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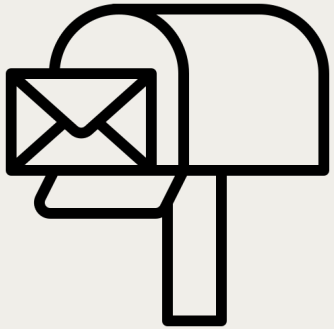
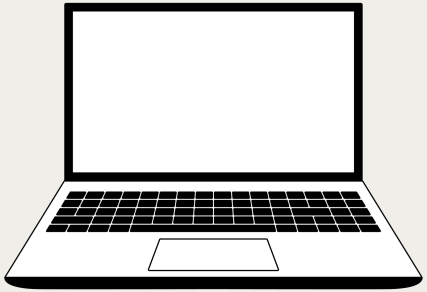
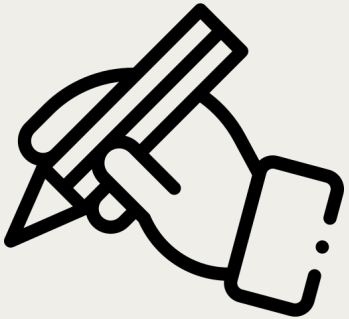
# How to Use NLP to Power Everyday Apps & Experiences

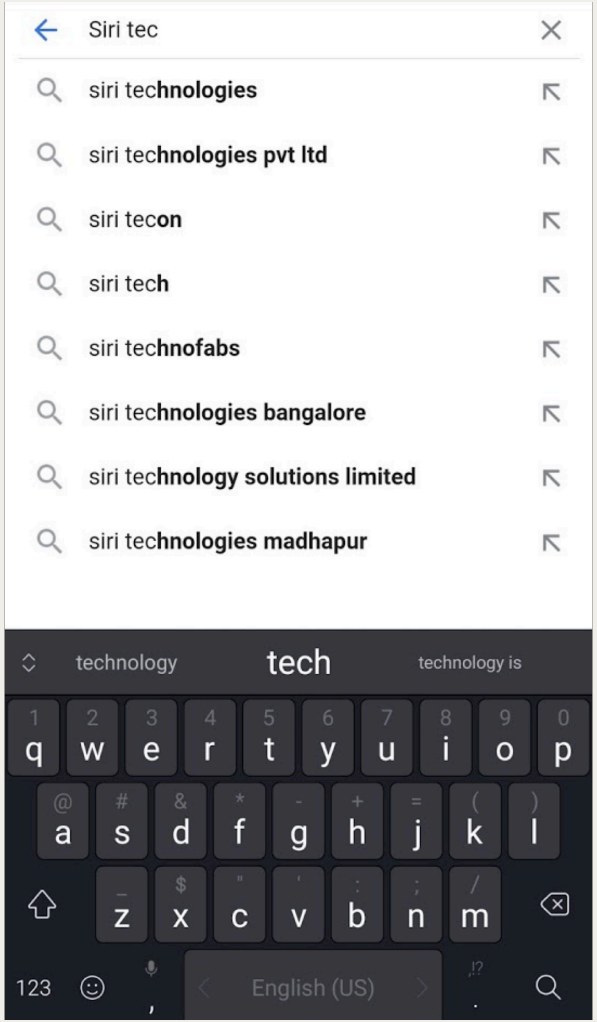
Alex Wang, Data and Evaluation Lead

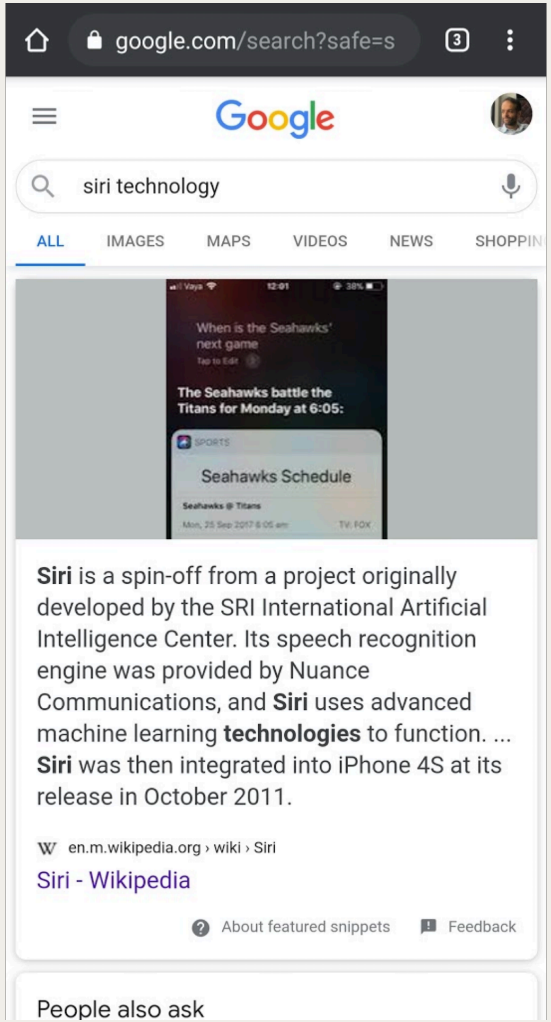
# NLP








Siri tec
siri technologies
siri technologies pvt ltd
siri tecon
siri tech
siri technofabs
siri technologies bangalore
siri technology solutions limited
siri technologies madhapur
technology
tech
technology is
English (US)


google.com/search?safe=s
Google
siri technology
