



**AI 101**



Bipartisan Policy Center



# Agenda

- AI Fundamentals
  - What is AI and ML?
  - Why Now?
  - Data in the context of AI
- AI in Health Applications
- Legislative Role and Considerations
- Q&A

## Presenters:

- Tom Romanoff, Director of Technology Policy  
Julia Harris, Director of Health Policy



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# AI Fundamentals

# What is AI & ML?

## Artificial Intelligence

- A computer systems able to perform tasks that would typically require human intelligence.
- Prediction Machines with a lot of data.

## Machine Learning

- A subfield of AI that makes decisions and predictions based on data without needing explicit programming.
- Can involve supervised or unsupervised learning.
- Neural Networks mimic the neural pathways of the brain.

# What is AI?

## Foundations of AI (1950s)

- Alan Turing: Speculated on thinking machines.
- John McCarthy: Coined the term “artificial intelligence.”



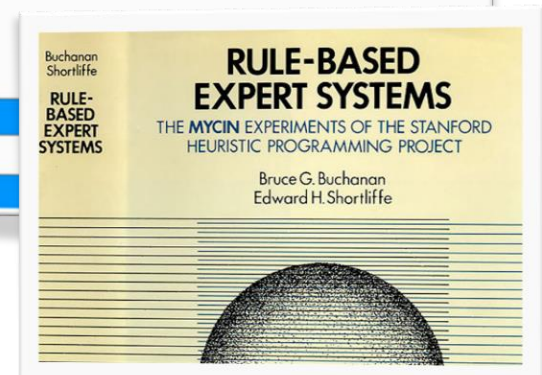
## Early Health Care Applications (1960s-70s)

- ELIZA: The “computer therapist” chatbot used for lifelike patient interactions.
- MYCIN: A diagnostic AI system provided infectious disease clinical decision support.

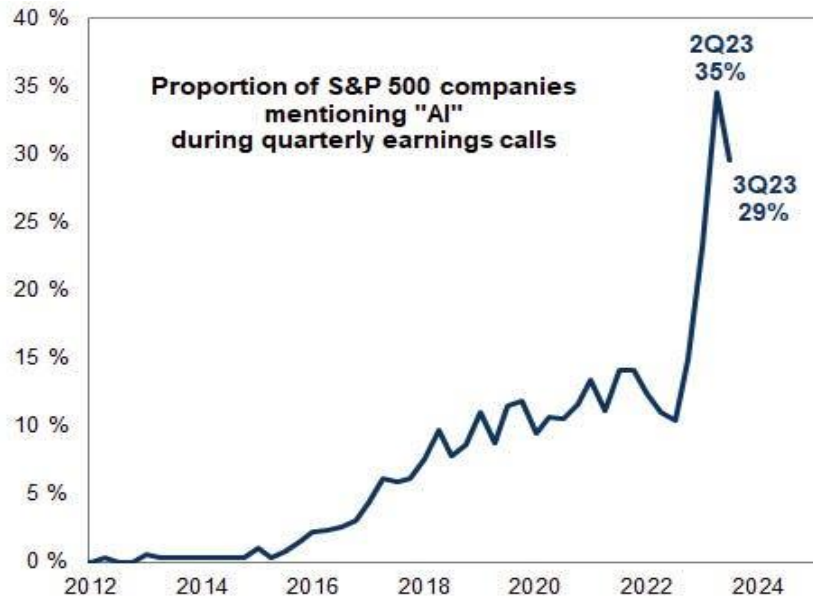
Talk to Eliza by typing your questions and answers in the input box.

> Hello, I am Eliza. I'll be your therapist today.  
\* Hi Eliza, I'm not feeling well  
> How long have you been not feeling well?

