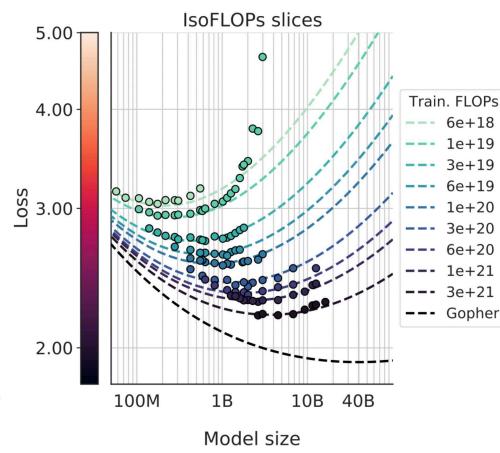


LLM Scaling Laws

Performance of LLMs is a smooth, well-behaved, predictable function of:

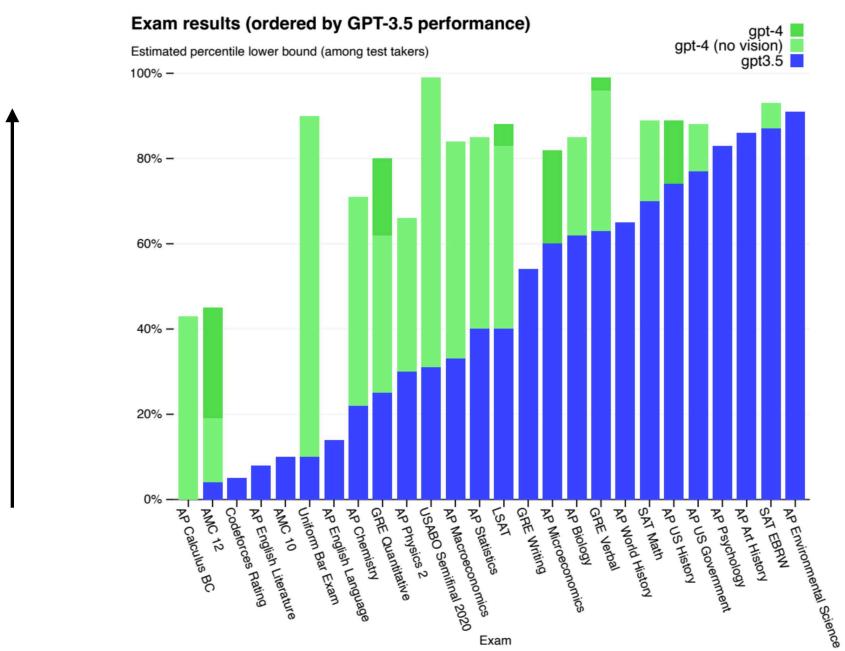
- **N**, the number of parameters in the network
 - **D**, the amount of text we train on
- And the trends do not show signs of “topping out”

=> We can expect more intelligence “for free” by scaling



[Training Compute-Optimal Large Language Models]

We can expect a lot more “general capability” across all areas of knowledge:



[Sparks of Artificial General Intelligence: Early experiments with GPT-4, Bubuck et al. 2023]

Demo

BA

You

Collect information about Scale AI and its funding rounds. When they happened (date), the amount, and the valuation. Organize this into a table.

LLM uses Bing Search



Funding Round	Date	Amount Raised	Valuation
Series E	Apr 2021	\$325M	\$7B
Series D	Nov 2020	\$155M	\$3.5B
Series C	Aug 2019	\$100M	>\$1B
Series B	Aug 2018	\$18M	Not Available
Series A	Jul 2017	\$4.5M	Not Available

Demo

BA You

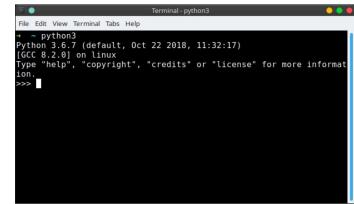
Let's try to roughly guess/impute the valuation for Series A and B based on the ratios we see in Series C,D,E, of raised:valuation.



Demo

BA You

Good, now let's organize this into a 2D plot. The x-axis is the date. The y-axis is the valuation of Scale AI. Use a logarithmic scale for the y-axis. Make it a very nice, professional plot, and use grid lines.



A screenshot of a terminal window titled "Terminal: python3". The window shows the Python 3.6.7 interpreter running on a Linux system. The output includes the Python version, build date, and copyright information. The prompt "In [1]:>>> " is visible at the bottom of the terminal window.

Demo

BA

You

Let's now add a (linear) trendline to this plot, and extrapolate it until the end of 2025. Then create a vertical line in the plot, at today. Based on the fit, tell me what the valuation is today, and what it will be at the end of 2025.

