

GPT-3 Introductory Report

Berke Bayraktar

October 2020

1 Introduction

Last June OpenAI released the beta for a new language model called GPT-3. This report will try to briefly explain what this means in layman's term without going into heavy technical details.

2 What is GPT-3 ?

GPT-3 is a language prediction model that utilizes deep learning to produce human-like text. GPT-3 stands for Generative Pre-trained Transformer 3. "*Generative Pre-trained*" stands for the fact that model was trained to predict or generate the next token in a sequence of tokens and "*Transformer*" is a type of deep learning model mostly used in NLP (Natural Language Processing).

3 How is GPT-3 ?

GPT-3 is very capable language prediction model when compared to its predecessor (GPT-2) and that is mostly due to technical specifications and effort went into training of the model.

GPT-3 comes with ~175 billion parameters. To put that into perspective GPT-2 had ~1.5 billion parameters. And before GPT-3 the biggest language model in terms of parameter number was Microsoft's Turing-NLG with ~17 billion parameters.

The dataset that was used to train GPT-3 contains 45TB of data in plain text. This dataset was a mix of data provided by Common Crawl (%60) Wikipedia (%3) and other resources such as books.

To be able to build, train and test such a model an extremely powerful system is needed. Microsoft and OpenAI built a supercomputer in collaboration intended to be used exclusively by OpenAI. Specifications for this system are as follows: 285 thousand CPU Cores, 10 thousand GPUs, 400 Gbps network connectivity.

4 Use Cases of GPT-3

GPT-3 will surely have a great impact on the business world and commercial software however GPT-3 is currently not publicly available. Current projects that make use of the model are created only by those who registered for the beta. Nonetheless there are already many creative projects that use GPT-3 API.

4.1 Sentence to SQL

An application that accepts a simple query in english and returns the corresponding SQL query with the correct syntax.

```
[20] prompt = "Tell me the count of employees working in the department HR."
```

```
➞ 'output: SELECT COUNT(*) FROM worker WHERE DEPARTMENT = 'HR';\n'
```

4.2 Component Generator

Tool that creates fully functional components for web front-end frameworks like ReactJS.

debuild.co

Describe your app.

a button that says "Add \$3" and a button that says "Withdraw \$5"

Add \$3 Withdraw \$5

Give away all my money

My balance is -20

4.3 Regex Generator

Tool for forming regular expressions from plain English.

Describe the regex you want

Provide at least one example of a string that will match

Generated regular expressions

```
/(.edu$)/  
/(.*\.edu)/  
/(.*@.*\.edu)/  
/(.edu){.ac|.gov|.mil)/  
/[a-zA-Z0-9_\-\.]*(?=.edu)/
```

References

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