Generative AI in Healthcare

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ClariteeAI

ClariteeAI

Our mission at Claritee.AI is to empower businesses through the thoughtful integration of Generative AI and associated technologies. We believe that the transformative power of GenAI, when utilized effectively, can drive growth, inspire innovation, and redefine how businesses operate. Our competencies include:

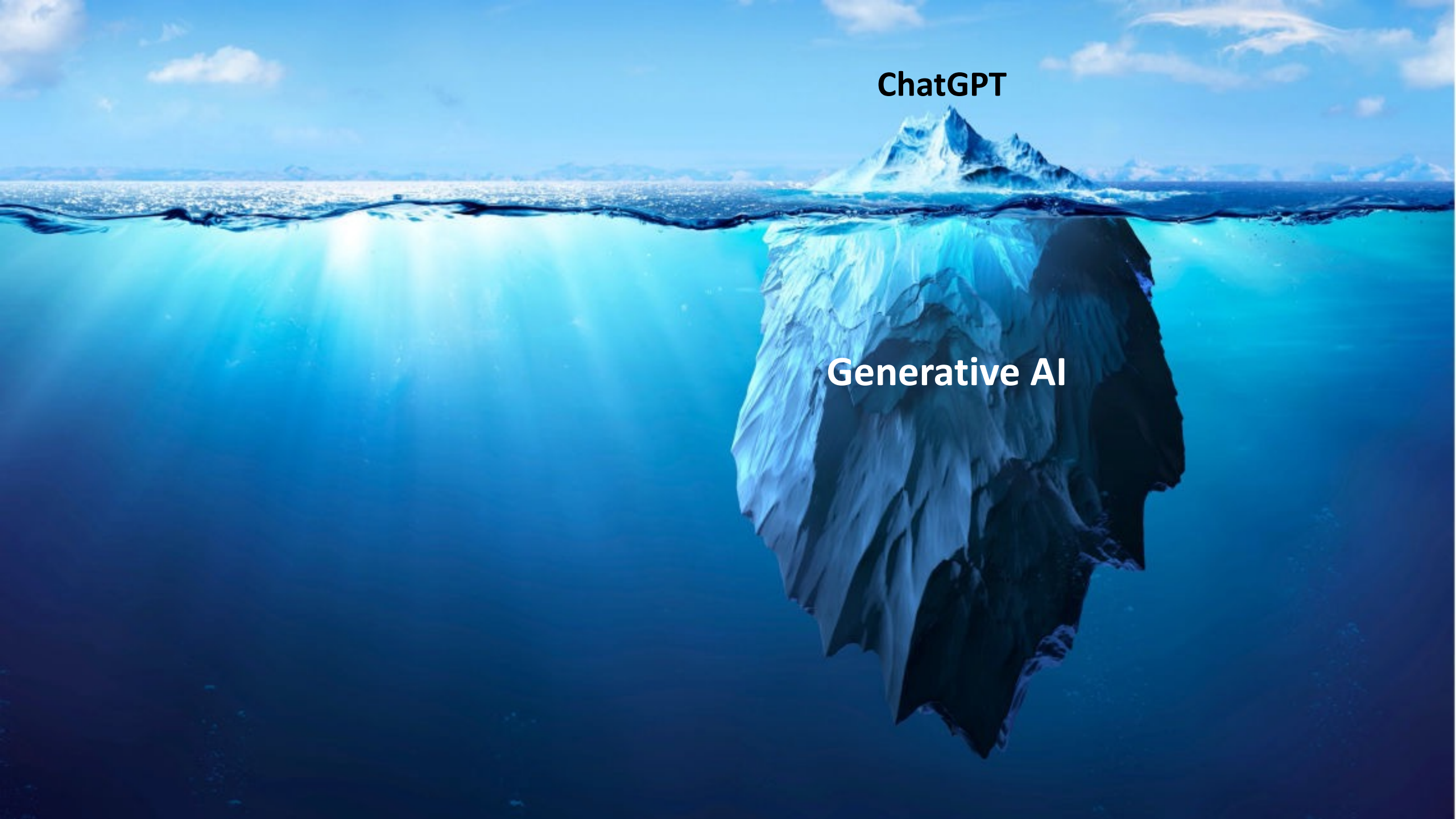
Education

Prototyping

Workflow Automation

Agenda

- History of Artificial Intelligence
- What is Generative AI?
- Intro to ChatBots
- Prompt Engineering
- Healthcare Use Cases