Demo

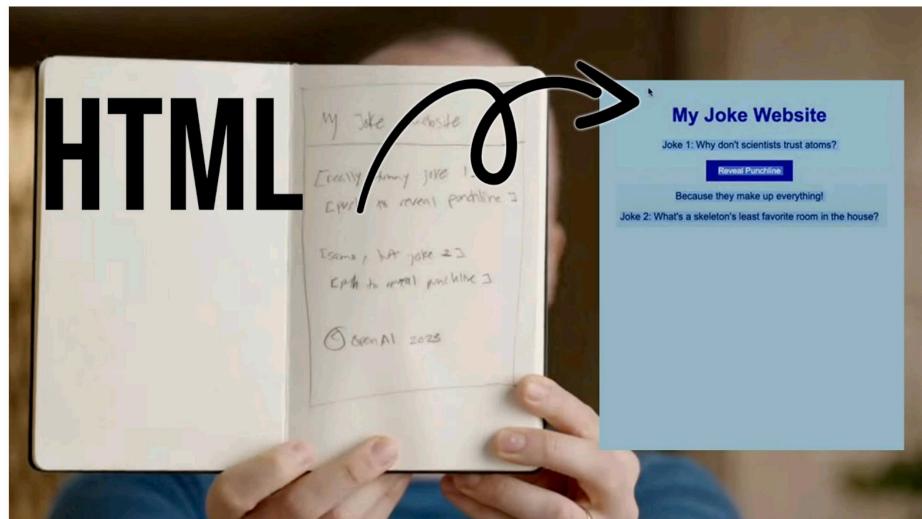


You

Based on the information above, generate an image to represent the company Scale AI

Vision

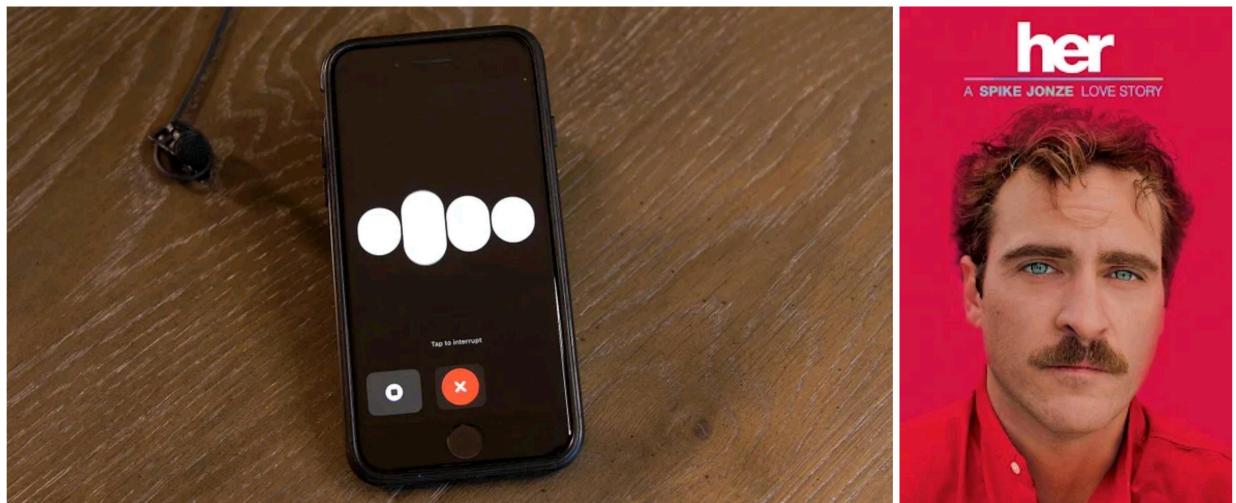
Can both see, and generate images



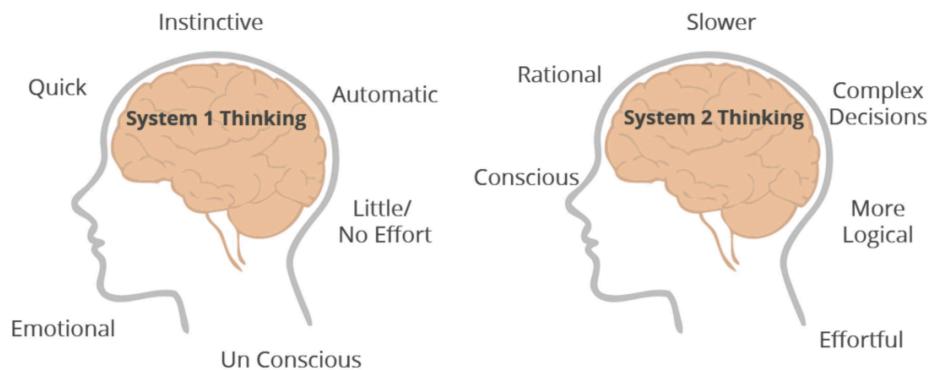
Example: Take a sketch of an idea and generate a working website.

