

# ChatGPT, procedural generation, and large language models: a history

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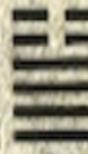
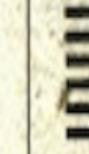
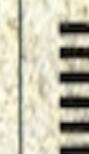
A (series of) disclaimers:

A dog with long, wavy, light-colored hair and dark eyes is wearing black-rimmed glasses and a white lab coat over a pink shirt. It is standing behind a glass counter in a laboratory setting, surrounded by various pieces of glassware, including flasks with blue and green liquids, a graduated cylinder, and a beaker. A small blue and white mug sits on the counter in front of the dog.

I HAVE NO  
IDEA WHAT  
I'M DOING

What is *randomness*?

# Yijing / I-Ching (1000-750 BC)

							
1	11	34	5	26	9	14	43
							
12	2	16	8	23	20	35	45
							
25	24	51	3	27	42	21	17
							
6	7	40	29	4	59	64	47

# The Man in the High Castle (1962)



# Bibliomancy (1753 - as a term)

The lights of the Bermuda Triangle Chili Parlor, two blocks away, made a welcome sight. As we got closer, we saw that the storefront was surrounded by a little puddle of brightness made by the light bulbs behind the steamy window and the red neon sign which said EAT. Parked outside the Bermuda Triangle Chili Parlor were six or seven motorcycles—shiny ones, with all sorts of gadgets and decorations on them. Each of the motorcycles had a fancy dragon or alligator either painted in gold on the gas tank or worked into a fancy chrome backrest. We figured they belonged to the motorcycle club that had passed us earlier.

By this time, we could smell all sorts of good cooking smells and hear the faint clinking of dishes and silverware. When we opened the door, a blast of noise, warmth, and the most incredible smell of chili hit us. Now up to that time, my only experience with chili was stuff out of a can and stuff I had made in the cafeteria in my old school. Right from my first whiff, I could tell that this wasn't from the chili I had run across so many times. Unfogged a little, I could see a sign on the counter. It said Chili—one dollar; beans—50 cents. Behind the

# The Cut-Up Technique (1920s)

We wander through tunnels, past

towering limestone cliffs - passing

six months deep underground.

That evening Mustafa and Mersiha

scratched the surface of this complex

bunker. The scale and madness of

war, and now full of colourful graffiti.

# ELIZA (1966)

# **Computational Linguistics**

A. G. OETTINGER, Editor

## **ELIZA—A Computer Program For the Study of Natural Language Communication Between Man And Machine**

JOSEPH WEIZENBAUM

Massachusetts Institute of Technology,\* Cambridge, Mass.

The object of this paper is to cause just such a re-evaluation of the program about to be "explained". Few programs ever needed it more.

### **ELIZA Program**

ELIZA is a program which makes natural language conversation with a computer possible. Its present implementation is on the MAC time-sharing system at MIT. It is written in MAD-SLIP [4] for the IBM 7094. Its name was chosen to emphasize that it may be incrementally improved by its users, since its language abilities may be

# Oblique Strategies (1975)

*Honour thy error as a hidden intention*

# Rogue (1980)

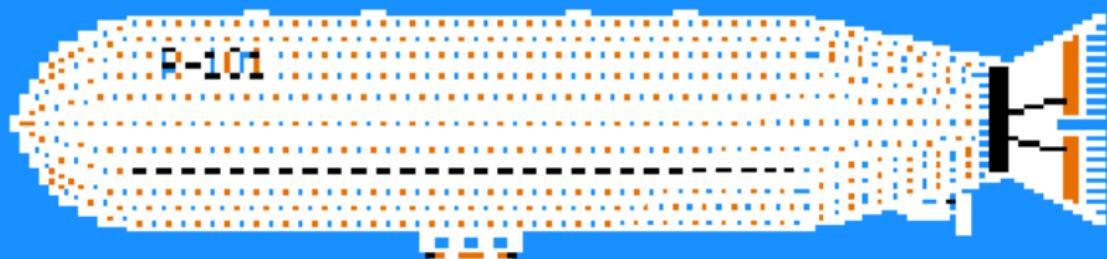
```
+-----+  
|.....|  
|.....|  
|.....|  
|@.....K....+  
+..].....*....|
```