TYPE HERE



# Why Now?



Source: FactSet, Goldman Sachs Global Investment Research

## AI's exponential growth: The Foundation Model inflection point

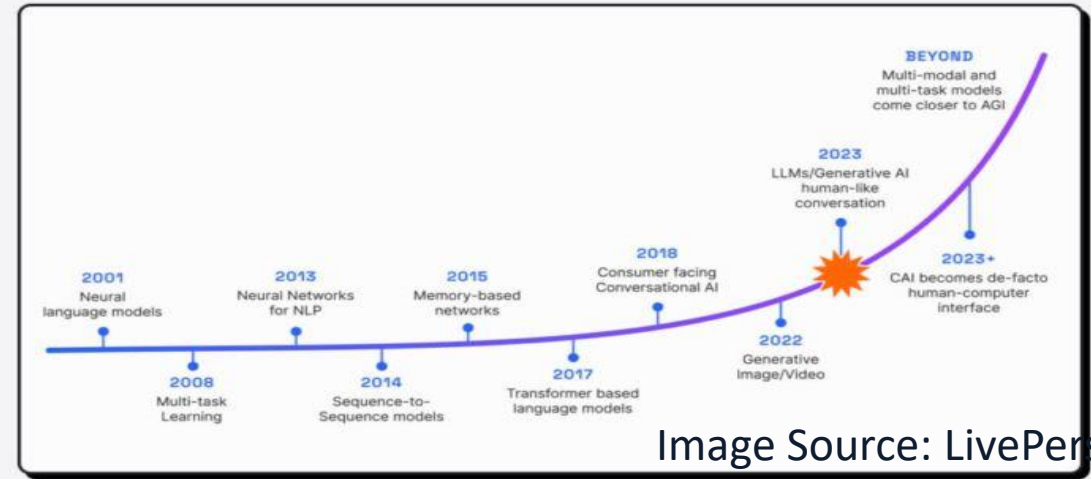
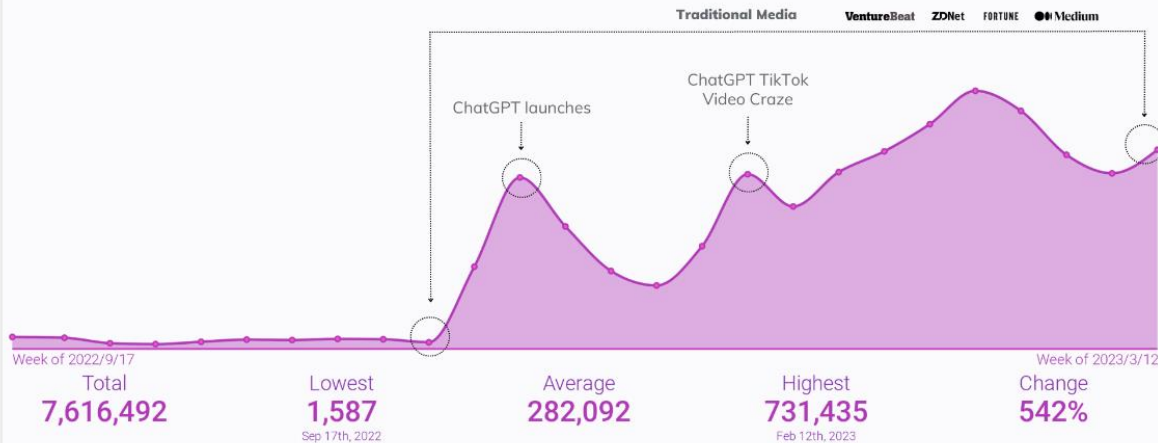


Image Source: LivePerson

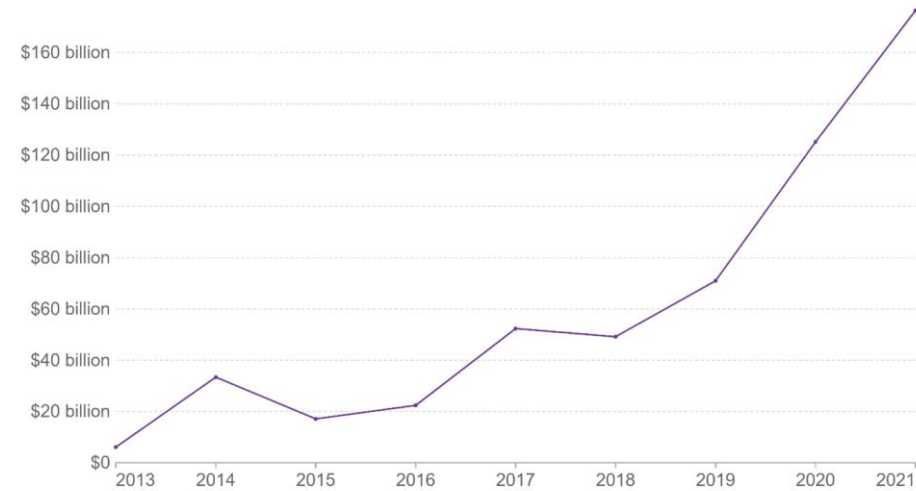
## Mentions of Generative AI, OpenAI & ChatGPT



<https://www.britopian.com/content/generative-ai-marketing/>

## Annual global corporate investment in artificial intelligence

Sum of private investment, mergers and acquisitions, public offerings, and minority stakes. This data is expressed in US dollars, adjusted for inflation.



