# LLMs: From Confusion to Illusion

A Journey Through NLP

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# Before the LLM Era – Dark Ages of NLP 🦕

A simpler time when algorithms followed rules and didn't throw tantrums.

- Regex: aka, "if this, then probably that"
- Bag of Words: the OG word salad
- TF-IDF: Weighing words like we weigh guilt
- RNNs & LSTMs: Basically memory-challenged toddlers
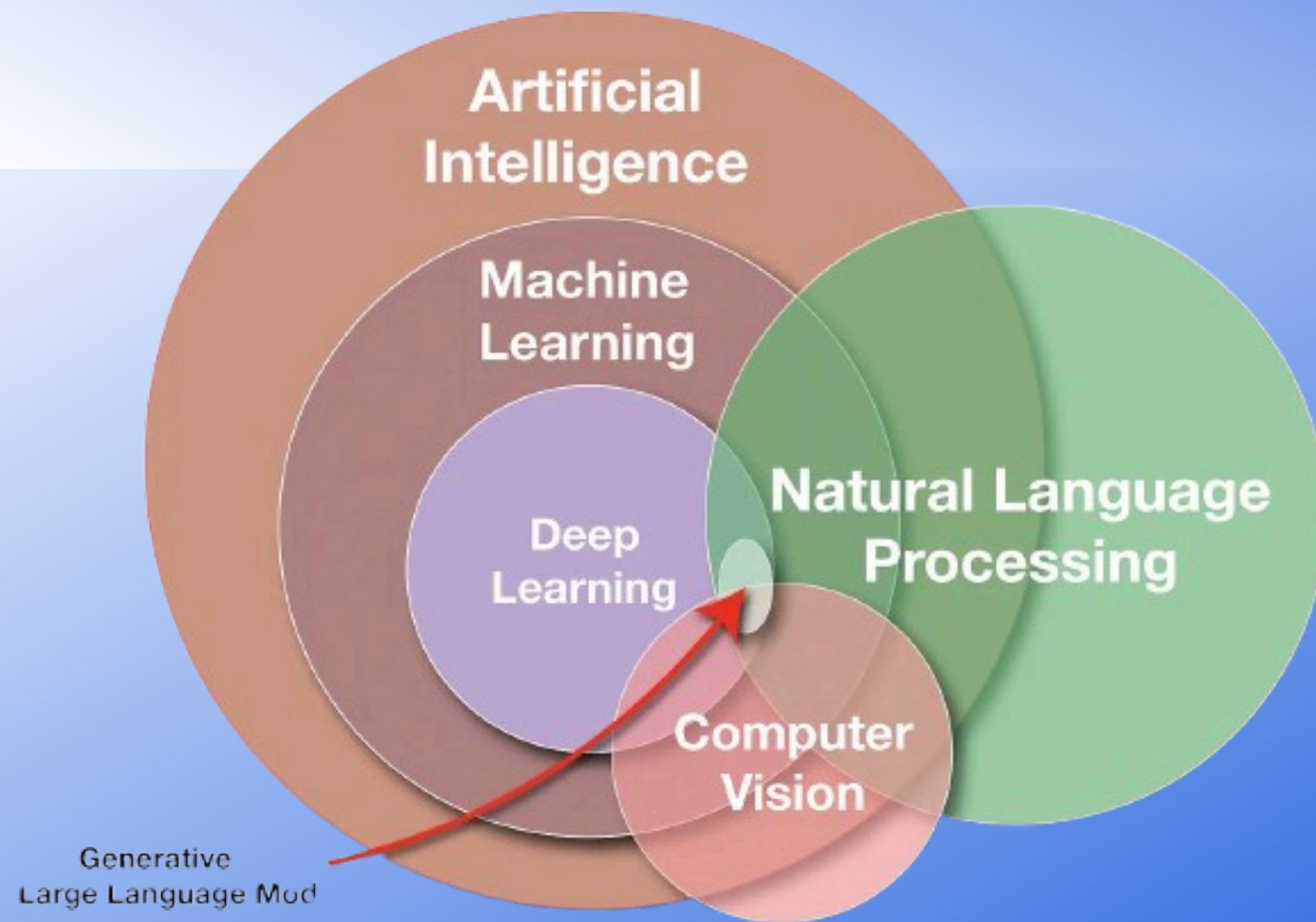
Google Assistant

