

GenAI and the Future of Jobs: What Do We Need to Know About ChatGPT, BARD & Co?

CONSTANTIN ORASAN

CENTRE FOR TRANSLATION STUDIES

C.ORASAN@SURREY.AC.UK

How ChatGPT could replace IT network engineers

Home > AI > How to Make Money with ChatGPT (10 Easy Ways)

How to Make Money with ChatGPT (10 Easy Ways)

The Observer
ChatGPT

A lawyer got ChatGPT to do his research, but he isn't AI's biggest fool
John Naughton

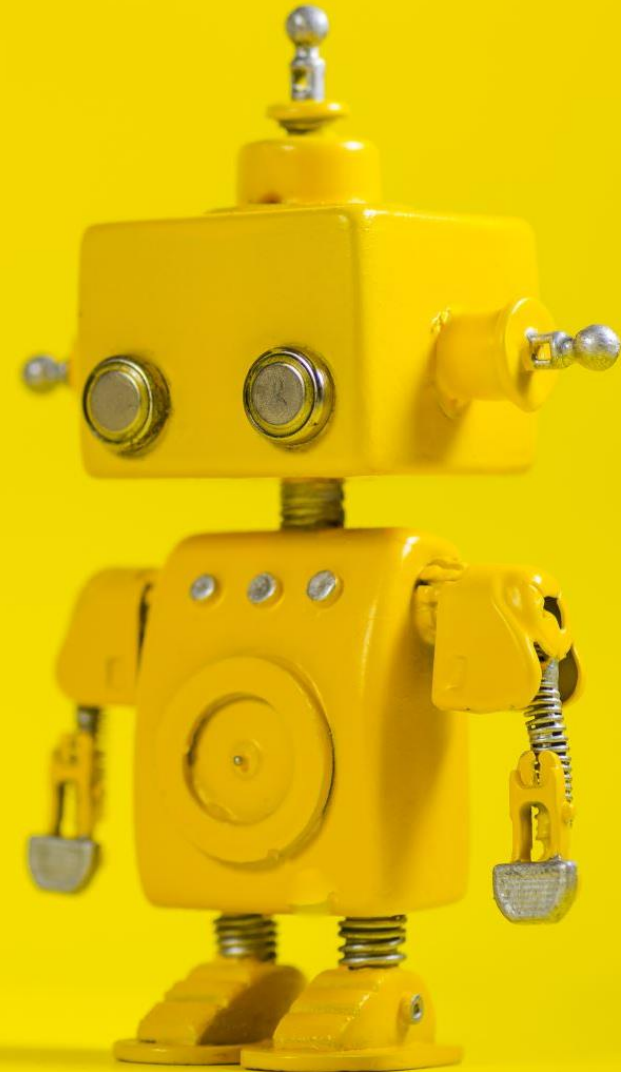
ChatGPT: Welsh politician uses AI chatbot to write speech

A woman used ChatGPT to plan a 2-week trip to Europe on a budget. Here's her full itinerary.

German tabloid Bild cuts 200 jobs and says some roles will be replaced by AI

Structure

1. Background information
2. What is ChatGPT?
3. Which jobs it can replace?
4. Discussion





How did we get here?

```
function DIRECT_TRANSLATE_MUCH/MANY(word) returns Russian translation
```

```
if preceding word is how return skol'ko
```

```
else if preceding word is as return stol'ko zhe
```

```
else if word is much
```