ALL
IMAGES
MAPS
VIDEOS
NEWS
When is the Seahawks' next game
The Seahawks battle the Titans for Monday at 6:05:
Seahawks Schedule
Siri is a spin-off from a project originally developed by the SRI International Artificial Intelligence Center. Its speech recognition engine was provided by Nuance Communications, and Siri uses advanced machine learning technologies to function. ... Siri was then integrated into iPhone 4S at its release in October 2011.
en.m.wikipedia.org › wiki › Siri
Siri - Wikipedia
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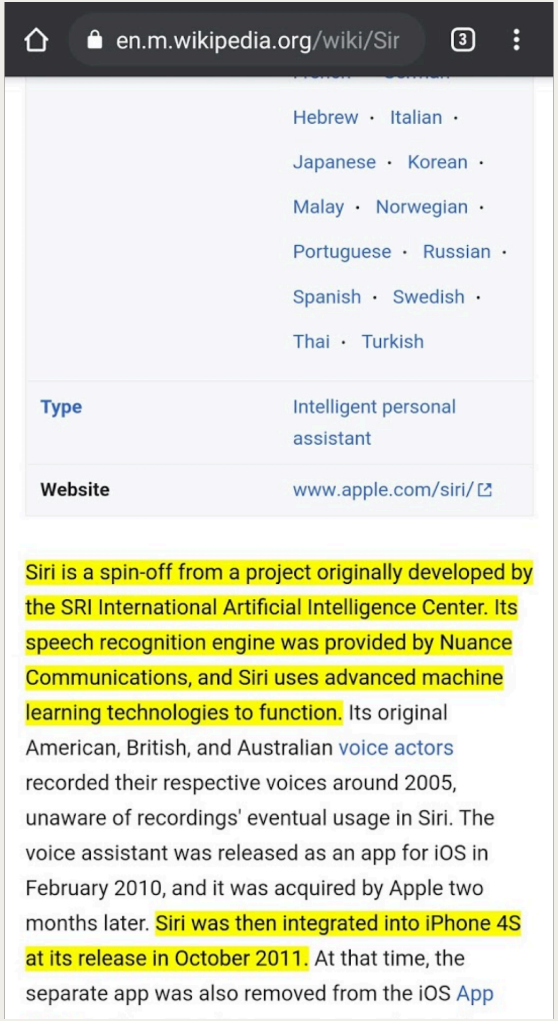
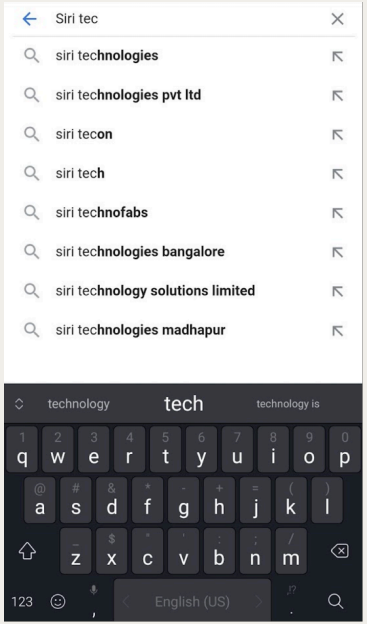