Source: NetBase Quid via AI Index Report (2022)

OurWorldInData.org/artificial-intelligence • CC BY

Note: Data is expressed in constant 2021 US\$. Inflation adjustment is based on the US Consumer Price Index (CPI).

# Data in the Context of AI

Data fuels AI, to learn and make decisions. In turn, humans use AI to understand big data to improve health outcomes.

## Challenges and considerations:

- Data Collection
- Data Quality
- Data Privacy and Security
- Bias and Fairness





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# AI in Health Applications



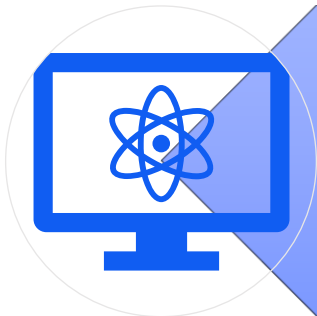
# AI in Health Applications



**Administrative & Operations**



**Clinical & Diagnostic**



**Research & Treatment  
Advancements**

# AI in Health Applications: Administrative & Operations

## Administrative Efficiency

- Leveraging healthcare supply chain management methodologies to accurately predict demand.

## Workforce

- Capacity management to predict workflows & asset management.

## Fraud Detection

- HHS using AI models helping to combat Medicare fraud.

## Claims Review

- Utilizing natural language processing techniques to analyze insurance claims.

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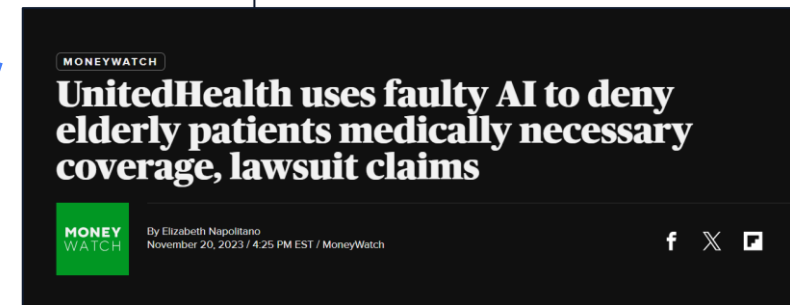
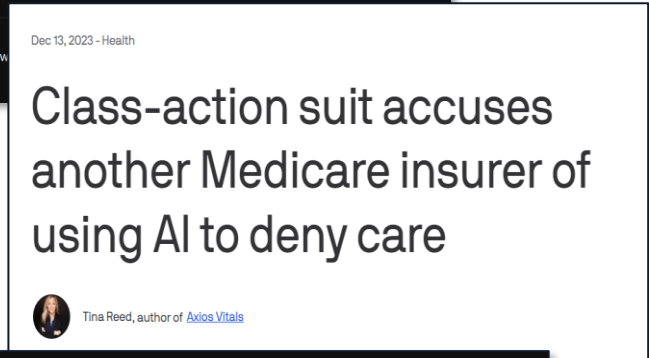
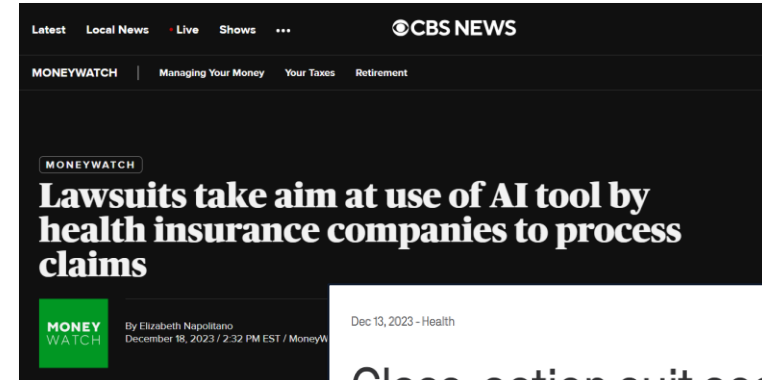
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# AI in Health Applications: Clinical & Diagnostic:

## Imaging

- IDx-DR, a diagnostic for diabetic retinopathy, boosted screening rates from 49% to 95% for those in need.