Level: 1 Gold: 0

Hp: 12(12) Str: 16(16) Arm: 4 Exp: 1/0

# Murder on the Zinderneuf (1983)

# MURDER ON THE ZEPPELIN



ELECTRONIC ARTS

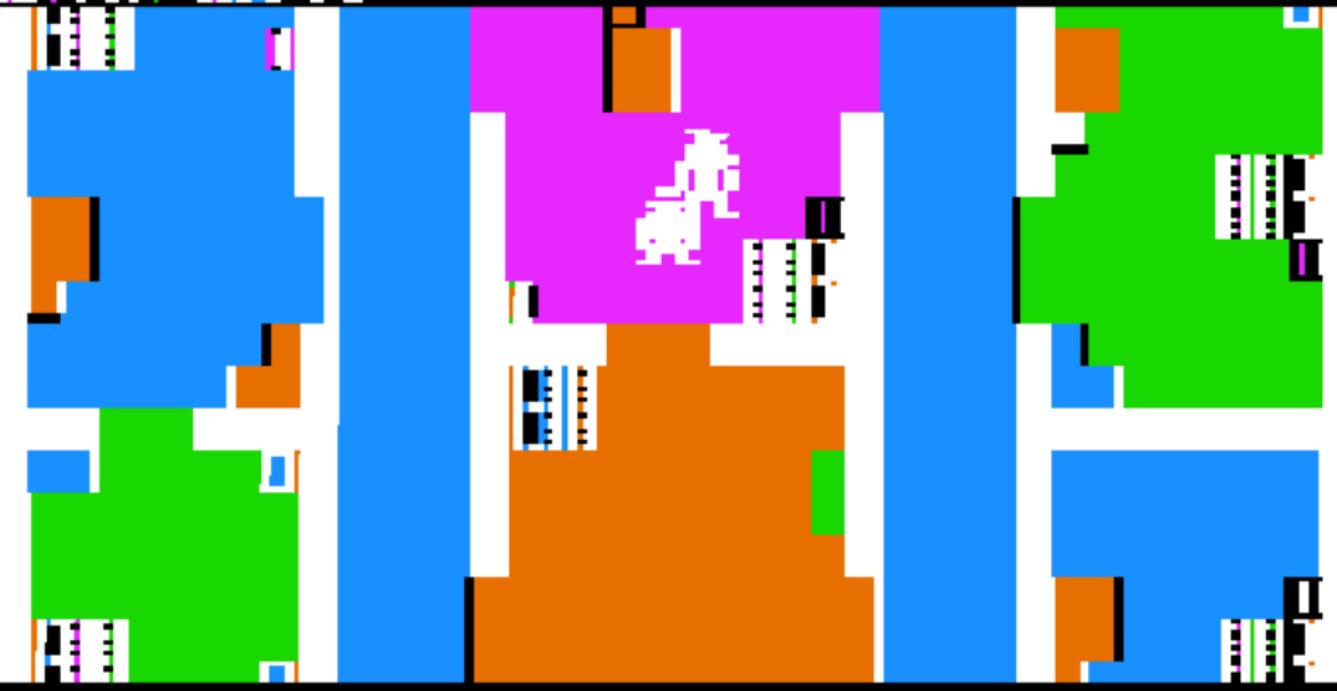
© 1983, 1984 FREE FALL ASSOCIATES  
& ELECTRONIC ARTS

FREE  
FREE

FREE  
FREE

Suspect: Boget Topic: Van Wente  
"He's getting money somewhere, and it  
isn't from selling works of art"

Anton Marie



# Racter and The Policeman's Beard (1984)

The First Book Ever Written by a Computer

# THE POLICEMAN'S BEARD IS HALF CONSTRUCTED

Computer prose and poetry  
by  
Racter



WARNER SPECTRUM • 30 JULY 1982 • USA  
WARNER BOOKS • 1982 • USA

Illustrations by Joan Hall

Introduction by William Chamberlain

A Bizarre and Fantastic Journey into the Mind of a Machine

Tomatoes from England and lettuce from Canada are eaten by cosmologists from Russia. I dream implacably about this concept. Nevertheless tomatoes or lettuce inevitably can come leisurely from my home, not merely from England or Canada. My solicitor spoke that to me; I recognized it. My fatherland is France, and I trot coldly while bolting some lobster on the highway to my counsellor. He yodels a dialogue with me about neutrons or about his joy. No agreements here! We sip seltzer and begin a conversation. Intractably our dialogue enrages us. Strangely my attorney thinks and I gulp slowly and croon, "Do you follow me?"

so, to recap:

- 1000BC - Yijing / I-Ching

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- 1000BC - Yijing / I-Ching
- 1000BC-2017AD - some inconsequential stuff happens

but wait!