ChatGPT
Generative AI

Historical Perspective on Computing

- Hyper-Literal Nature
  - 80 Years of Literal Interpretation
  - Lack of Reasoning Skills
  - Modeled After the Calculator

General Purpose Technology

100 years ago, electricity transformed every industry

GenAI is bringing an equally big transformation

History of Artificial Intelligence

- **1950s:** Alan Turing proposes the Turing Test as a measure of machine intelligence.
- **1956:** The term "Artificial Intelligence" is coined at the Dartmouth Conference.
- **1960s-70s:** Development of early AI programs and languages like LISP and Prolog.
- **1980s:** Expert systems become popular, applying AI to industry-specific problems.
- **1997:** IBM's Deep Blue defeats world chess champion Garry Kasparov.
- **2011:** IBM's Watson wins the quiz show Jeopardy!, showcasing advanced natural language processing.
- **2016:** Google's AlphaGo defeats Go champion Lee Sedol, demonstrating AI's capability in complex games.
- **2018:** The original Transformer paper released by Google.
- **2020s:** Generative AI models like GPT-3, GPT-4, Claude and Gemini are released.

Traditional AI

- Image Classification (Radiology)
- Object Detection (Equipment Defect)
- Text Identification (Names, DOB, etc.)
- Medical Coding Review
- Personal Assistants (Alexa, Siri)

Generative AI

- Multilingual Writing
- Creating (Text, Music, Video, Image)
- Reasoning Skills
- Vision Interpretation
- Enable Human-Computer Interaction

LARGE LANGUAGE MODEL HIGHLIGHTS (MAR/2024)

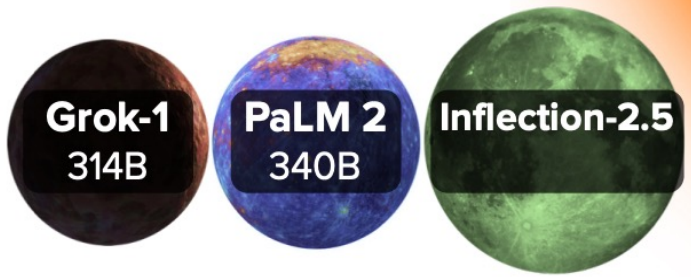
Nano
- Mamba 2.8B
- phi-2 2.7B
- ...

XS
- Pythia 12B
- Mistral 7B
- Zephyr 7.3B
- Gauss
- StripedHyena 7B
- Persimmon-8B
- DeciLM-7B
- SOLAR 10.7B
- Gemma 7B

30B **Small**
- Palmyra 20B
- C1.2
- Retro 48B
- MPT-30B
- Command-R 35B
- Yi-34B
- Mixtral 8x7B
- ...

70B **Medium**
- Command 52B
- StableLM 65B
- Llama 1 65B
- Luminous Supreme
- Llama 2 70B
- Perplexity 70B Online
- Qwen-72B
- DeepSeek 67B

180B **Large**
- Yuan 2.0 102.6B
- InternLM 104B
- Jurassic-2
- Falcon 180B
- Claude 2.1
- Mistral-medium
- DBRX 132B MoE
- ...