alexa

# Understanding NLP: A Beginner's Guide

## NLP Basics – AKA Painful Terminology

NLP stands for Natural Language Processing, which is the field that **bridges human language and computers**. It enables machines to understand, interpret, and respond to text or speech like us!
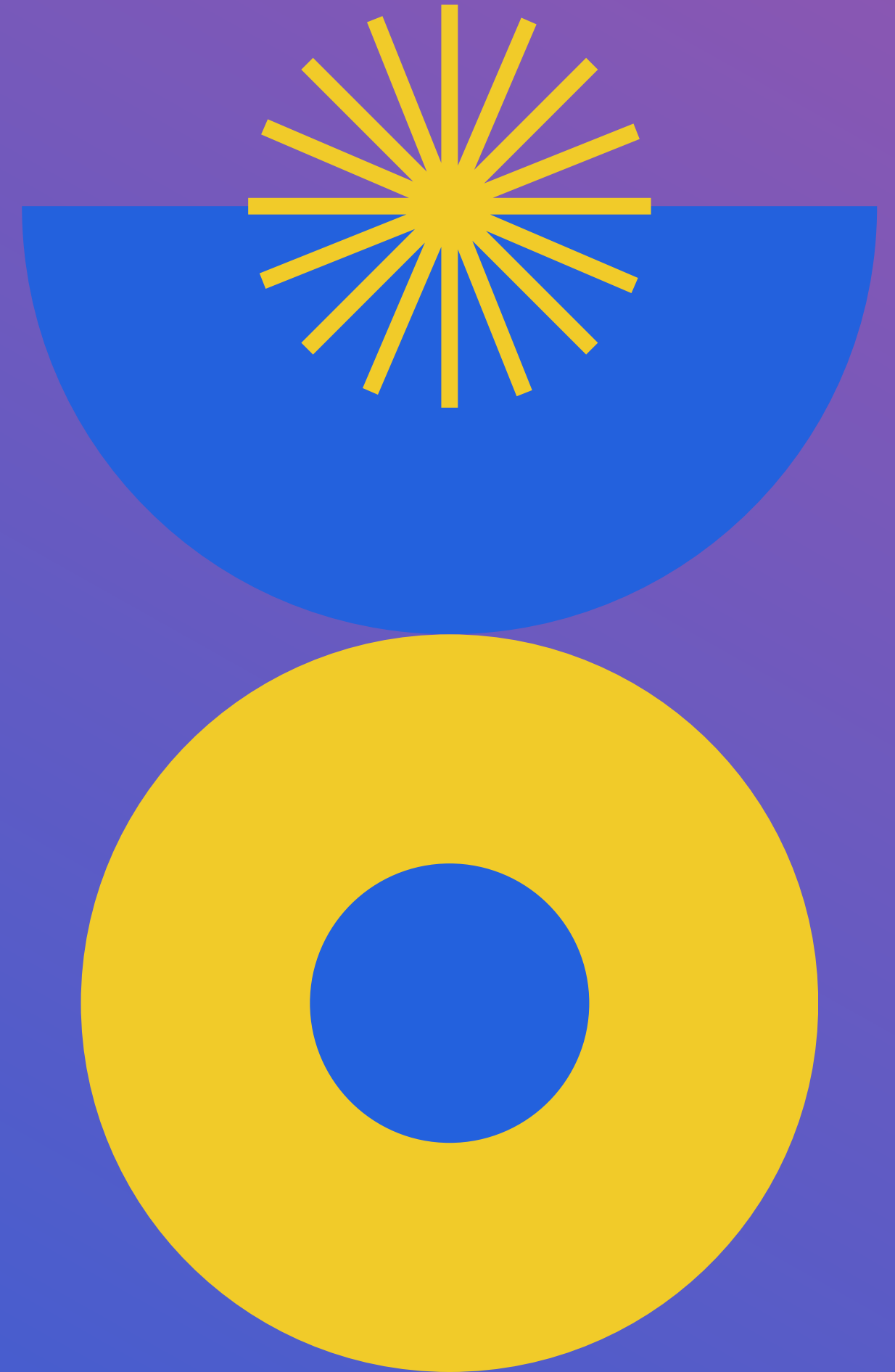
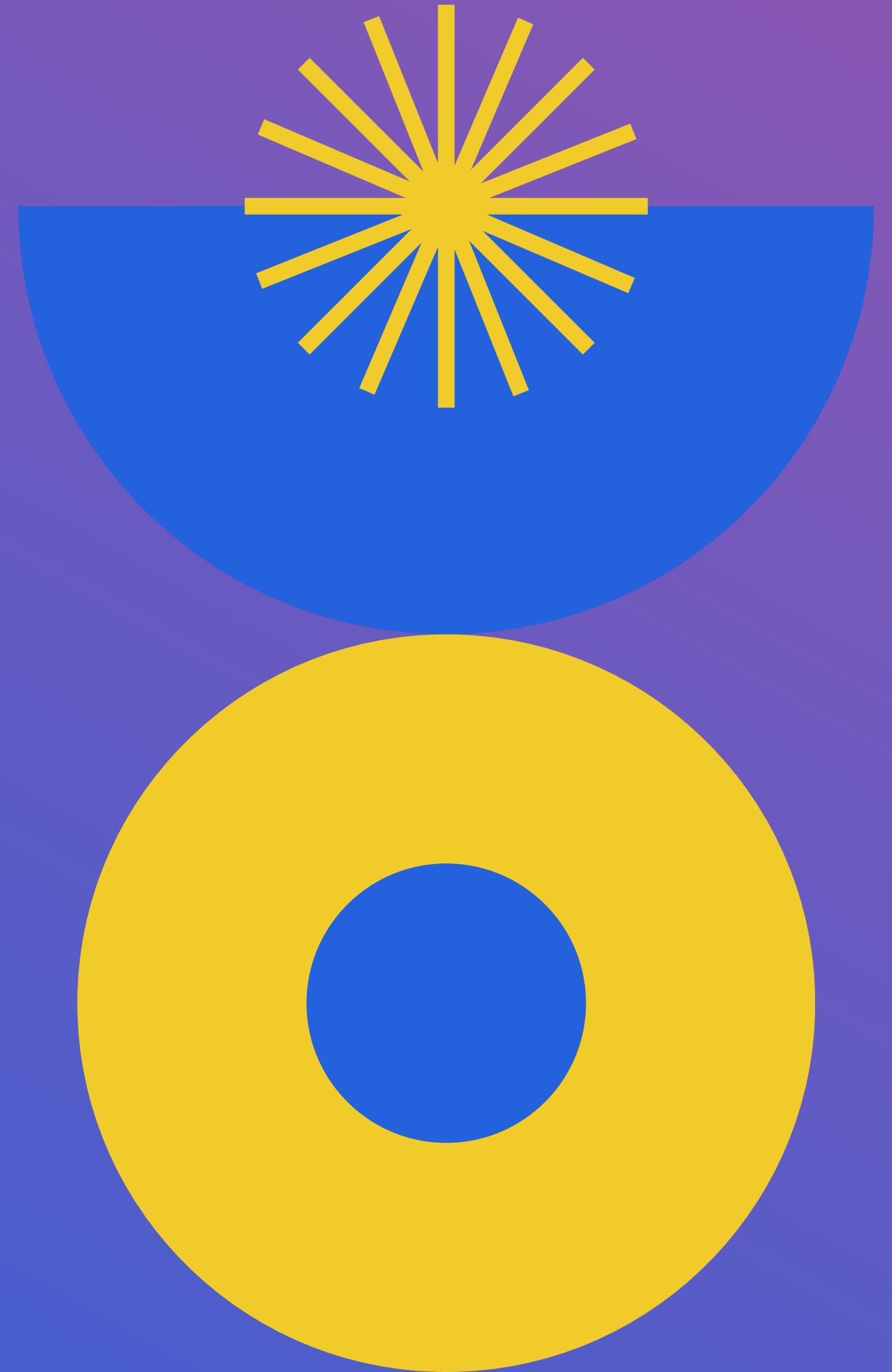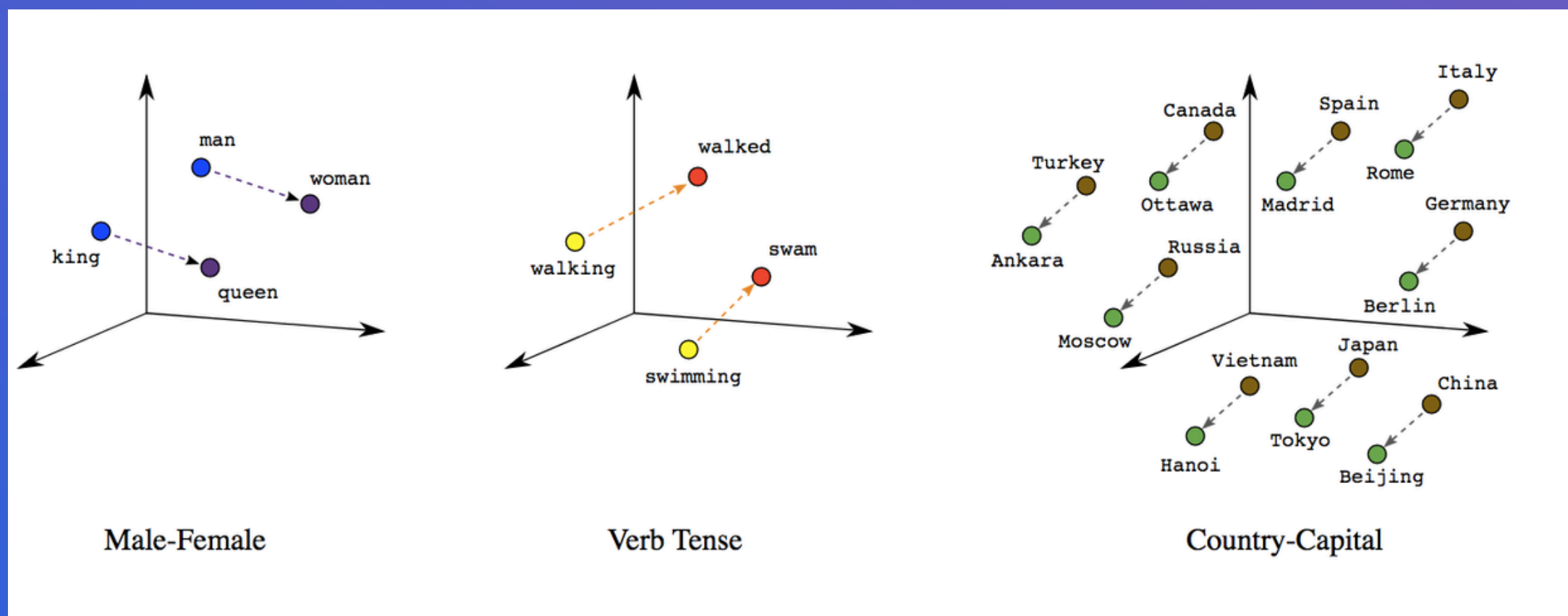# Tokenizaion

