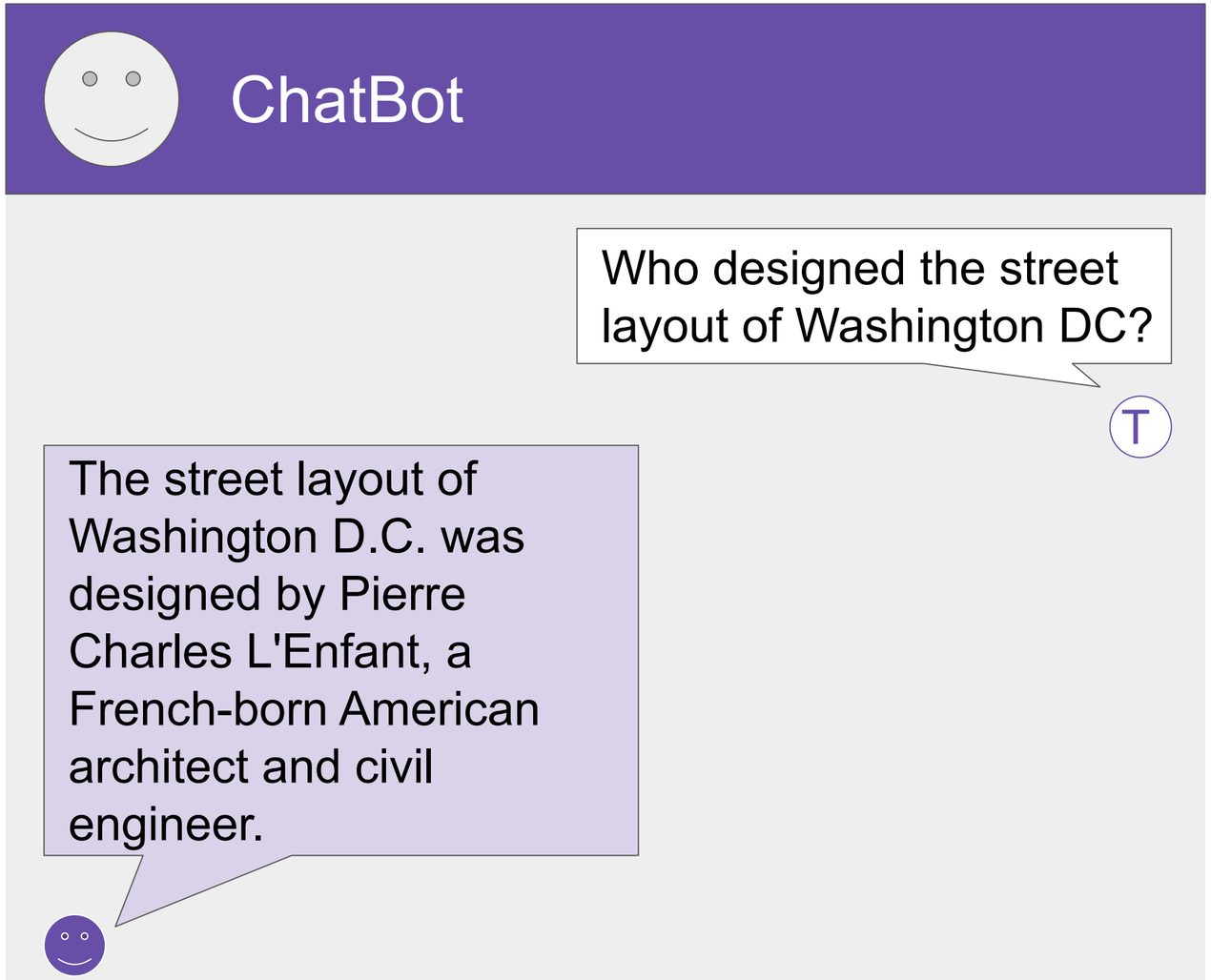
Copyright Notice

DeepLearning.AI

Generative AI & Large Language Models (LLMs)