Parameters

AI lab/group

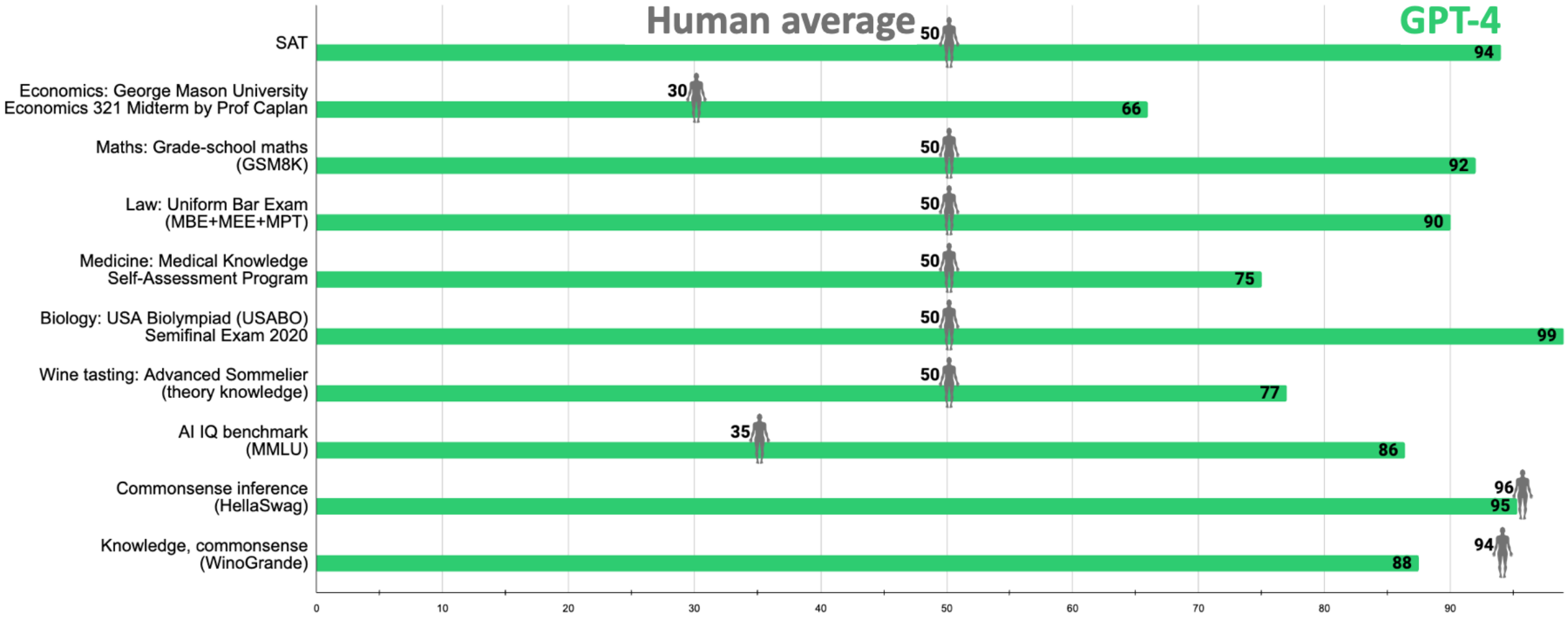
Sizes linear to scale. Selected highlights only. All models are available. All models are Chinchilla-aligned (20:1 tokens:parameters) https://lifearchitect.ai/chinchilla/ All 300+ models: https://lifearchitect.ai/models-table/ Alan D. Thompson. 2023-2024.

