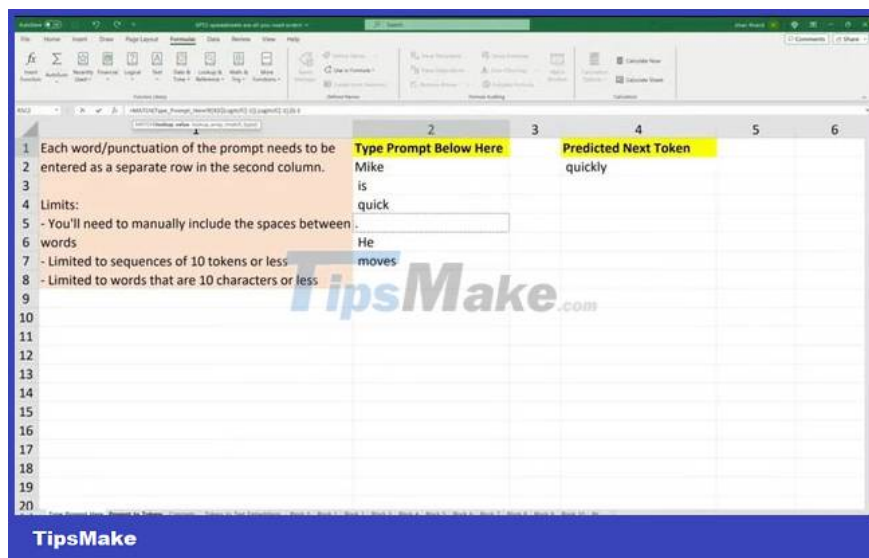


Please experience 'ChatGPT's grandfather' on Excel

Ishan Anand, a software developer, successfully 'stuffed' GPT-2 - the predecessor of ChatGPT launched by OpenAI in 2019 - into a Microsoft Excel spreadsheet. This is an exciting project that allows users to understand how a large language model (LLM) works).

Anand has "packaged" GPT-2 into Microsoft Excel's XLSB binary file format, allowing anyone, even a non-programmer, to use a spreadsheet to explore and directly interact with the method. the operation of the actual 'converter' internally, with as little abstraction as possible. Anand named this spreadsheet "Spreadsheets-are-all-you-need".

This spreadsheet requires the latest version of Excel to run (web version of Excel is not supported), is completely "offline" and does not make any connection to the cloud AI service.



Text & Position Embeddings

GPT2 Phase	Action	Tab in Spreadsheet
Text & Position Embeddings	Convert tokens to numbers	Token_to_Text_Embeddings

Mike →

is →

quick →

. →

He →

moves →

-0.0723849	-0.237343	0.22738675	-0.1565971	-0.0809315
0.01423593	-0.0437407	-0.0392998	-0.1253222	-0.1242475
-0.0041666	-0.1149568	0.25142141	-0.1039098	0.03202019
0.04635777	-0.085105	0.13385425	0.04700242	0.02346371
-0.0551851	-0.0318704	0.18177843	0.04345733	-0.207683
-0.0551851	-0.0318704	0.18177843	0.04345733	-0.207683

TipsMake

Language Head & Output

GPT2 Phase	Action	Tab in Spreadsheet
Language Head	Pick most likely next token	Layer_Norm, Logits
Output	Output next token	Predicted_Token

Token	Probability
quickly	43%
fast	19%
like	17%
around	11%

Mike is quick. He moves _____

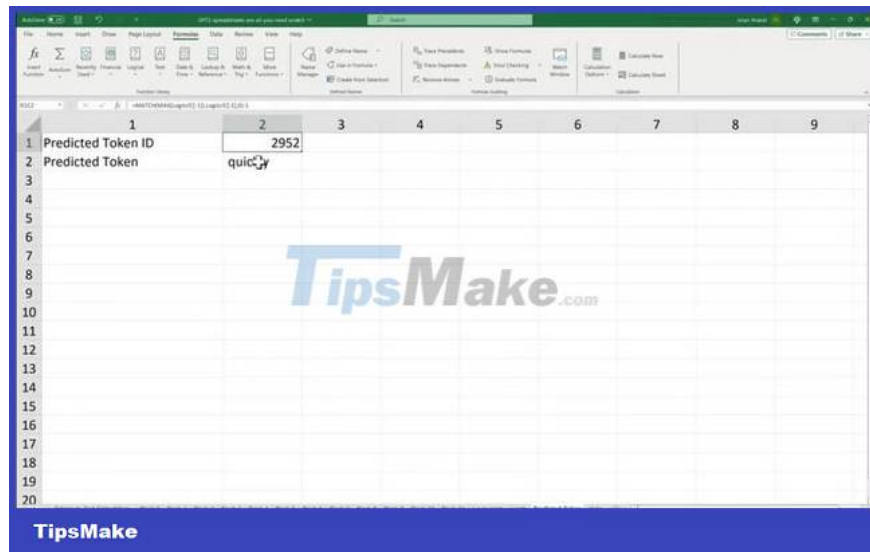
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Multi-Head Attention & Multilayer Perceptron

GPT2 Phase	Action	Tab in Spreadsheet
Multi-head Attention ↓ Multilayer Perceptron	Iteratively refine prediction	Block_0, Block_1, ... Block_11

Mike is quick. He moves quickly

TipsMake



With this spreadsheet, users cannot chat with it like ChatGPT but must enter words in other cells and see the prediction results displayed in other cells almost instantly.

Language models like GPT-2 are designed to predict the next character, which could be the continuation of a sentence or any other text-based task, such as software source code. With different sheets in Anand's Excel file, users capture the inner workings as these predictions take place.

"Spreadsheets-are-all-you-need" only supports 10 input tokens, tiny compared to GPT-4 Turbo's 128,000 token context window, but enough to demonstrate some fundamentals of how it works of LLM.

Anand's spreadsheet uses a "GPT-2 Small" version with 124 million parameters, which in 2019 is considered very advanced.

"Spreadsheets-are-all-you-need" weighs about 1.2GB and can cause Excel to crash frequently, especially on Macs. Therefore, Anand recommends running spreadsheets on Windows. You can now download the GPT-2 integration spreadsheet on GitHub.

Download "Spreadsheets-are-all-you-need" [here](#).

You finished reading the article "**Please experience 'ChatGPT's grandfather' on Excel**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.