USE CASES, PROJECT LIFECYCLE, AND MODEL PRE-TRAINING

Generative AI



Generative AI

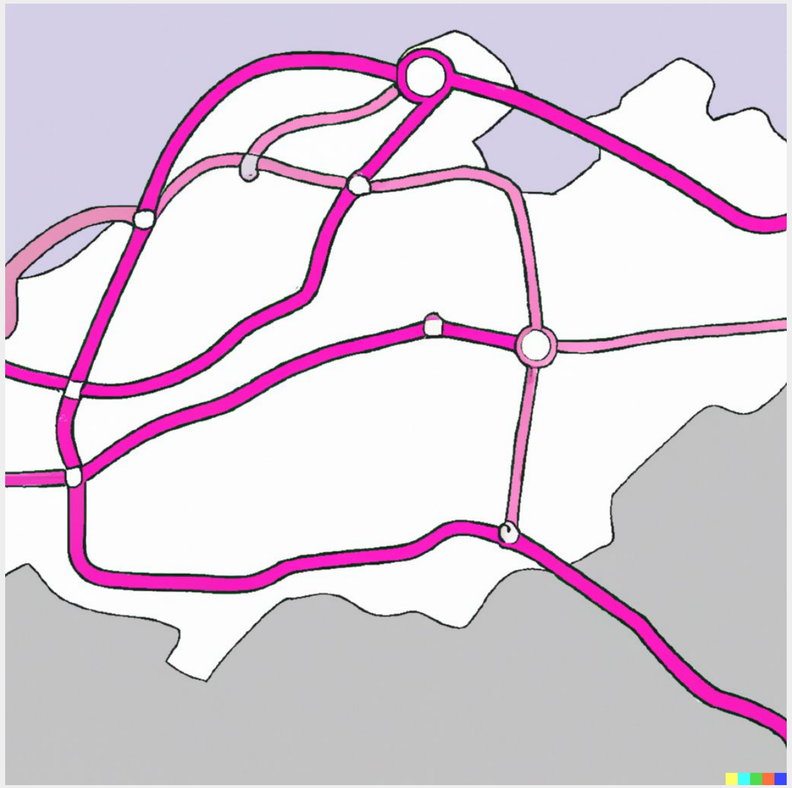
pAIntBox

What do you want to create?

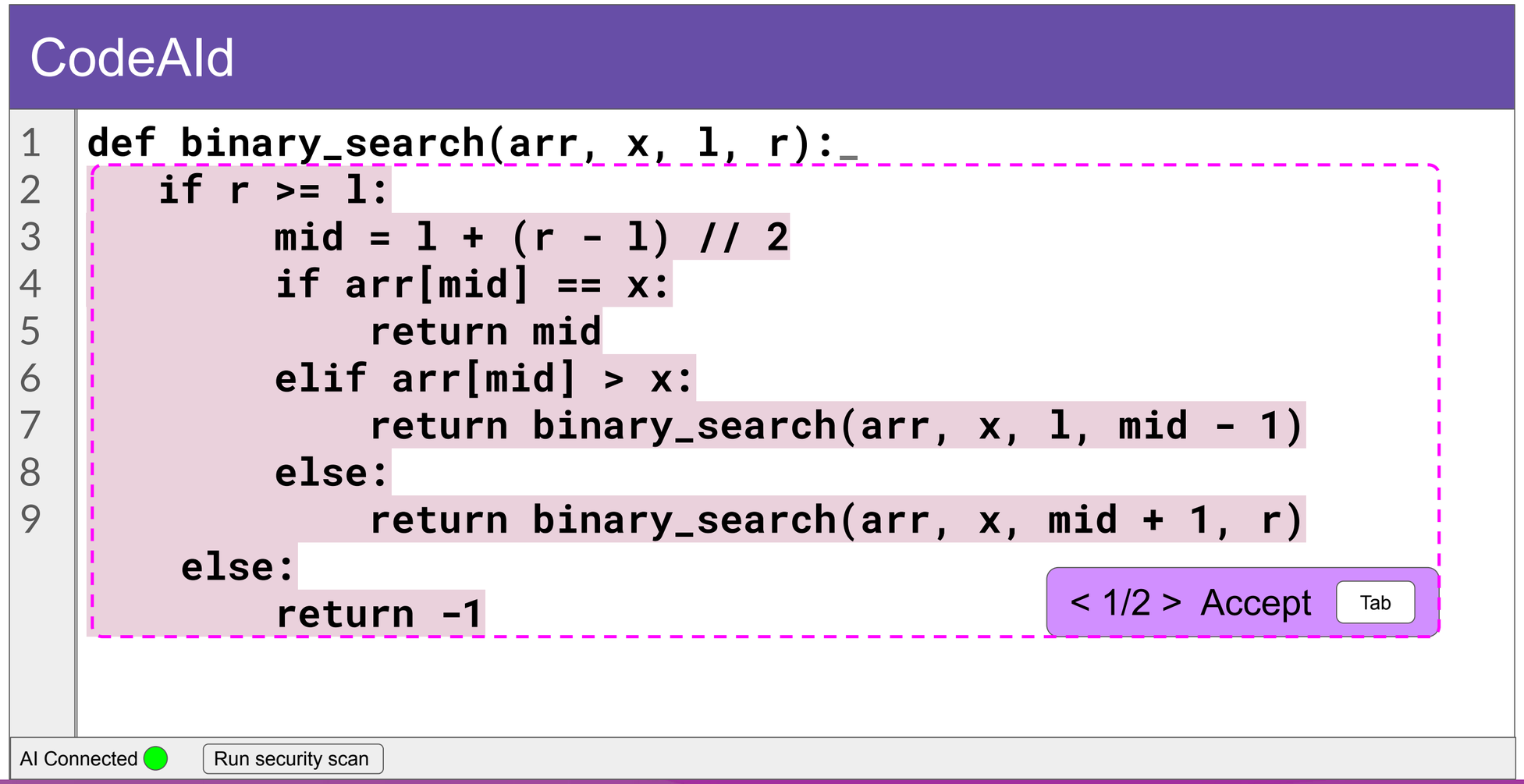
An imaginary subway map in a coastal city.