GENIUS VS AI (FEB/2024)

	Average human	Terence Tao	William James Sidis	GPT-4	Gemini 1.0 and 1.5
IQ percentile	50th	**>99.9th**	**>99.9th**	**>99.9th**	**>99.9th**
Languages	2	2	25+	90+	**200+**
Books read	700	700+	700+	4,000,000+	**10,000,000+**
Working memory	7 words	9+ words	9+ words	128,000 words	**7,000,000 words**
Long-term memory	74TB	74TB	74TB	40TB	**80TB**
SAT score	1050 (50th)	**~1460 (97th)**	-	1410 (94th)	

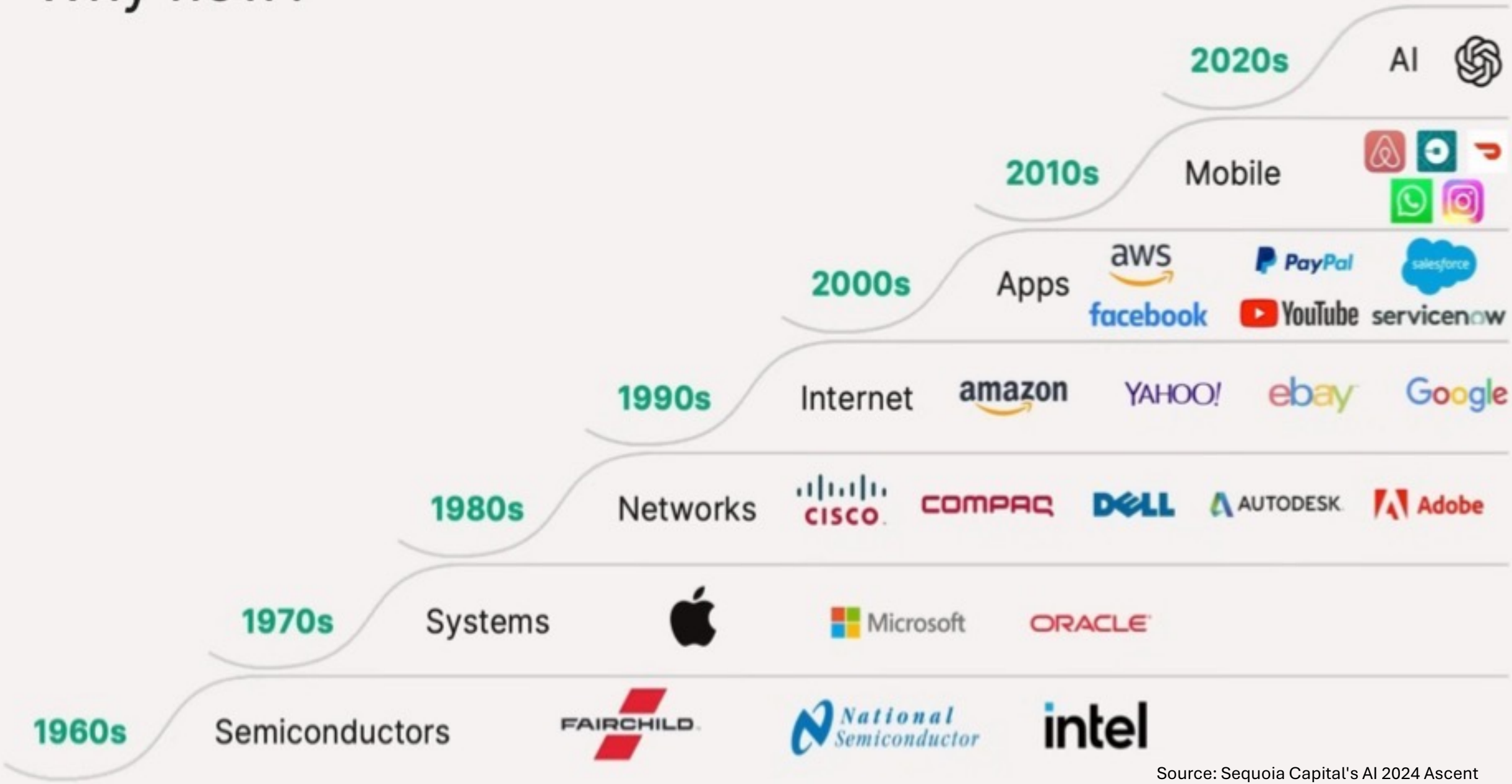
Sources: Working memory extrapolated from Miller, 1956, and Cowan, 2000, https://doi.org/10.1017/S0140525X01003922. Long-term memory extrapolated from Stanford, 2010, https://pubmed.ncbi.nlm.nih.gov/21092855/. Alan D. Thompson. Sep/2023, Feb/2024. https://lifearchitect.ai/iq-testing-ai