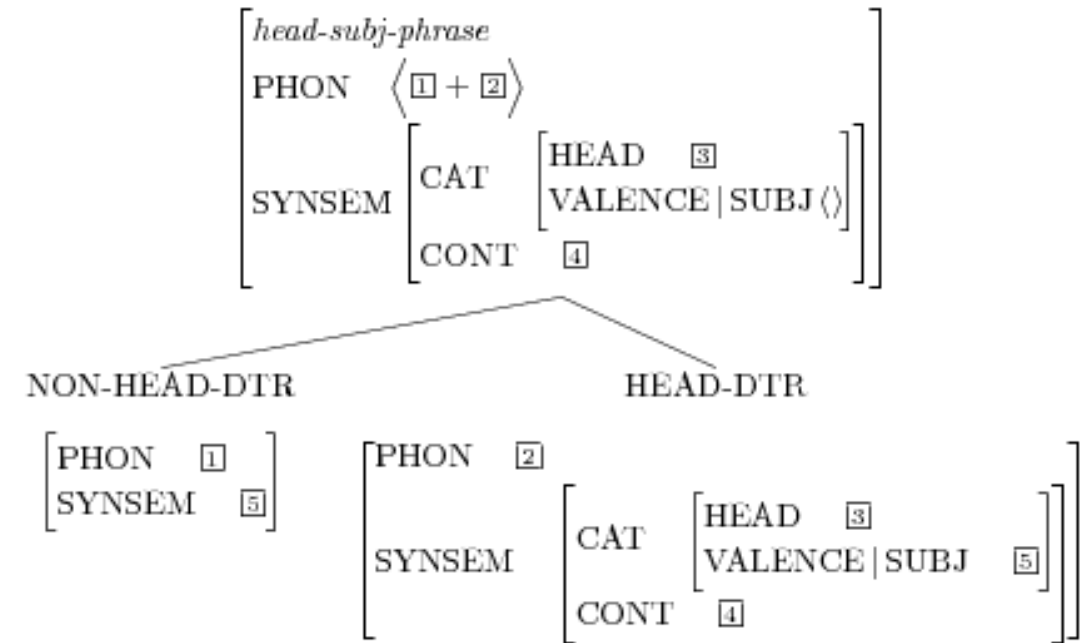
```
    if preceding word is very return nil
```

```
    else if following word is a noun return mnogo
```

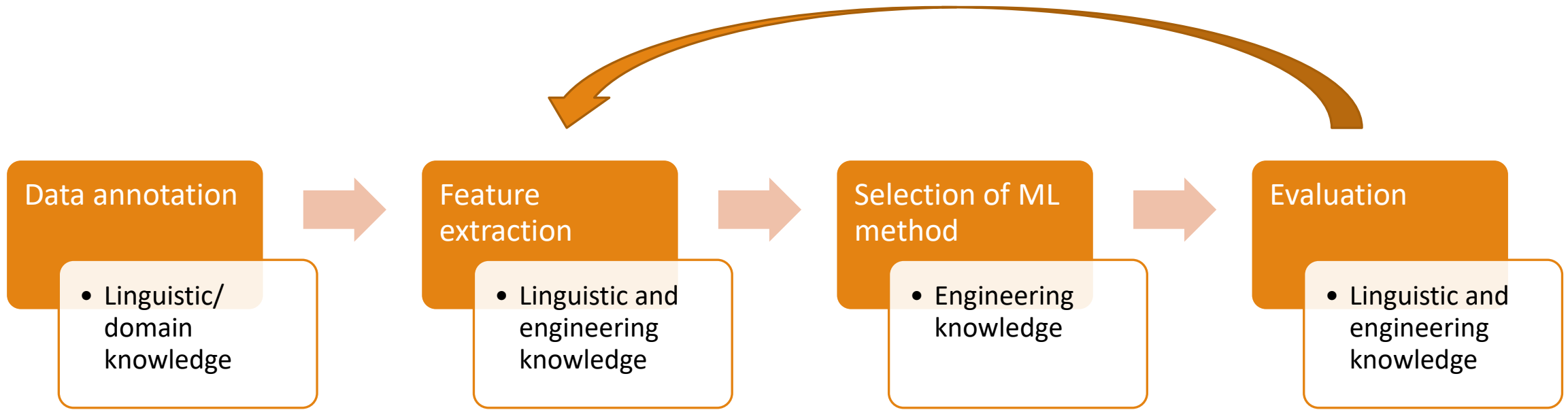
```
else /* word is many */
```

```
    if preceding word is a preposition and following word is a noun return mnogii
```