en.m.wikipedia.org/wiki/Sir
Hebrew · Italian ·
Japanese · Korean ·
Malay · Norwegian ·
Portuguese · Russian ·
Spanish · Swedish ·
Thai · Turkish
Type
Intelligent personal assistant
Website
www.apple.com/siri/
Siri is a spin-off from a project originally developed by the SRI International Artificial Intelligence Center. Its speech recognition engine was provided by Nuance Communications, and Siri uses advanced machine learning technologies to function. Its original American, British, and Australian voice actors recorded their respective voices around 2005, unaware of recordings' eventual usage in Siri. The voice assistant was released as an app for iOS in February 2010, and it was acquired by Apple two months later. Siri was then integrated into iPhone 4S at its release in October 2011. At that time, the separate app was also removed from the iOS App

# 1

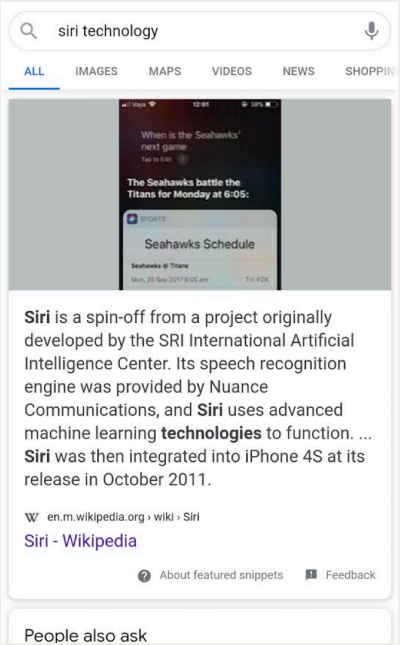



Next Word Prediction

# 1.5

Semantic Search

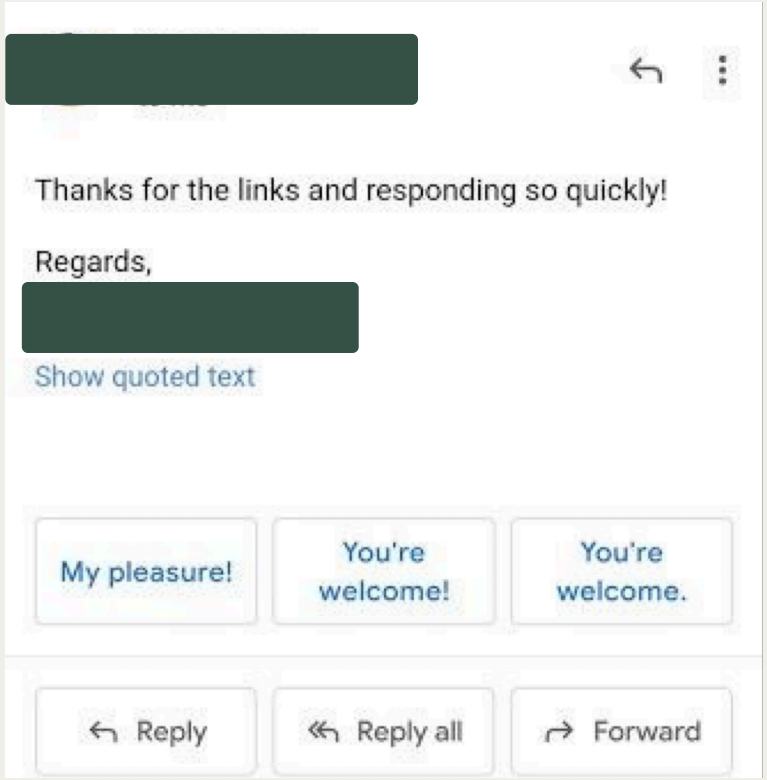
# 2




Question Answering

# 3

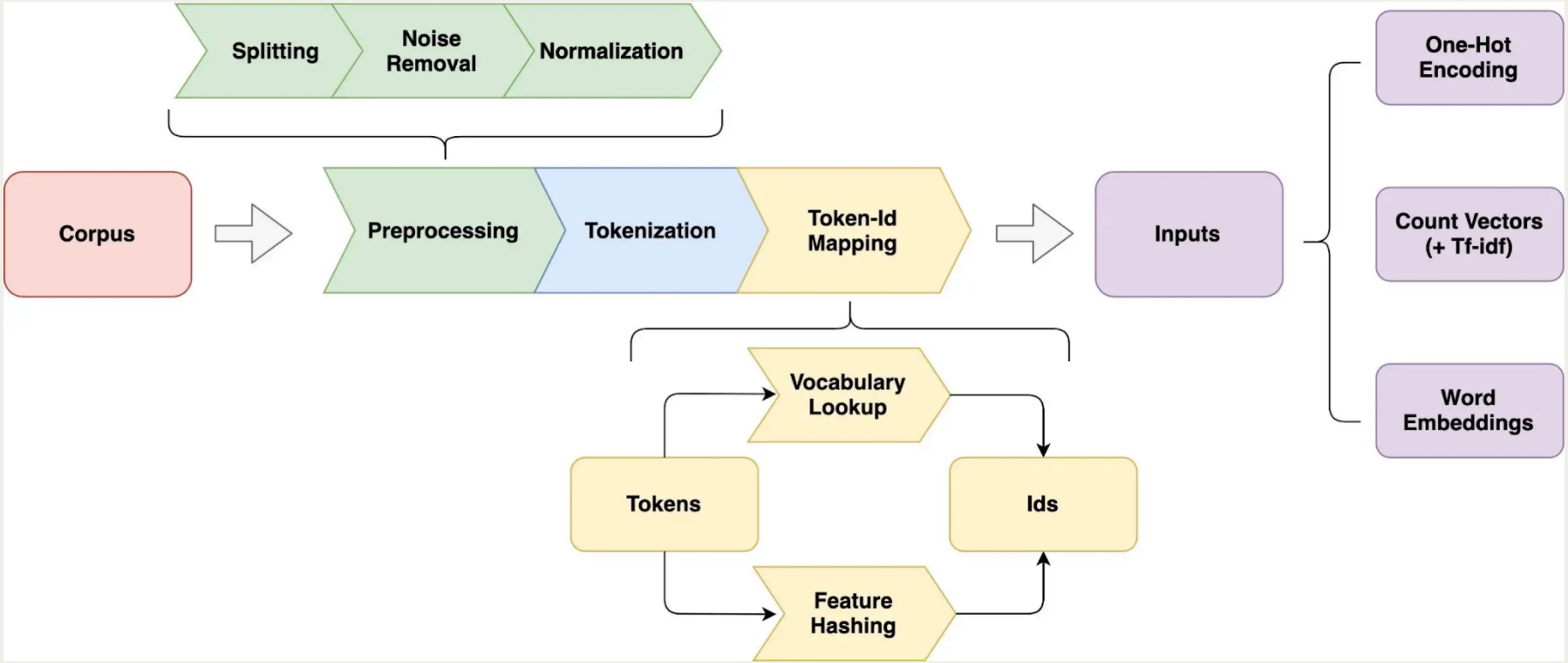
Text Extraction




**Response Selection**

# Understand NLP

# NLP Circa 2013




https://towardsdatascience.com/an-overview-for-text-representations-in-nlp-311253730af1

# NLP Circa 2020

# Language Modeling

The quick brown fox jumped over the lazy [???]

# Language Modeling

When it is raining, the ground will become [???]

When it is snowing, the ground will become [???]

When it is raining, we should bring an [???]