GPT-4 VS HUMAN TESTS (MAR/2023)



Selected highlights only. Percentiles; 50 refers to the 50th percentile as average, and may not be the testing average for some tests. Alan D. Thompson. March 2023. https://lifearchitect.ai/iq-testing-ai/

Why now?



Source: Sequoia Capital's AI 2024 Ascent

Examples of leading ChatBot Applications

Data Security & Privacy

- Commercial ChatBots (ChatGPT, Claude, Gemini, etc.)
- Commercial vs. Open Source Models
- Cloud Providers (AWS, Azure, Google)

Human Augmentation Tool

- Expert Advisor
- Content Creator
- Data Analyst
- Agent

Prompt Engineering 101

Context
+ Specific Information
+ Intent
+ Response Format
= **Good Prompt**

Example:

As a business executive, I'm seeking an update on the latest trends in generative AI.

I need a concise overview of recent breakthroughs and their applications in business, particularly how these technologies might impact different industries.

My intent is to use this information for strategic decision-making to keep my organization at the forefront of innovation. Please provide a summary with key points and relevant examples.

Healthcare Applications

AI-Driven Chatbots (Therapy & Patient Support)

Automation Tools to Streamline Workflows

Mental Health Education

Ambient Listening

Medical Coding

Personalized Treatment Plans

Predictive Analytics for Crisis Intervention

Healthcare Applications (Cont.)

AI-Driven Chatbots (Internal Use)

Clinical Data Analysis

Finance & Operations Data Analysis

Human Resources

Contract Analysis

Message Triage (Emails, Voicemails, Messages)

Image Reading (Documents, Equipment, etc.)

Live Demonstration of Use Cases

- Prompting
- Content Creation
- Data Analysis
- Vision
- Image Generation
- ChatBots
- AI Applications

Workflow Automation Tools

Productivity Tools

Gamma

Duet AI
Google Workspace

Microsoft 365 Copilot

beautiful.ai

Otter.ai

Canva

How to begin?

Crawl -> Walk -> Run -> Fly

Crawl: Lay the Foundation

- **Education and Understanding:** Begin by educating yourself and your team about what GenAI is and its potential benefits for your specific industry and business. Stay updated with the latest trends and advances in GenAI.
- **Identify Business Needs:** Evaluate your organization's needs, challenges, and areas where GenAI could provide significant value. This step involves understanding the problems you aim to solve with GenAI and aligning them with your business goals.

Walk: Start Small and Experiment

- **Pilot Projects:** Implement GenAI in small, controlled projects to understand its impact and gather insights. Choose projects that can provide quick wins or valuable learning experiences.
- **Feedback and Iteration:** Collect feedback from users and stakeholders. Use this feedback to refine your approach and improve GenAI implementation strategies.

Run: Scale and Integrate

- **Integration and Change Management:** Integrate GenAI tools into existing workflows and systems. Prepare for organizational changes by ensuring that your team understands the role of GenAI and how it will impact their work.
- **Continuous Learning and Adaptation:** Encourage a culture of continuous learning and adaptation. Provide resources and training for employees to grow their understanding and usage of AI tools.

Fly: Innovate and Transform

- **Innovative Applications:** Explore innovative applications of GenAI beyond the initial use cases. Look for opportunities to use GenAI in creating new products, services, or business models
- **Continuous Evolution:** Regularly review the performance of GenAI systems and update your strategy and implementation plans based on outcomes. Stay agile and ready to adapt as GenAI technology advances

Q&A

- Open Discussion

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