Slicing sentences into digital gibberish



"We love NLP!"

Tokenization

"We"  "love"  "NLP"  "!"

Tokens

# Embeddings

Map each token to a dense vector.

**Embedding**

| We | love | NLP |
|----|------|-----|
| ↓ | ↓ | ↓ |
| [0.18 | [0.56 | [0.56, |
| 0.64 | 0.11, | 0.11, |
| 0.32 ] | 0.89, | 0.89,] |
| 0,15 | 0,45] | 0,45] |

# Storing These embeddings



Male-Female     Verb Tense     Country-Capital

**These are the high-dimensional word embeddings inside LLMs — compressed to 3D just so our tiny human brains can pretend to understand how language relationships work.**
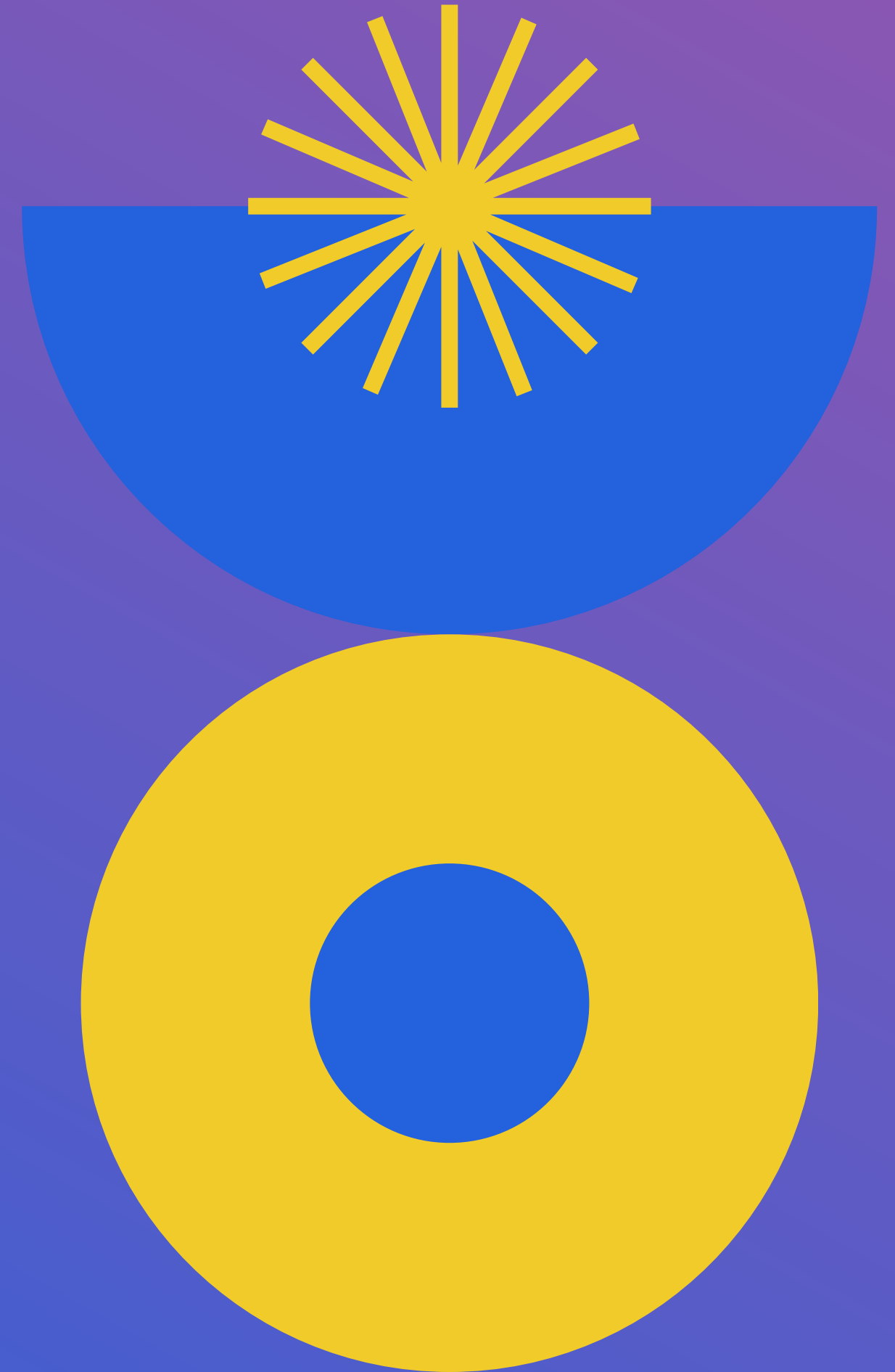
# 2017 – Google Drops the Mic
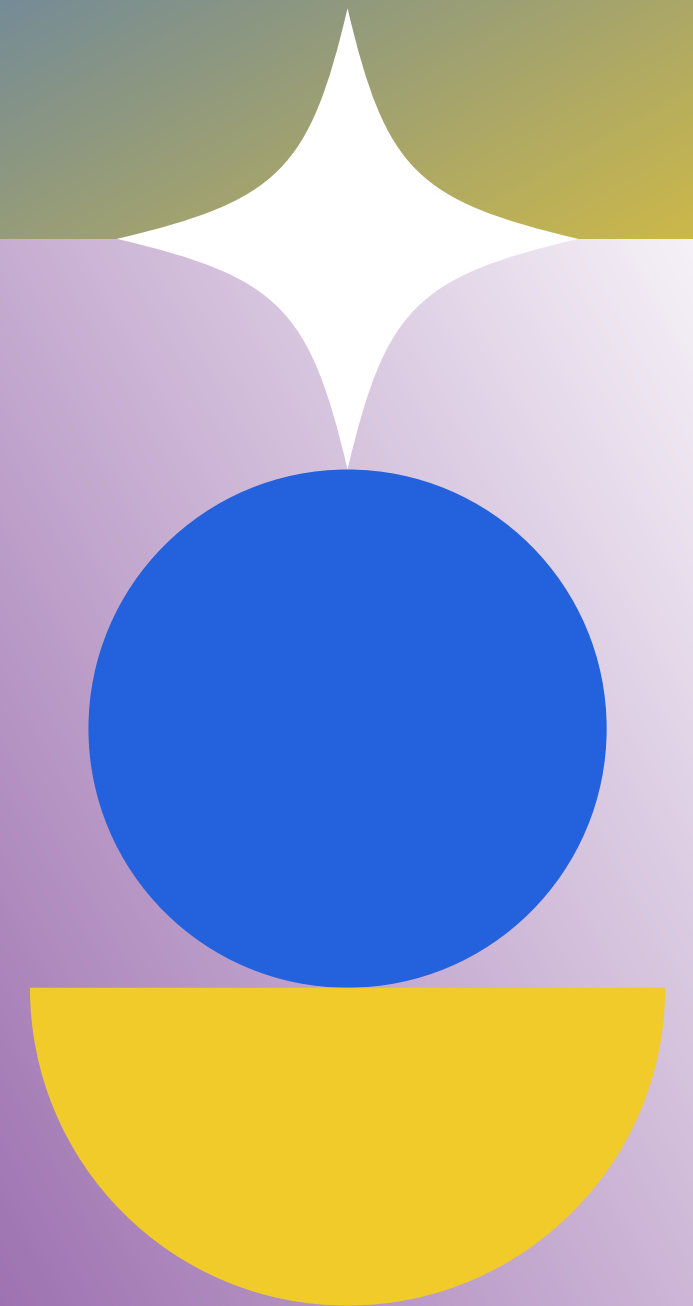
Attention is all you Need!

