15% (source: S&P Dow Jones Indices)

What Happened to Sprint Corp.

Merger with T-Mobile US:

In April 2020, Sprint Corporation completed its merger with T-Mobile US, a leading wireless network operator. The merger was a long-anticipated move aimed at creating a stronger competitor in the U.S. telecommunications market. The combined company retained the name T-Mobile US, Inc., and it became one of the largest wireless carriers in the country.

The merger was subject to regulatory approvals and underwent a legal process before its completion. The merger allowed T-Mobile and Sprint to combine their resources, technologies, and customer bases, enabling them to expand their 5G network infrastructure and compete more effectively with other major carriers like AT&T and Verizon.

As a result of the merger, Sprint's brand and operations were integrated into T-Mobile US. Customers who were previously with Sprint became T-Mobile customers, and the Sprint brand ceased to exist as a separate entity in the telecommunications market.

What are the Risks of Investing in Amazon Stock?

1. **Market Volatility:** Amazon's stock price can be volatile, influenced by market conditions, economic indicators, and investor sentiment. Market fluctuations can lead to rapid and substantial changes in the stock price.
2. **Competition:** Amazon operates in highly competitive markets, including e-commerce, cloud computing (through Amazon Web Services or AWS), digital streaming, and artificial intelligence. Competition from other major tech companies and startups can impact market share and profitability.
3. **Regulatory and Legal Risks:** Regulatory scrutiny and potential antitrust actions are concerns for large technology companies like Amazon. Changes in regulations, tax laws, or new legal challenges could affect Amazon's operations and financial performance.
4. **Supply Chain Disruptions:** Amazon's vast global supply chain is susceptible to disruptions caused by natural disasters, geopolitical events, trade tensions, or pandemics. These disruptions can impact product availability and delivery times.
5. **Dependence on AWS:** Amazon's cloud computing division, AWS, is a significant revenue source. Dependency on cloud services makes Amazon vulnerable to any disruptions in cloud infrastructure, cybersecurity threats, or increased competition in the cloud computing industry.
6. **Data Security and Privacy:** As a company handling vast amounts of customer data, Amazon faces risks related to data breaches and cybersecurity threats. Any compromise of customer information could harm its reputation and lead to legal and financial consequences.
7. **Global Economic Factors:** Economic downturns or recessions can impact consumer spending patterns, affecting Amazon's e-commerce business. Economic challenges in major markets can reduce demand for its products and services.
8. **Operational Challenges:** Amazon's business operations are complex and rely on efficient logistics and distribution networks. Operational challenges, such as labor strikes, supply chain inefficiencies, or warehouse disruptions, can impact the company's ability to deliver products timely and affect customer satisfaction.
9. **Dependence on Key Personnel:** While Amazon has a strong leadership team, any unexpected departure or change in key personnel, including CEO Jeff Bezos (as of my last update), could impact investor confidence and the company's long-term strategy.
10. **Valuation Concerns:** The stock market may perceive Amazon's stock as overvalued, leading to price corrections. Market sentiment and investor perceptions can impact the stock price independent of the company's actual performance.
11. **Political and Geopolitical Risks:** Political instability, trade tensions, or changes in government policies can affect international operations and supply chains, potentially impacting Amazon's financials.

What are the publicly traded stock competitors to 3D Systems Corp.?

1. **Stratasys Ltd. (SSYS):** Stratasys is one of the leading companies in the 3D printing industry. They manufacture 3D printers and materials for various industries, including aerospace, automotive, and healthcare.
2. **ExOne Company (XONE):** ExOne specializes in industrial 3D printing systems and services. They produce 3D printers and provide 3D printing services to industrial customers.
3. **Proto Labs, Inc. (PRLB):** Proto Labs offers digital manufacturing services, including 3D printing, CNC machining, and injection molding. They serve a wide range of industries, providing rapid prototyping and low-volume production services.
4. **Materialise NV (MTLS):** Materialise is a Belgian-based company that provides 3D printing software and services. They focus on creating software solutions for 3D printing, as well as offering 3D printing services for various applications.
5. **Desktop Metal, Inc. (DM):** Desktop Metal is a company that focuses on metal 3D printing technologies. They provide metal 3D printers and related software for industrial applications.
6. **HP Inc. (HPQ):** HP entered the 3D printing market with its Multi Jet Fusion technology. While HP is a large technology company with diverse products, they are a notable player in the 3D printing sector.

Math

PR

How much would the monthly mortgage be for a \$500,000 mortgage for 30 years at 3%?



To calculate the monthly mortgage payment for a \$500,000 mortgage over 30 years at an interest rate of 3%, you can use the standard formula for mortgage payments. The formula is:

$$M = P [i(1 + i)^n] / [(1 + i)^n - 1]$$

Where:

M = Monthly mortgage payment

P = Principal loan amount (in this case, \$500,000)

i = Monthly interest rate (3% divided by 12 months, or 0.03/12)

n = Total number of monthly payments (30 years multiplied by 12 months, or 30*12)

Let's calculate the monthly mortgage payment:

$$P = \$500,000$$

$$i = 0.03/12 = 0.0025$$

$$n = 30 * 12 = 360$$

$$M = \$500,000 [0.0025(1 + 0.0025)^{360}] / [(1 + 0.0025)^{360} - 1]$$

Using a calculator, the approximate monthly mortgage payment would be \$2,108.02.