## Disease Prediction

- Duke Hospital Systems' "Sepsis Watch" analyzes vast amounts of data every five minutes to predict sepsis onset.

## Mental Health Care

- AI analysis of text-based counseling to determine what works best for patients.

## Health Monitoring

- Enhancing public health surveillance systems by employing algorithms to identify patients who may be at risk for hard to detect diseases.



# AI in Health Applications:

## Research and Treatment Advancements:

### Research and drug discovery

- AlphaFold protein mapping leading to drug discovery



### Robotics

- Advancements in prosthetics, enabling wearers to experience near-lifelike sensations and control.

### Physician Training

- AI-driven augmented reality simulations are emerging to train physicians, offering realistic and immersive learning experiences





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# Legislative Role and Considerations

# Legislative Considerations on Health and AI



Ethical Framework



Regulatory Oversight & Governance



Liability and Accountability



Labor & Workforce Impact



# AI in Federal Regulation: Health Care

**HHS Office of the National  
Coordination for Health  
Information Technology:**  
Certified Health Information  
Technology Products  
Transparency

**HHS Office of Civil Rights:**  
Liability and Bias

**Food and Drug  
Administration:**  
Review and Approval of  
Artificial Intelligence/Machine  
Learning Enabled Devices

**Centers for Medicare &  
Medicaid Services:**  
Medicare Advantage Plans  
Coverage

**White House:**  
Executive Order on Safe,  
Secure, and Trustworthy  
Development and Use of  
Artificial Intelligence

# AI in Health: State Legislation

## Recurring Themes:

- Task Forces: Over 40 bills introduce the idea of establishing task forces to navigate AI integration
- Discrimination Prevention: Nearly 20 focusing on discrimination
- Transparency: More than 50 bills underscore the need for transparent communication between stakeholders.

# Summary

## AI and Machine Learning

- AI is an overarching technology, encompassing many technologies with varied applications.

## Data for AI

- Data fuels AI, to learn and make decisions. In turn, humans use AI to understand big data to improve health outcomes.

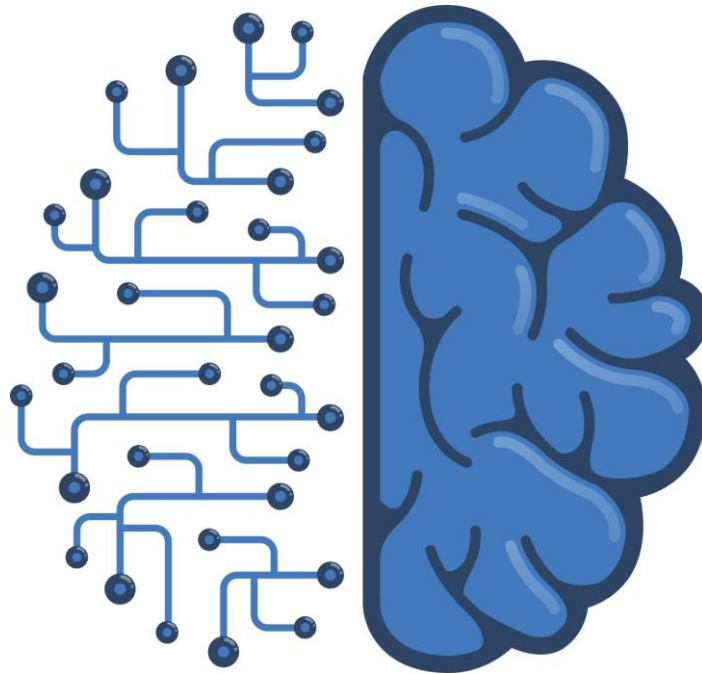
## AI in Health

- AI has been incorporated into many health care settings

## State of AI Legislation

- Legislation at the Federal and State government levels are rapidly evolving

# Q&A



For questions or more information about AI 101,  
contact [technology@bipartisanpolicy.org](mailto:technology@bipartisanpolicy.org).