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- Vaswani et al., aka the squad that broke NLP
They **Introduced** Transformers

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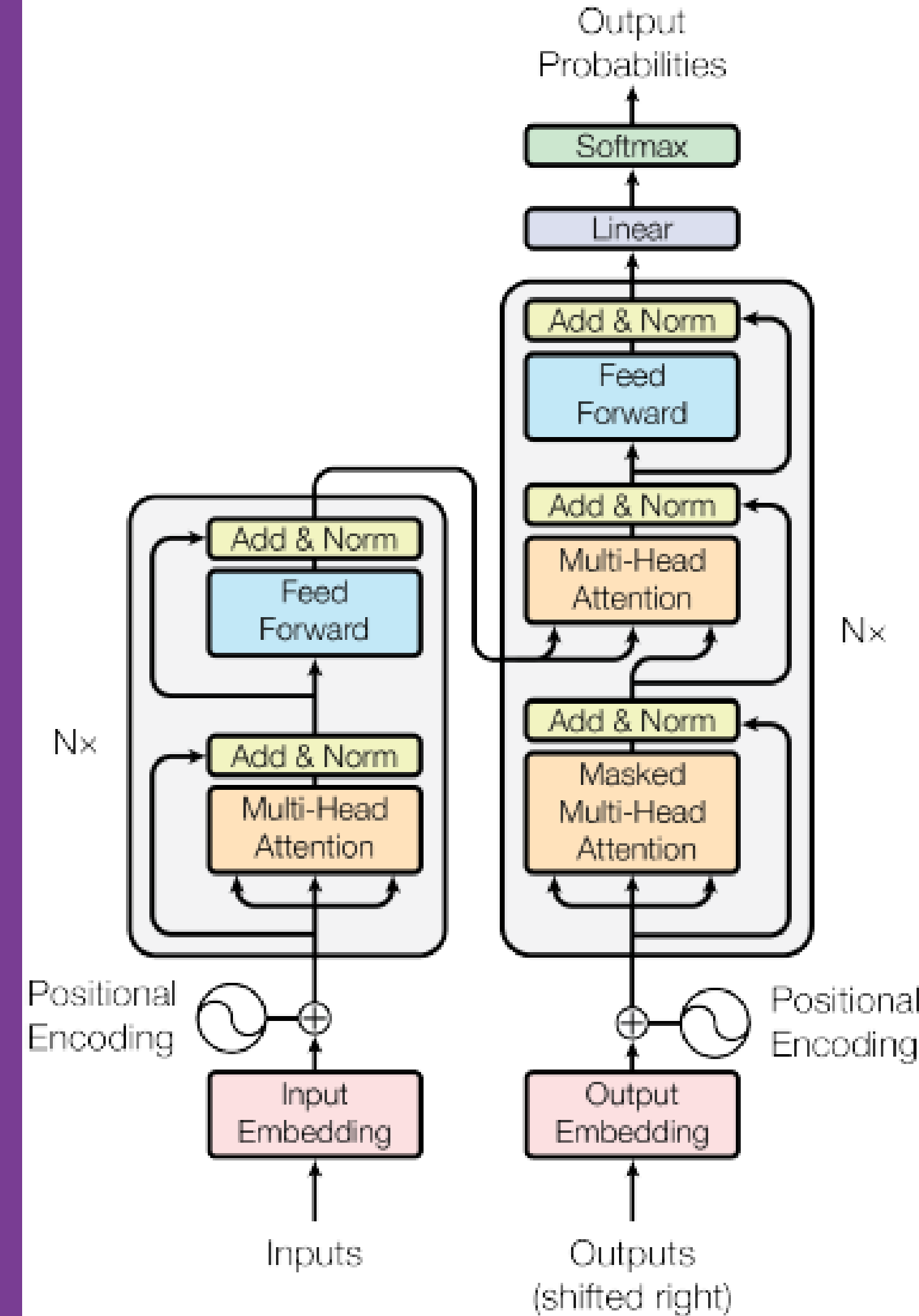
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# 2017 – Google Drops the Mic

Attention is all you Need!