Math continued

PR

How low would the 30 year mortgage have to be to keep the same mortgage payment if the interest rate was 6.5%?



To determine the loan amount for a 30-year mortgage at an interest rate of 6.5%, while keeping the same monthly mortgage payment, we need to adjust the principal amount in the formula.



Let's denote the new loan amount as P' , and the monthly mortgage payment as M (which is \$2,108.02 as calculated previously).

The formula remains the same:

$$M = P' [i(1 + i)^n] / [(1 + i)^n - 1]$$

We know the following values:

$$M = \$2,108.02$$

$$i = 0.065/12 = 0.00541667 \text{ (monthly interest rate)}$$

$$n = 30 * 12 = 360 \text{ (total number of monthly payments)}$$

Now, let's rearrange the formula to solve for P' :

$$P' = M [(1 + i)^n - 1] / [i(1 + i)^n]$$

$$P' = \$2,108.02 [(1 + 0.00541667)^{360} - 1] / [0.00541667(1 + 0.00541667)^{360}]$$

Using a calculator, the loan amount P' would be approximately \$307,199.88.

Language Translation

PR

Translate "Golf is my favorite sport." into Spanish, French, German, and Mandarin



Spanish: "El golf es mi deporte favorito."

French: "Le golf est mon sport préféré."

German: "Golf ist mein Lieblingssport."

Mandarin: "高尔夫是我最喜爱的运动。" (Pinyin: "Gāo'ěrfū shì wǒ zuì xǐ'ài de yùndòng.")

AI Chatbots

- **ChatGPT** chat.openai.com Free
- **Bing Chat** bing.com Free [Microsoft]
- **Google Bard** bard.google.com Free
- **Replika** (images, voice calls) replika.ai
Free version
- **YouChat** you.com Free

Large Stocks Involved in AI

- Google/Alphabet
- **Amazon**
- **Microsoft**
- IBM
- Meta/Facebook
- **Apple**
- Nvidia

Smaller AI Stocks

- ASML Holding ASML
- Dynatrace Inc. DT
- **UiPath Inc. PATH**
- Cognex Corp. CGNX
- C3.AI AI
- **IonQ Inc. IONQ**
- **Fastly Inc. FSLY**
- **Verint Systems VRNT**
- **Nerdy Inc. NRDY**
- **Soundhound Inc. SOUN**
- **Cognyte Software CGNT**

ASML Holding (ASML)

- Cutting-edge lithography machines
 - To produce high-performance AI chips
- Customers include:
 - Taiwan Semiconductor
 - Samsung
 - Intel
- Based in The Netherlands

UiPath Inc. (PATH)

- Robotic Automation
 - Intelligent decision-making
 - Adaptive learning
- Automate Cognitive Tasks
 - Document processing
 - Data extraction
 - Customer service interactions
 - Manufacturing, banking, healthcare, insurance

Cognex Corp. (CGNX)

- Uses Cameras & Sensors & AI
- Helps Robots Manufacture More Quickly
- Produce More Products, Increase Quality
 - Detect and classify defects
 - Verify assembly and packaging operations
 - Identify and track products
 - Guide robots and other automated machines
- Profitable Every Quarter for Years

C3.AI (AI)

- Enterprise AI Platform
 - Applications for various industries
- Solutions for specific businesses
 - Predictive maintenance
 - Fraud detection
 - Supply chain optimization

IonQ Inc. (IONQ)

- Quantum Computers
 - Allows development of new AI algorithms
 - Personalized medicine
 - Autonomous systems
 - Enhanced decision making capabilities

Fastly Inc. (FSLY)

- Detect & mitigate security threats to websites proactively
 - Identifying anomalous patterns
 - Identifying potential attacks
- Intelligent Edge Cloud Platform
 - Optimizing content delivery
- Real-time Personalization

Verint Systems (VRNT)

- Conversational AI for self-service
 - Intelligent Virtual Assistant
 - Self service options
 - Shorter wait times
 - Improved 1st call resolution rates
 - Enhancing customer experience
- Actionable Insights from data

Soundhound Inc. (**SOUN**)

- Speech recognition
 - variety of languages and accents even noisy environments
- Natural language understanding
 - meaning of human speech
 - respond in a natural and engaging way
- Voice biometrics
 - identify individuals based on unique voice patterns
- Sound recognition
 - identify and classify sounds
 - music, speech, and environmental noises