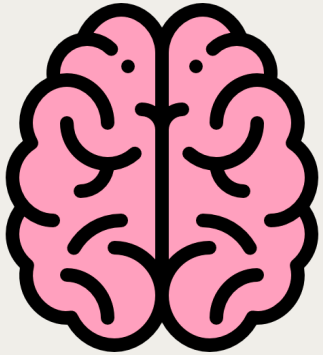
wet

white

umbrella

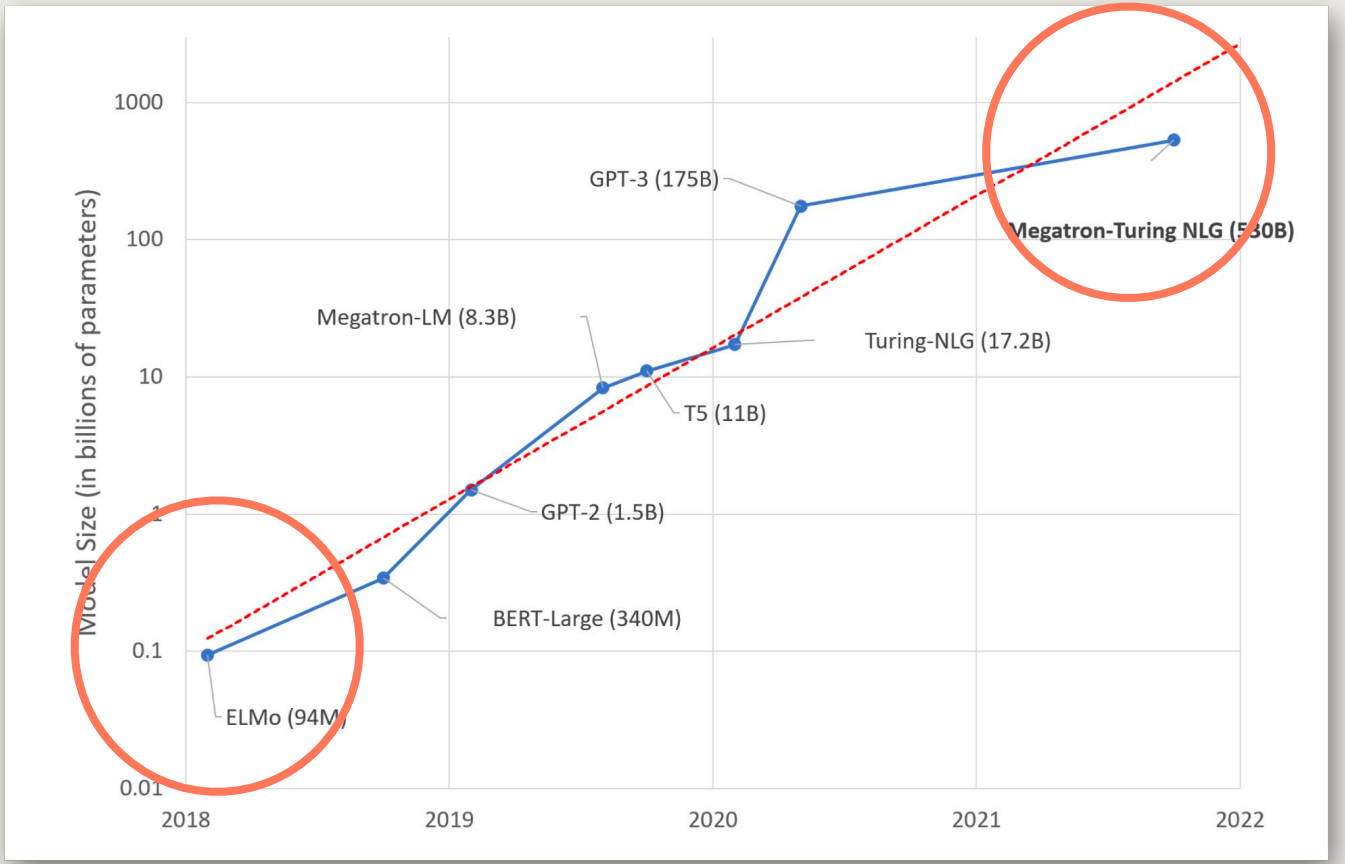
2018: 10M parameters

100M words

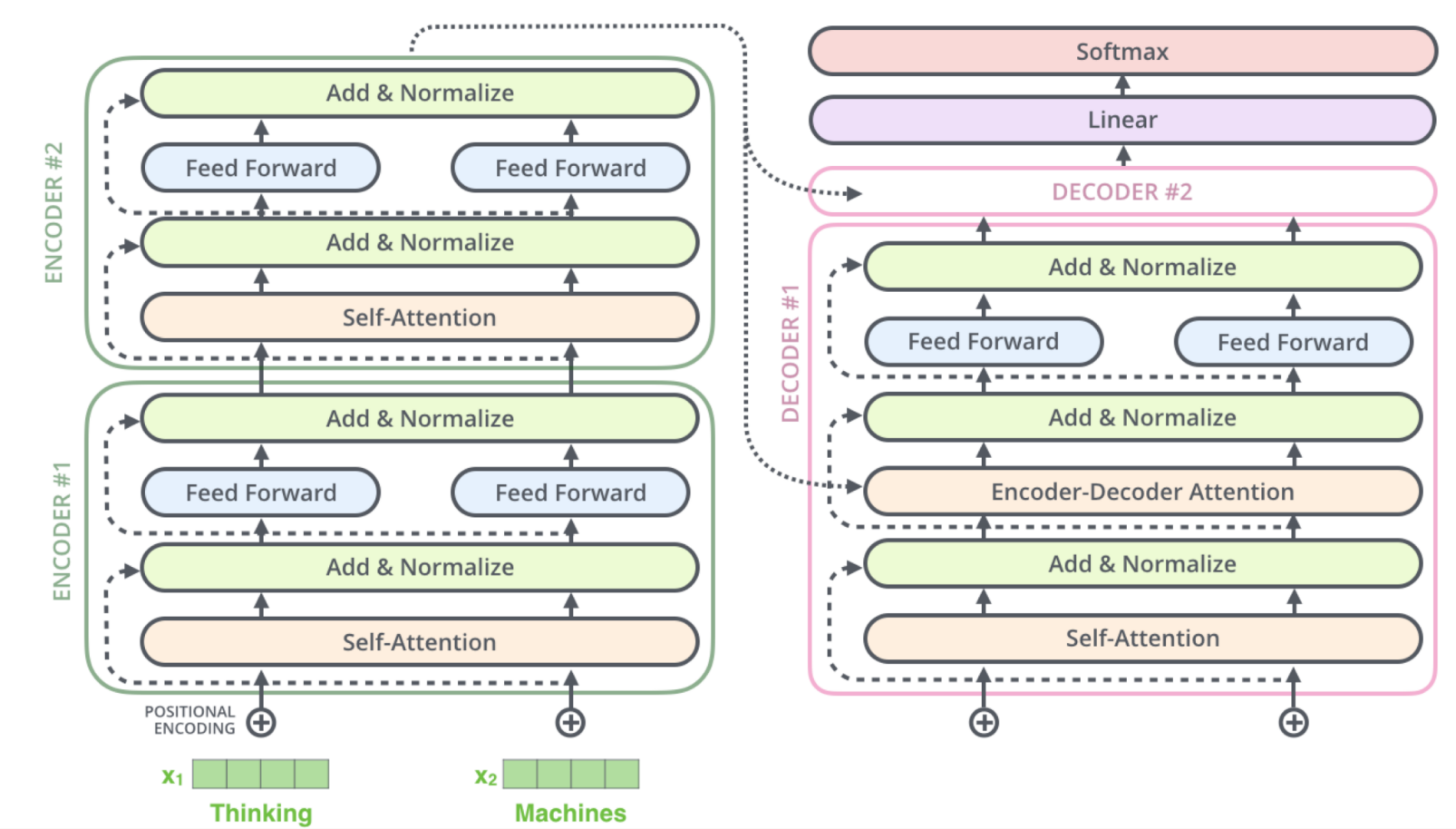


2023: 100B parameters

1T words




https://huggingface.co/blog/assets/33_large_language_models/01_model_size.jpg


Softmax
Linear
DECODER #2
DECODER #1
Add & Normalize
Feed Forward
Feed Forward
Add & Normalize
Encoder-Decoder Attention
Add & Normalize
Self-Attention
ENCODER #2
Add & Normalize
Feed Forward
Feed Forward
Add & Normalize
Self-Attention
ENCODER #1
Add & Normalize
Feed Forward
Feed Forward
Add & Normalize
Self-Attention
POSITIONAL ENCODING
x1
x2
Thinking
Machines