_____
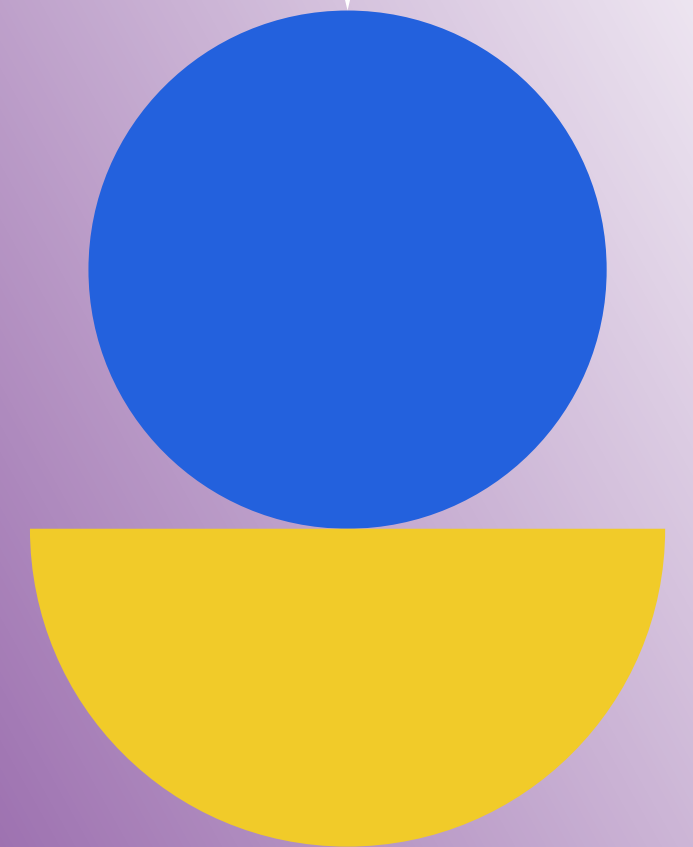
- Vaswani et al., aka the squad that broke NLP They **Introduced** Transformers

Attention mechanism: Where every word stares at every other word like it's in a reality show

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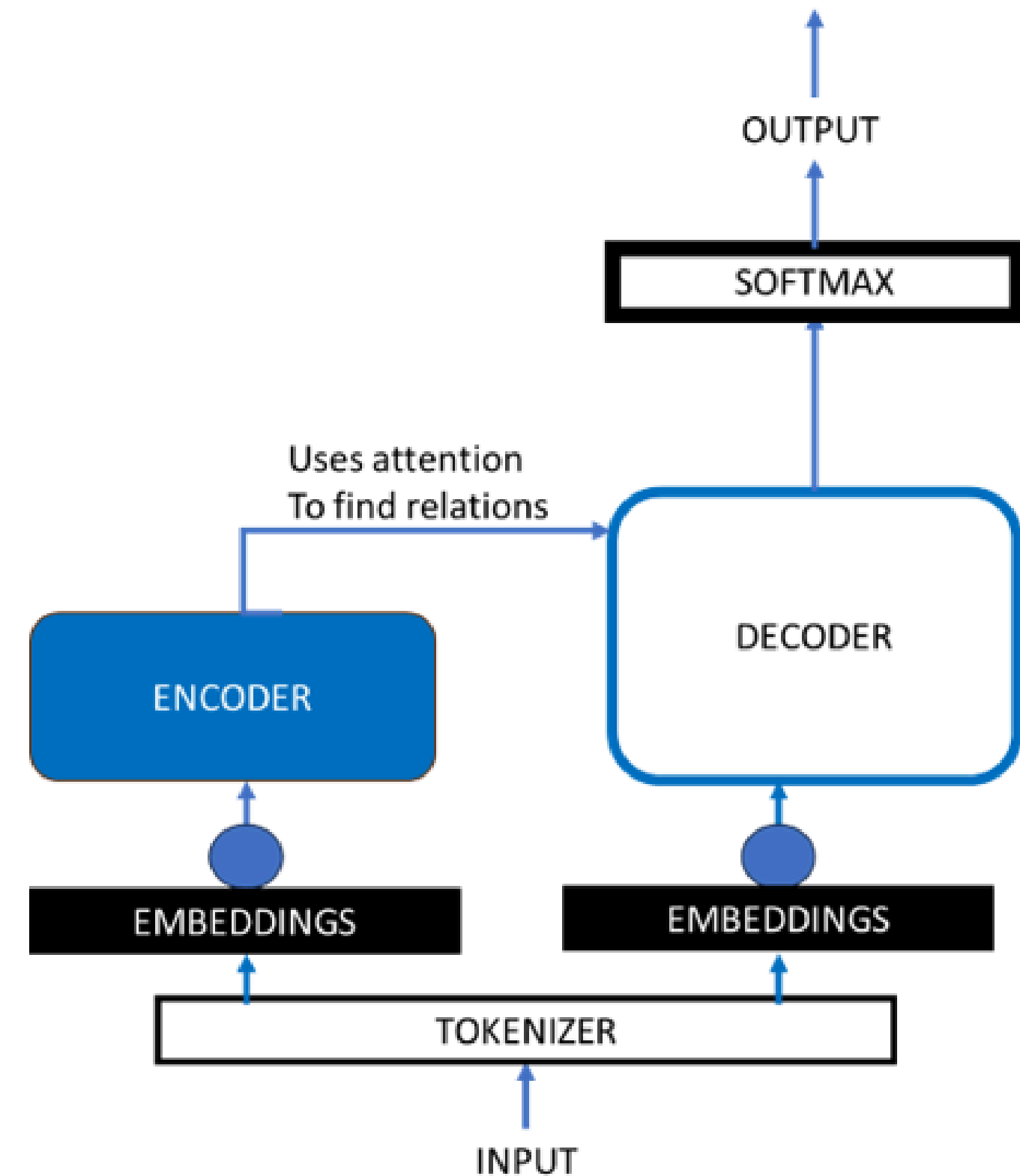
# Key Moments in LLM History