Image dimensions: by (Max 2048)

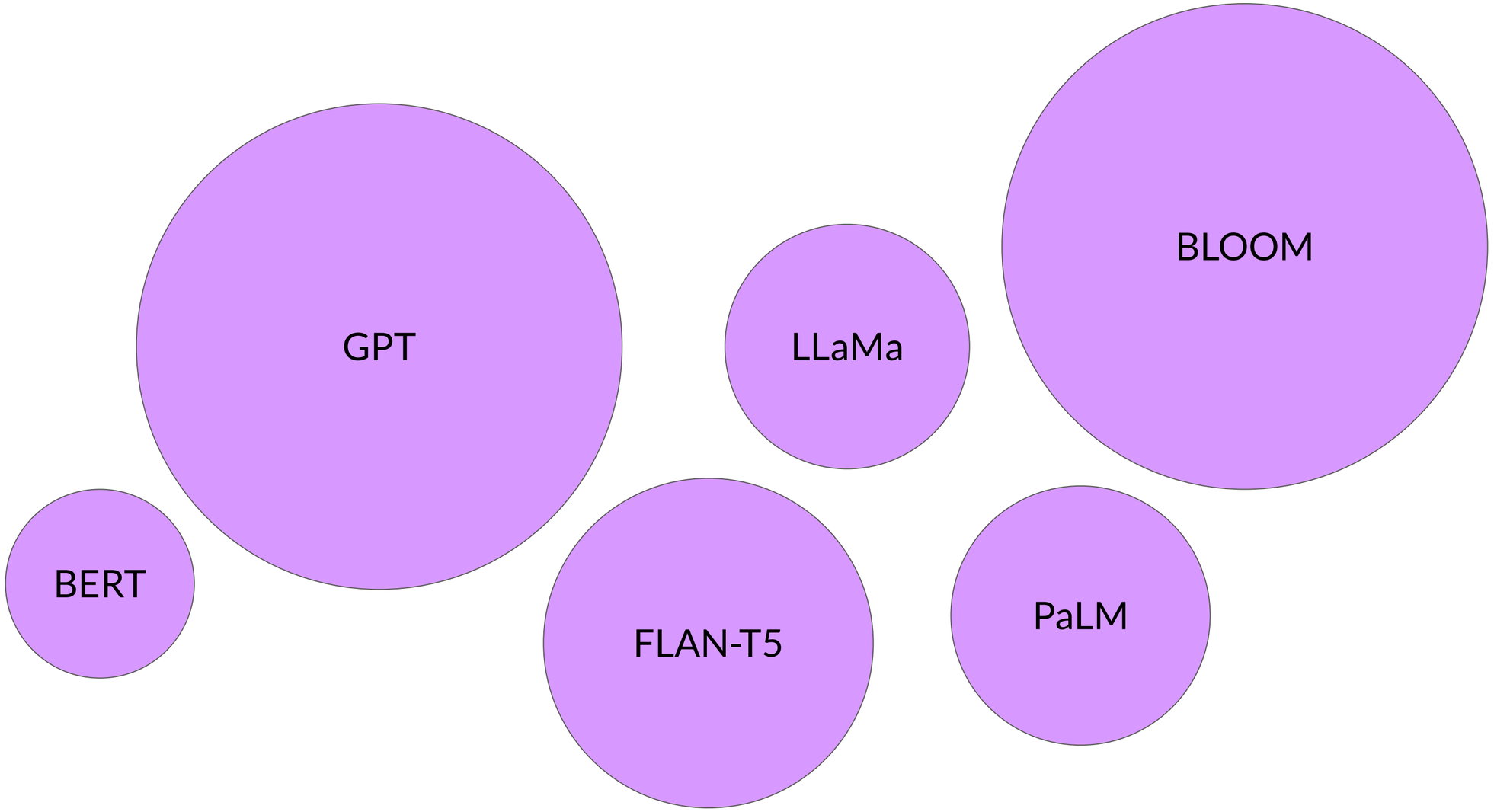
Generate



Generative AI

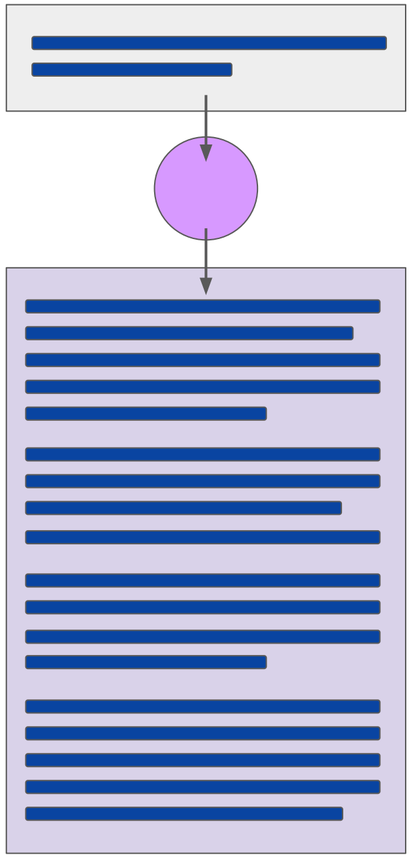


Large Language Models

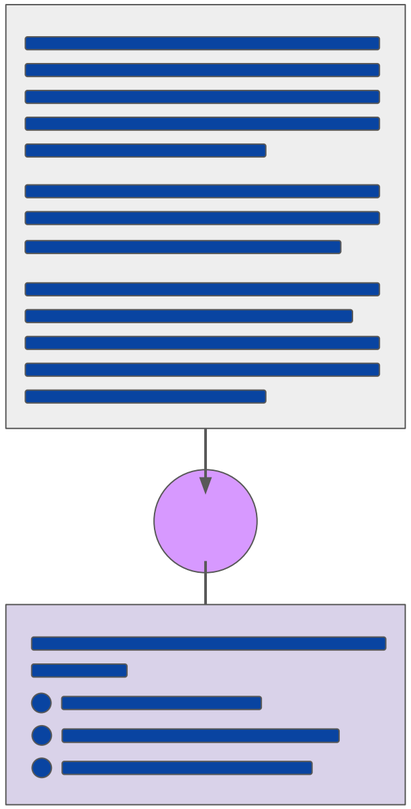


LLM use cases & tasks

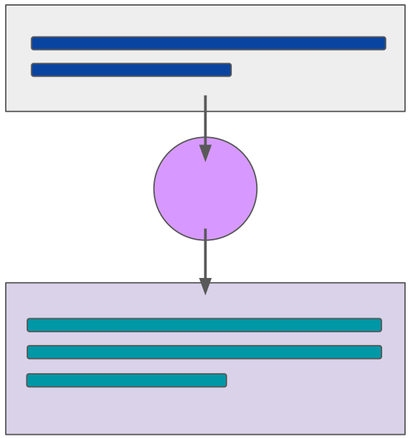
Essay Writing



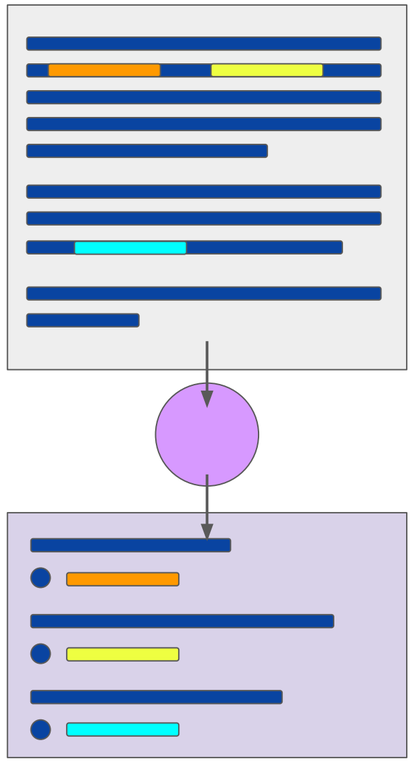
Summarization