# Attention Is All You Need

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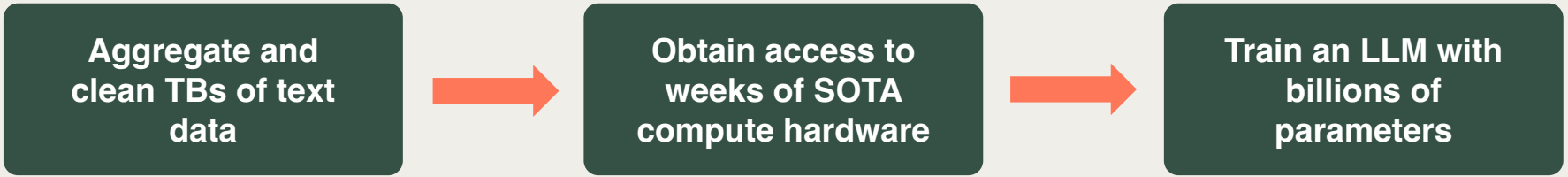
# How to Train an LLM: Take 1



# NLP, circa 2020: LLMs

# NLP, circa 2020: LLMs

What are some good places in Montréal to eat?

I'm going to be there for a week and I'm looking for some good places to eat.

# NLP, circa 2021: Prompt Engineering

| Task | Hacky LLM Prompt |
| --- | --- |
| Document Summarization | [Article]. tl;dr: |
| Question Answering | Question: What is the capital of Canada?<br>Answer: |
| Shakespeare Monologues | To be or not to be, …<br>But soft! What light through yonder… |

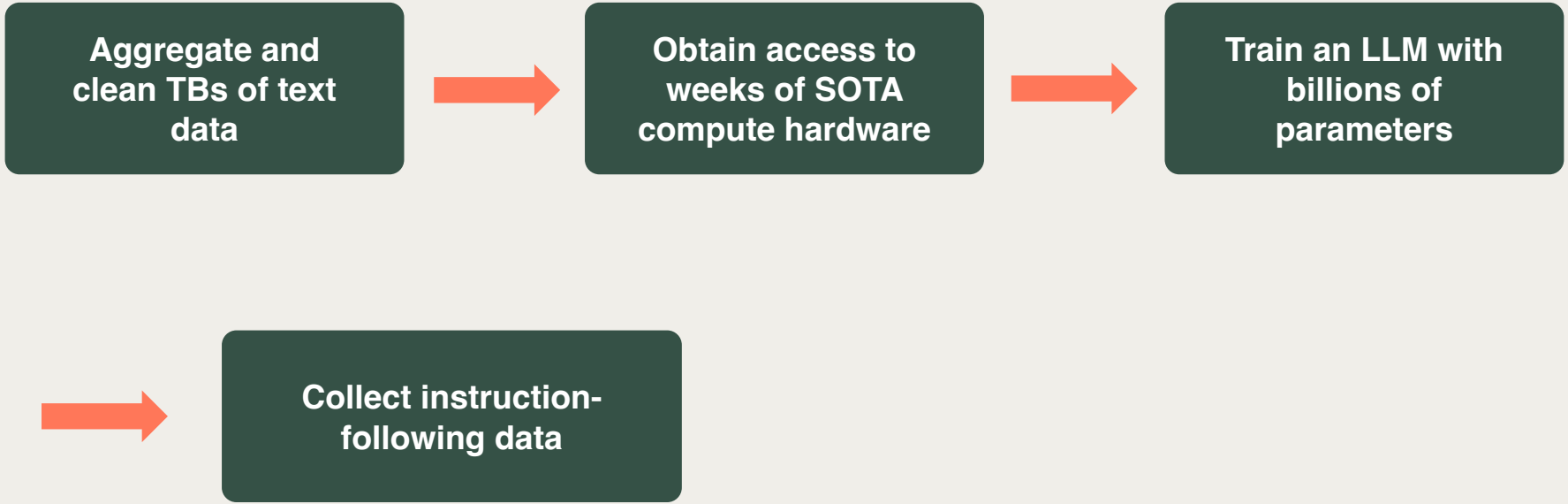
# NLP, circa 2021: Prompt Engineering

| Task | Hacky LLM Prompt | Desired Prompt |
|---|---|---|
| Document Summarization | [Article]. tl;dr: | Give me a summary of the following article: [Article] |
| Question Answering | Question: What is the capital of Canada?<br>Answer: | What is the capital of Canada? |
| Shakespeare Monologues | To be or not to be, …<br>But soft! What light through yonder… | Write a new Shakespearean monologue |

# NLP, circa 2021: Instruction-following LLMs

What are some good places in Montréal to eat?