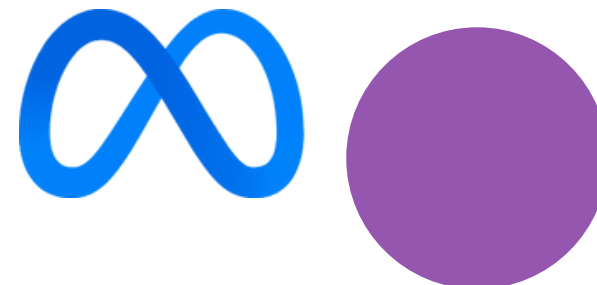**ELIZA (1966)**

**Transformer Models(2017)**

**GPT-2 (2019)**

**GPT-3 (2020)**

**LaMDA & PaLM (2021–2022)**
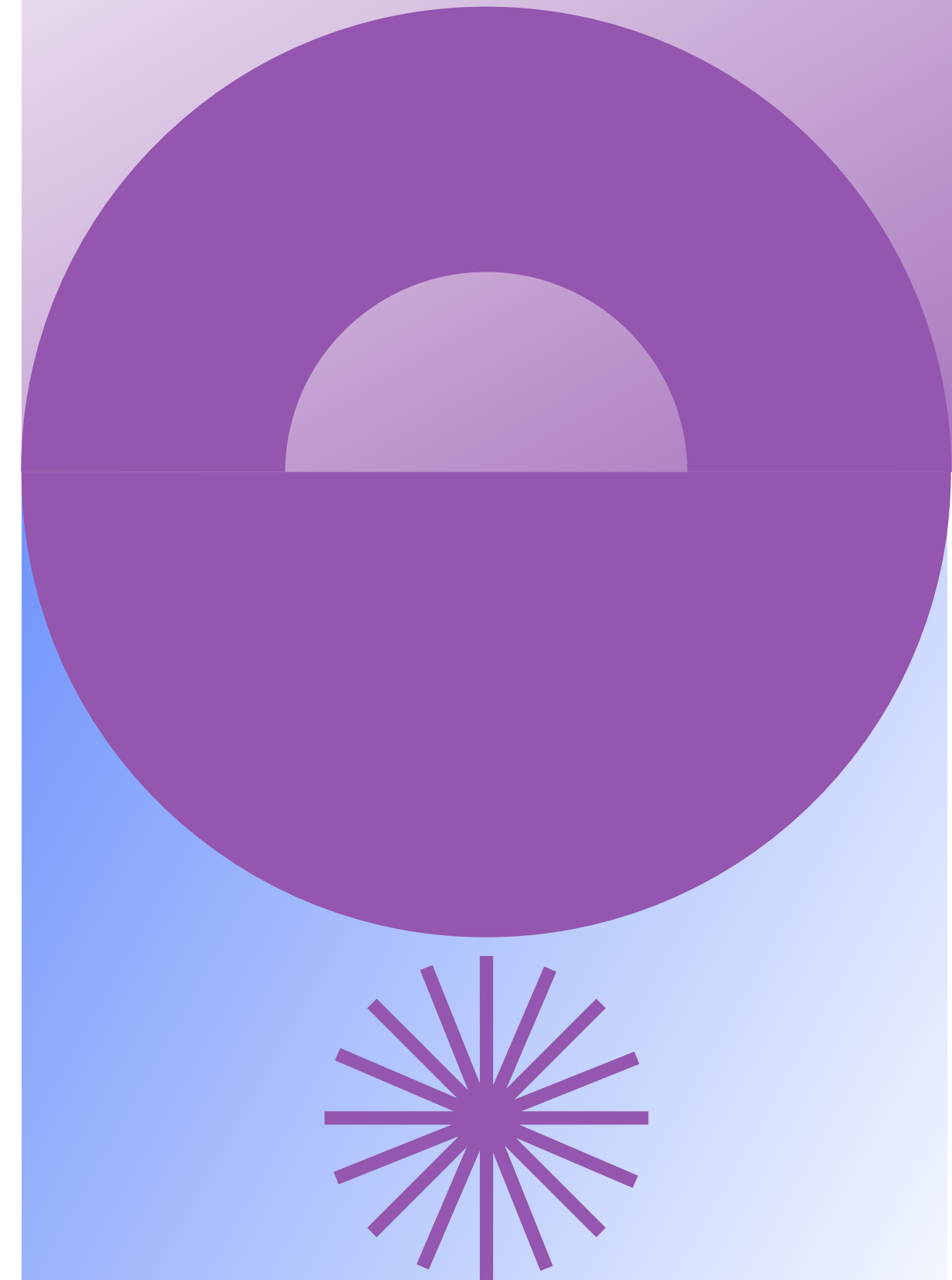
**ChatGPT (2022) – GPT3.5**

**Multimodal & Open-Source Boom (2023–2025)**

# Modern LLMs: What to Expect and Look For

## Here are the key features of modern LLMs:

- Large datasets, because size matters in AI.

- Human-like responses that might just fool you.