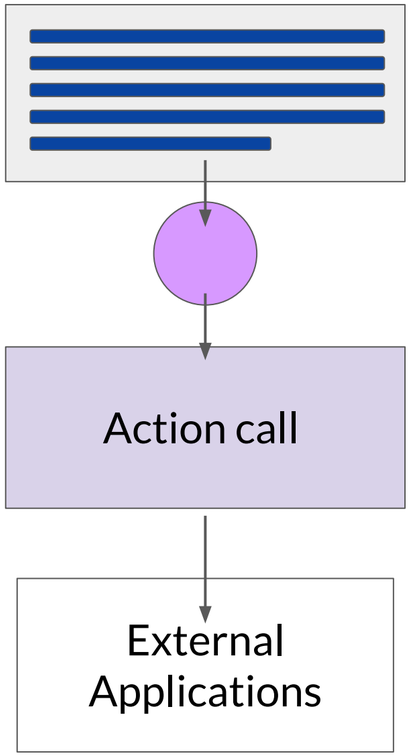
Translation



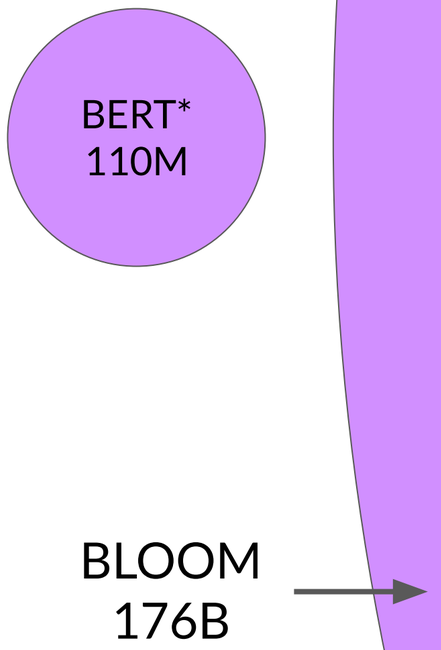
Information retrieval



Invoke APIs and actions



The significance of scale: language understanding



*Bert-base

How LLMs work - Transformers architecture

Understanding language can be challenging

The teacher's book?

The teacher taught the student with the book.

The student's book?