# How to train LLM: Take 2



# NLP, circa 2022: Conversational LLMs

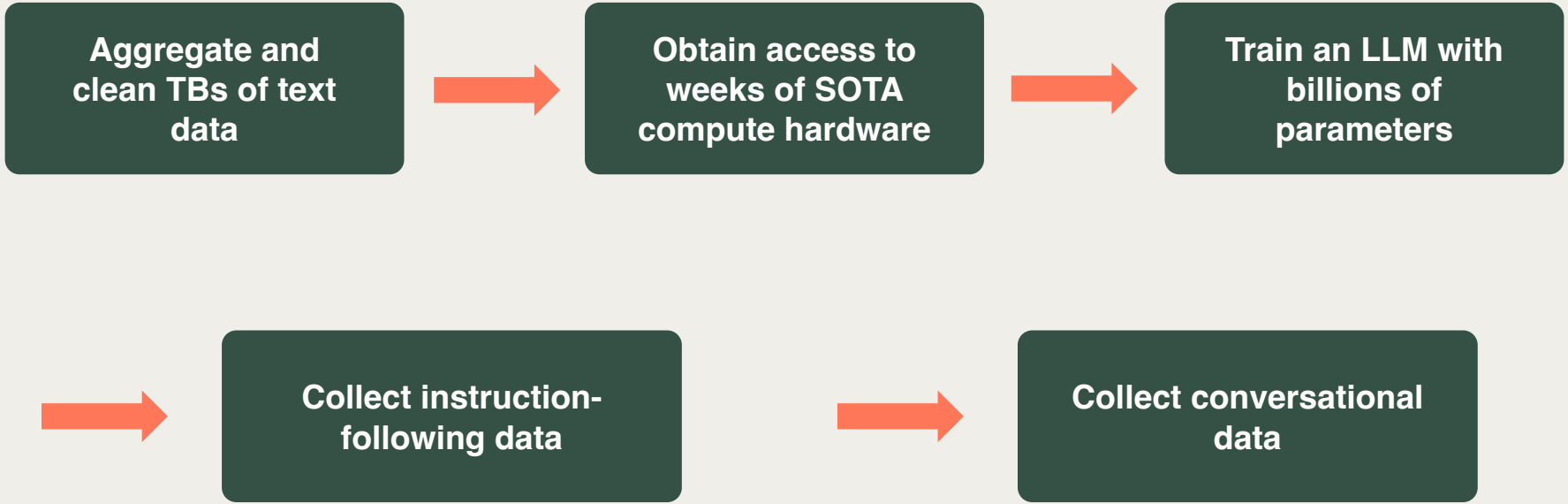
What are some good places in Montréal to eat?

1. Olive & Gourmando
2. Nora Gray
3. Dinette Triple Crown
4. [...]

What type of food is the first place?

Olive & Gourmando is known for its sandwiches

# How to train LLM: Take 3



# Cohere: Language AI for real-world business solutions

# NLP at Cohere

# NLP at Cohere

# NLP at Cohere

# NLP at Cohere

# NLP at Cohere

# NLP at Cohere

# NLP at Cohere

INSTALLATION

```
$ python -m pip install cohere
```

REQUEST

EXAMPLE EXAMPLE

```
1  import cohere
2  co = cohere.Client('<<apiKey>>')
3
4  response = co.generate(
5    prompt=prompt,
6  )
```

# Content by Cohere

COHERE TEAM

## How to Build a Product Description Generator with LLMs

# Content by Cohere

COHERE TEAM

## Extract Entities from Invoices Using Large Language Models

# Build NLP

# Engineering
# Marketing & Sales
# Business & Finance
# Customer Support
# Recruiting & HR

# Recognition

# Thank you!

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