AI ETFs

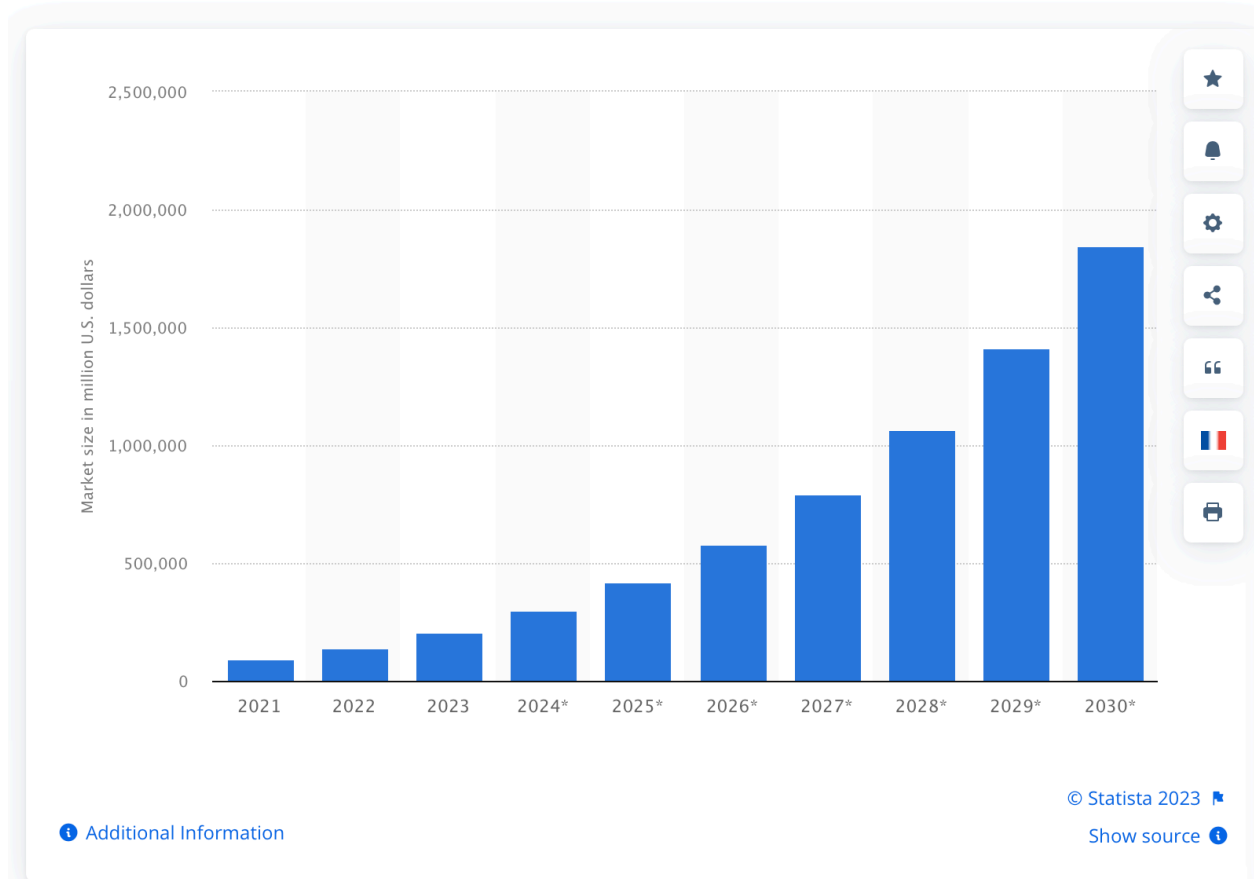
- Global X Artificial Intelligence & Technology ETF (AIQ)
- Global X Robotics & Artificial Intelligence ETF (BOTZ)
- iShares Robotics and Artificial Intelligence ETF (IRBO)
- First Trust Nasdaq Artificial Intelligence (ROBT)
- Direxion Daily Robotics, Artificial Intelligence & Automation Index Bull 2X Shares (UBOT)

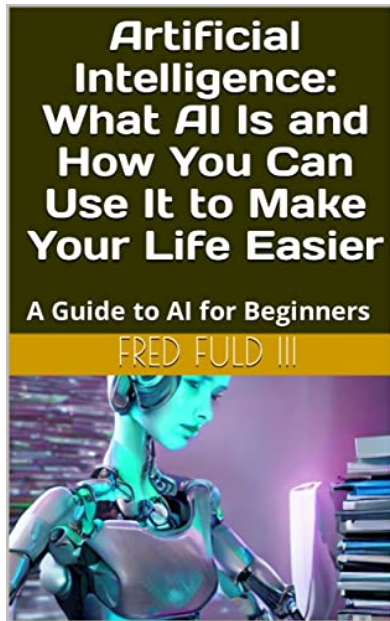
Future of AI

- “The Artificial Intelligence market is projected to grow from \$387.45 billion in 2022 to \$1,394.30 billion by 2029, at a CAGR of 20.1%.”
~ Fortune Business Insights

Increase 20-Fold by 2030

(in million U.S. dollars)





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QUESTIONS?

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