Transformers

Attention Is All You Need

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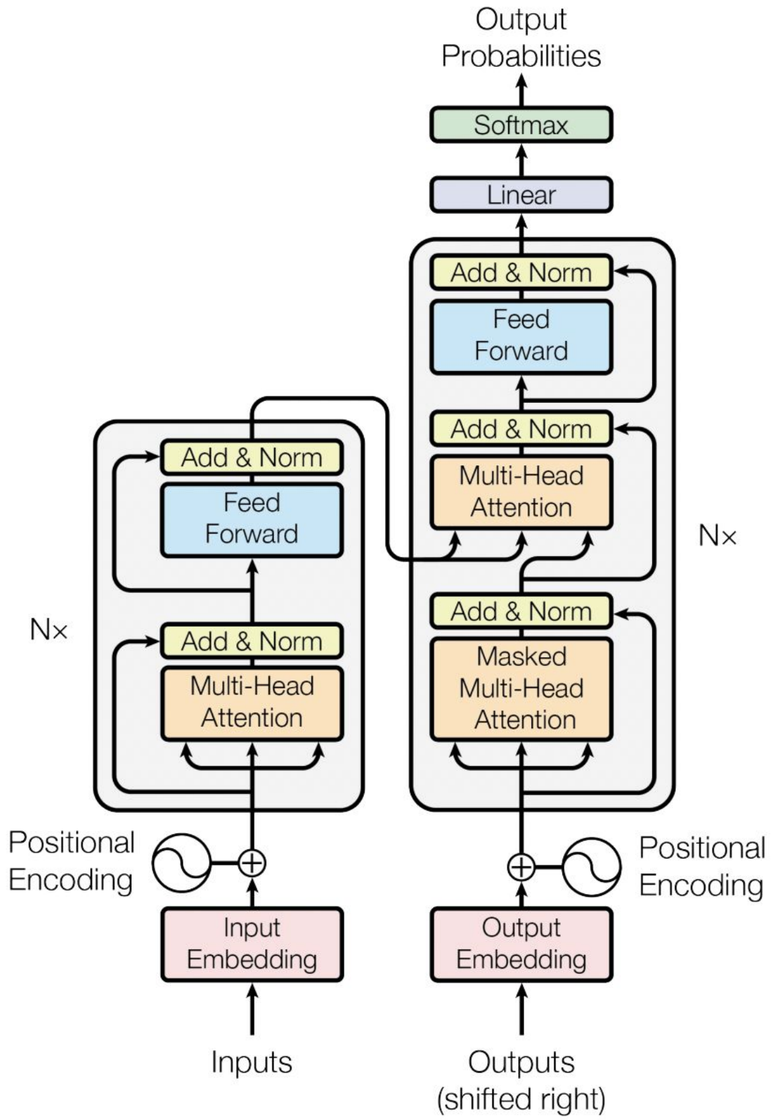
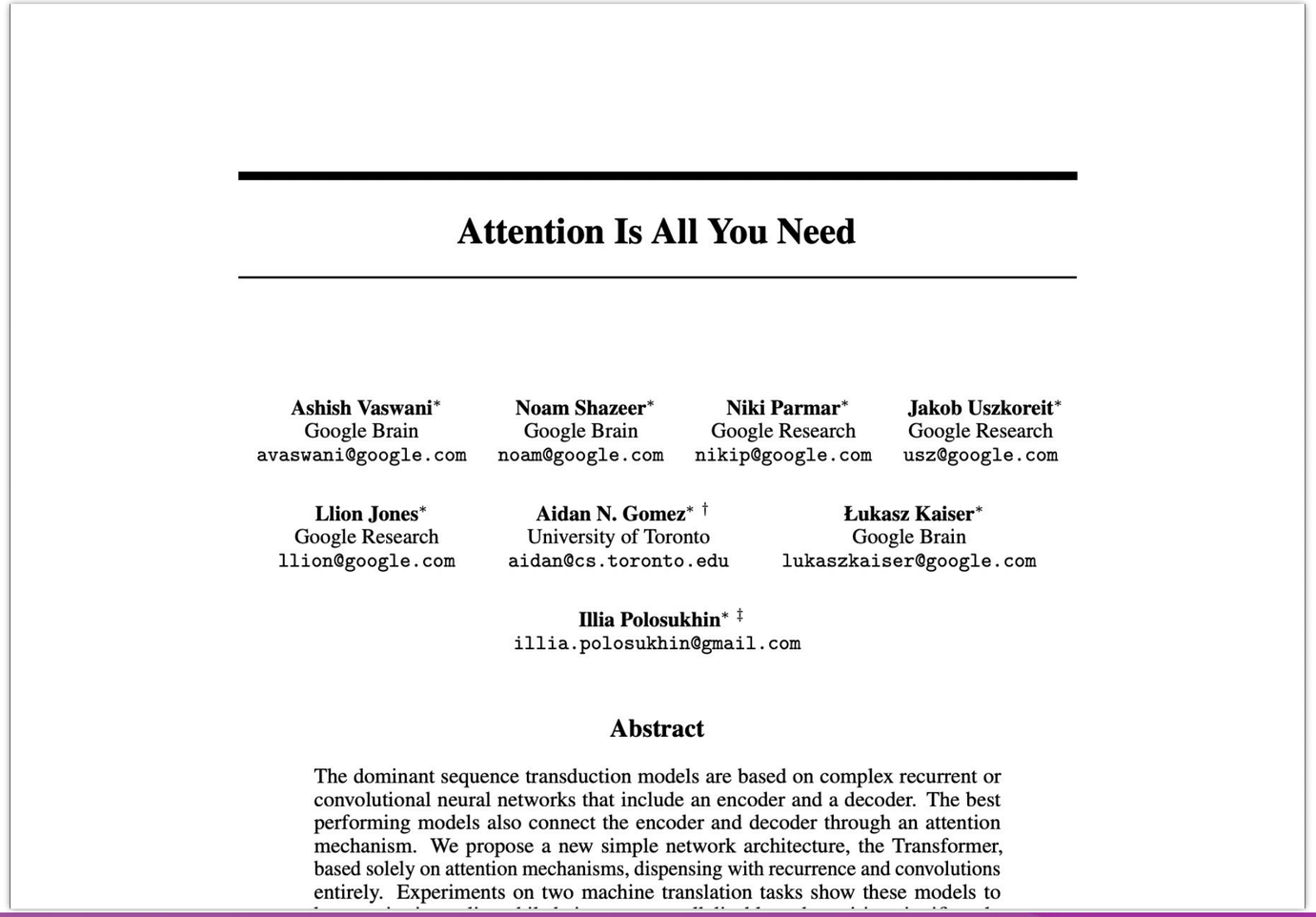
Abstract