- Fine-tuning capabilities to make them **even smarter**.

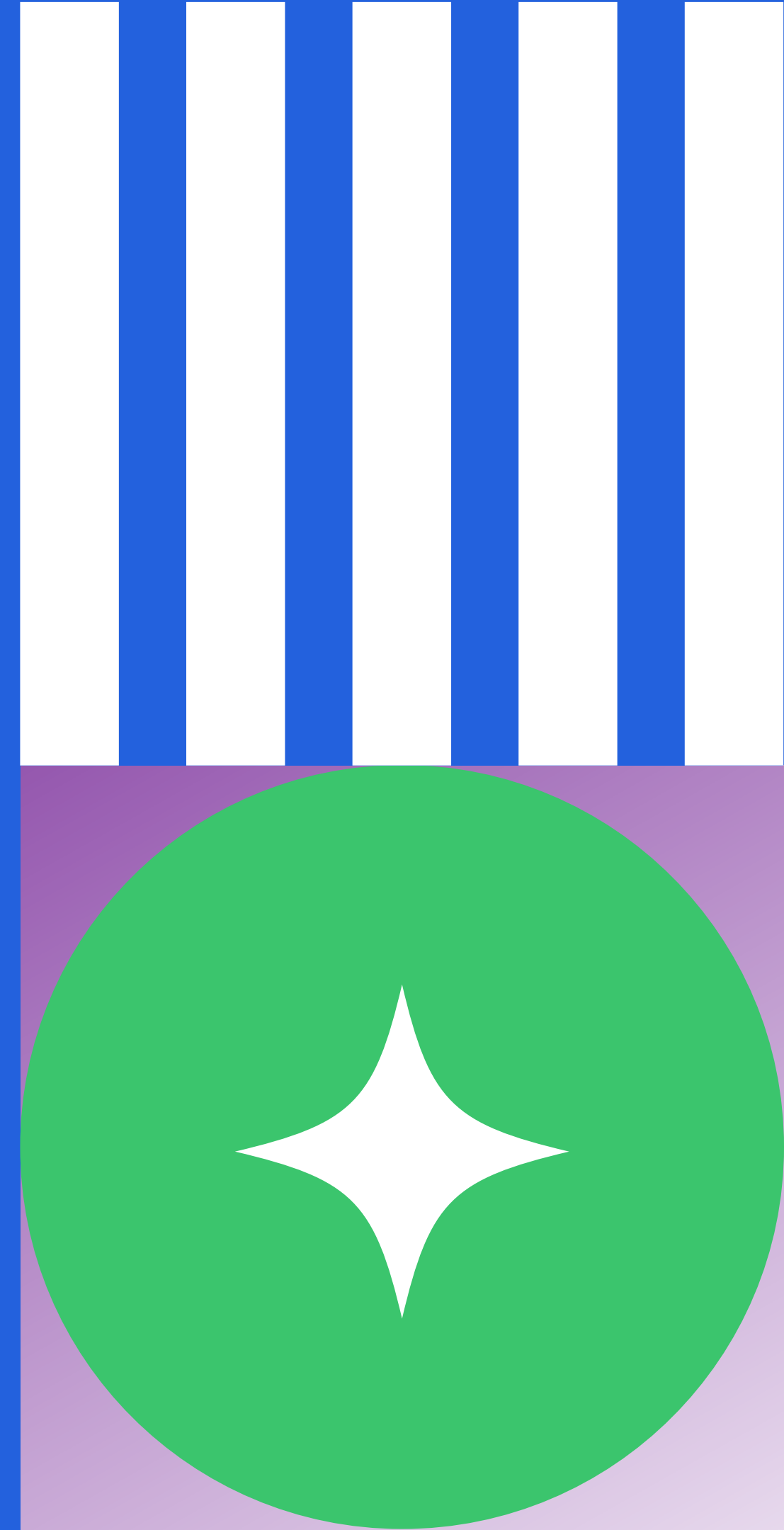- Ethical considerations, or at least we hope so!

# For More.
# Contact!

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# Let's Code!

GitHub

[github.com/thejatingupta7/Starting-with-LLMs](github.com/thejatingupta7/Starting-with-LLMs)

Tinyurl

[https://tinyurl.com/2fhda7bu](https://tinyurl.com/2fhda7bu)