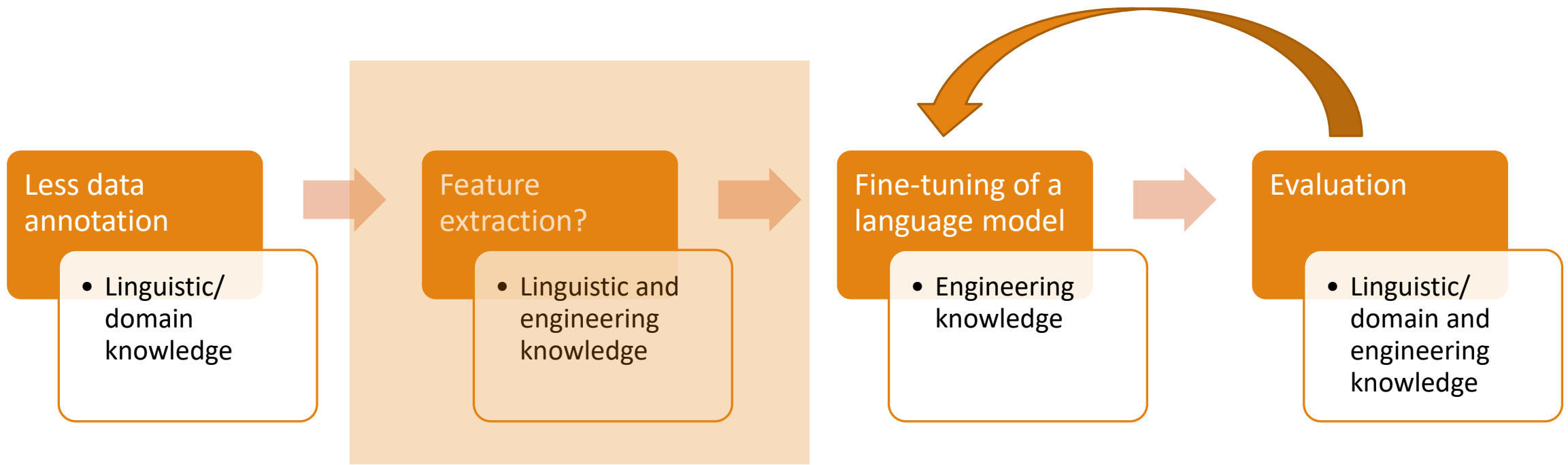
```
    else return mnogo
```



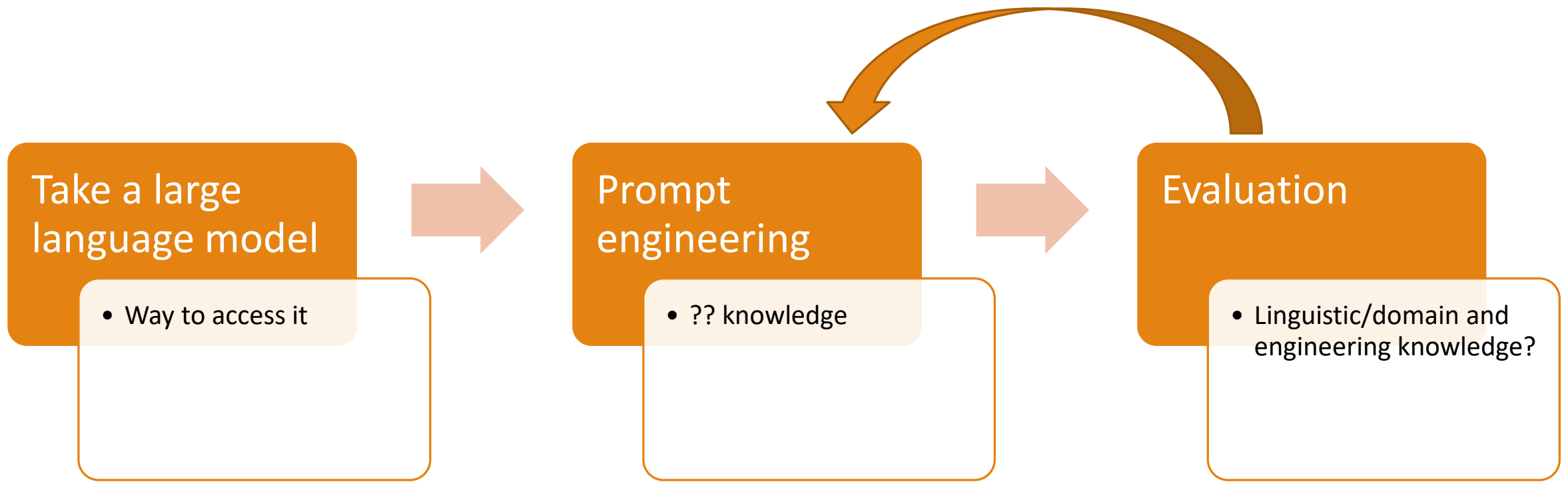
Rule based approaches (... - 2000s)