The dominant sequence transduction models are based on complex recurrent or convolutional neural networks that include an encoder and a decoder. The best performing models also connect the encoder and decoder through an attention mechanism. We propose a new simple network architecture, the Transformer, based solely on attention mechanisms, dispensing with recurrence and convolutions entirely. Experiments on two machine translation tasks show these models to



Transformers



Attention Is All You Need

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Abstract

The dominant sequence transduction models are based on complex recurrent or convolutional neural networks that include an encoder and a decoder. The best performing models also connect the encoder and decoder through an attention mechanism. We propose a new simple network architecture, the Transformer, based solely on attention mechanisms, dispensing with recurrence and convolutions entirely. Experiments on two machine translation tasks show these models to

- Scale efficiently
- Parallel process
- Attention to input meaning

Responsible AI

Special challenges of responsible generative AI

- Toxicity
- Hallucinations
- Intellectual Property

Toxicity

LLM returns responses that can be potentially harmful or discriminatory towards protected groups or protected attributes

How to mitigate?

- Careful curation of training data
- Train guardrail models to filter out unwanted content
- Diverse group of human annotators

Hallucinations

LLM generates factually incorrect content

How to mitigate?

- Educate users about how generative AI works
- Add disclaimers
- Augment LLMs with independent, verified citation databases
- Define intended/unintended use cases

Intellectual Property

Ensure people aren't plagiarizing, make sure there aren't any copyright issues

How to mitigate?

- Mix of technology, policy, and legal mechanisms
- Machine "unlearning"
- Filtering and blocking approaches

Responsibly build and use generative AI models

- Define use cases: the more specific/narrow, the better
- Assess risks for each use case
- Evaluate performance for each use case
- Iterate over entire AI lifecycle