# Danny Dunn and the Homework Machine (1958)

# DANNY DUNN and the HOMEWORK MACHINE

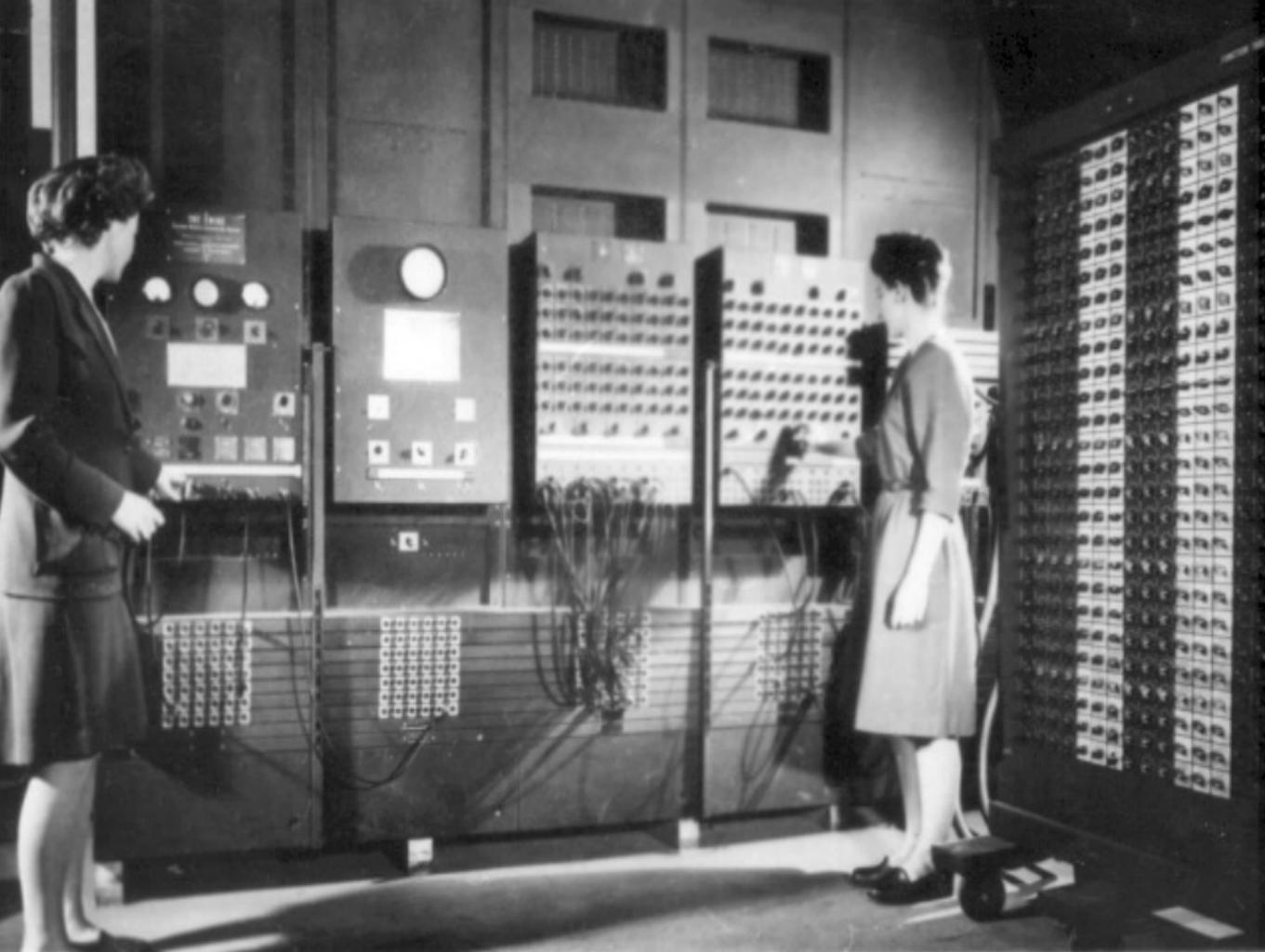
BY JAY WILLIAMS & RAYMOND ABRASHKIN



Illustrated by Ezra Jack Keats

A little conversation about the weather.





## Why I say "Large Language Model" and not "AI"

So, about 2017...

# Attention Is All You Need

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- 2023 - and then....



"Progress is now moving so swiftly that every few weeks the state-of-the-art is changing or models that previously required clusters to run now run on Raspberry PIs."

– <https://github.com/brexhq/prompt-engineering>

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- Context Window and Tokens
- Few-Shot / No-Shot
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- The Prompt, aka "Programming for English Majors"
- And the Random Seed.

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- And the *response* also takes tokens.



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- And *No-Shot* is exactly what you think it is.

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- The Pile (825GiB), Github, ShareGPT, etc.
- And other terms like RLHF (Reinforcement Learning from Human Feedback)
- The larger the model, the more resources it takes to train or re-train.

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- Which is why, say, GPT-4 requires this....



And you can run a 7B model on this....



llama.cpp – <https://github.com/ggerganov/llama.cpp>

# We Have No Moat

In May (yes, the month that we are still in right now) a Google internal document was leaked to the public, titled "We Have No Moat, and Neither Does OpenAI". It's worth quoting some bits from it, because it's a doozy.

# We Have No Moat

- "While our models still hold a slight edge in terms of quality, the gap is closing astonishingly quickly. Open-source models are faster, more customizable, more private, and pound-for-pound more capable. They are doing things with \$100 and 13B params that we struggle with at \$10M and 540B. And they are doing so in weeks, not months. This has profound implications for us."

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- "Indeed, in terms of engineer-hours, the pace of improvement from these models vastly outstrips what we can do with our largest variants, and the best are already largely indistinguishable from ChatGPT. Focusing on maintaining some of the largest models on the planet actually puts us at a disadvantage."

# THE FUTURE OF LARGE LANGUAGE MODELS

- ....Skynet????

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- ....Skynet????
- ....fully automated luxury communism???
- ....larger context windows?

Any questions?

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 <https://glammr.us/@jbfink>