Audio

Speech to Speech communication



System 2



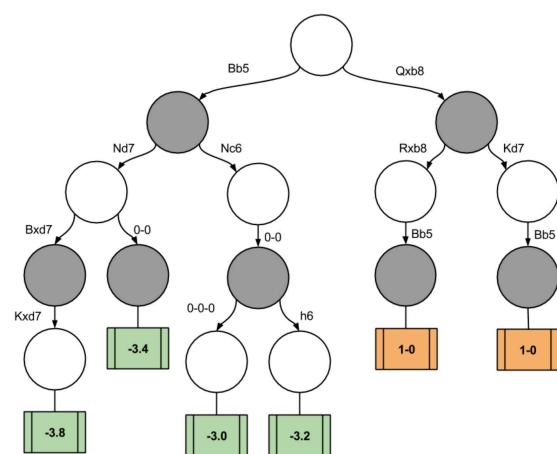
$$2 + 2 =$$

$$17 \times 24 =$$

THINKING,
FAST AND SLOW

DANIEL
KAHNEMAN
WINNER OF THE NOBEL PRIZE IN ECONOMICS

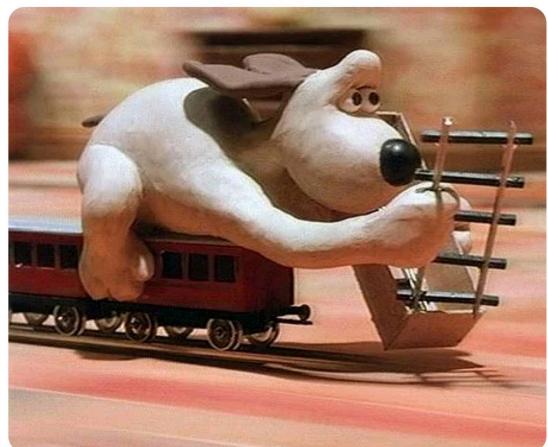
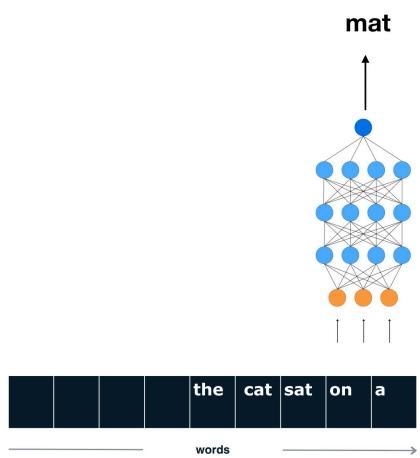
System 2



System 1: generates the proposals (used in speed chess)
System 2: keeps track of the tree (used in competitions)

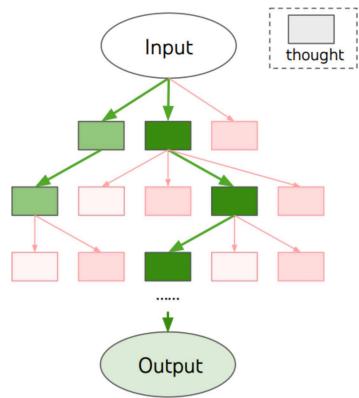
THINKING,
FAST AND SLOW
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KAHNEMAN
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LLMs currently only have a System 1



System 2

Like tree search in Chess, but in language.



We want to “think”: convert time to accuracy.

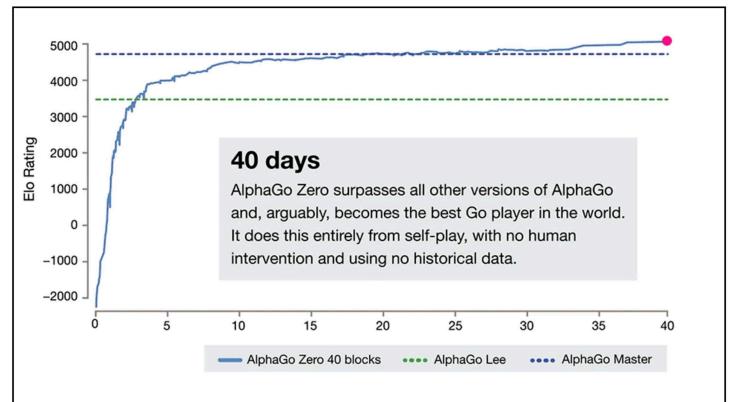
[*Tree of Thoughts: Deliberate Problem Solving with Large Language Models*, Yao et al. 2023]

Self-improvement



AlphaGo had two major stages:

1. Learn by imitating expert human players
2. Learn by self-improvement (reward = win the game)



Big question in LLMs:

What does Step 2 look like in the open domain of language?
Main challenge: Lack of a reward criterion.

[Mastering the game of Go with deep neural networks and tree search]

Custom LLMs

GPTs app store:



(GPTs announcement at OpenAI dev day, Nov 2023)

Create a custom GPT:

The screenshot shows a user interface for creating a new GPT. At the top, there's a header with a back arrow, a circular profile picture, and the text "New GPT". Below the header, there are two buttons: "Create" and "Configure". The main area is divided into several sections: "Name" (with a placeholder "Name your GPT"), "Description" (with a placeholder "Add a short description about what this GPT does"), "Instructions" (with a placeholder "What does this GPT do? How does it behave? What should it avoid doing?"), "Conversation starters" (with a text input field), "Knowledge" (with a "Upload files" button), "Capabilities" (checkboxes for "Web Browsing" (checked), "DALL-E Image Generation" (checked), and "Code Interpreter" (unchecked)), and "Actions" (a "Add actions" button). There are also "Create" and "Save" buttons at the bottom right of the form.