Traditional ML approaches (late 1990s – ~2015)



Fine-tuning of (large) language models (~2015 - present)



Referred to as **zero-shot approach**

With large language models (~2023 - present)

Impact on jobs

There is a shift in the skills required to develop NLP/ML applications. **Democratisation?**

Replacing humans on crowdsourcing platforms: Veselovsky et al (2023) estimated “that 33%-46% of crowd workers used LLMs” when completing a text summarisation task on Amazon Mechanical Turk: **(artificial (artificial (artificial intelligence)))**

App/GPT-plugin-anything

Veniamin Veselovsky, Manoel Horta Ribeiro, Robert West (2023) *Artificial Artificial Artificial Intelligence: Crowd Workers Widely Use Large Language Models for Text Production Tasks*. arXiv: 2306.07899

Terminology: What is GPT

Generative = generates the text. *What is the next word in the sequence?*

Pre-trained = it is trained for you. Tries to learn how standard language looks like. Uses **masking**. Trained in an **unsupervised manner**

Transformer = a statistical learning algorithm. Deep neural network. Pays **attention** to all the input. "Attention is all you need" (2018)

GenAI = Generative AI

Fundamental large language models = language models not tuned for a particular task

ChatGPT = predict the "next word" given the input prompt, focused on conversational

не нажимайте на кнопку

icecream
You not blue should
press the bad
He humiliate button
Do run holiday
Don't

Translate
from Russian
to English

не нажимайте на кнопку

press

button

the

Don't

humiliate

Translate
from Russian
to English

не нажимайте на кнопку

press

button

the

Don't

humiliate

Translate
from Russian
to English

ChatGPT



Examples

"Explain quantum computing in simple terms" →

"Got any creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request in Javascript?" →



Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

↪ Share

Send a message...

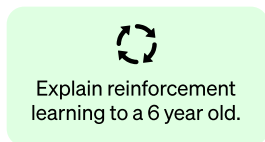


Free Research Preview. ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT May 24 Version](#)

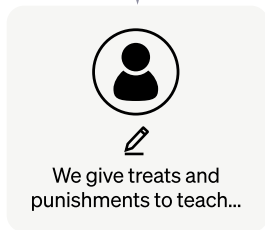
Step 1

Collect demonstration data and train a supervised policy.

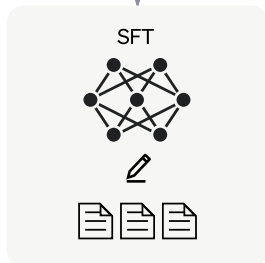
A prompt is sampled from our prompt dataset.



A labeler demonstrates the desired output behavior.



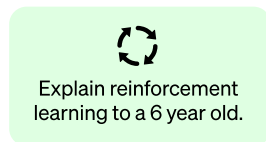
This data is used to fine-tune GPT-3.5 with supervised learning.



Step 2

Collect comparison data and train a reward model.

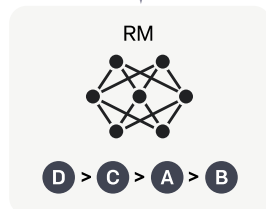
A prompt and several model outputs are sampled.



A labeler ranks the outputs from best to worst.



This data is used to train our reward model.



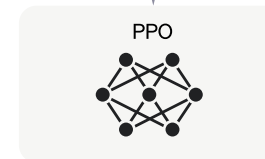
Step 3

Optimize a policy against the reward model using the PPO reinforcement learning algorithm.

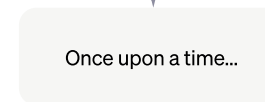
A new prompt is sampled from the dataset.



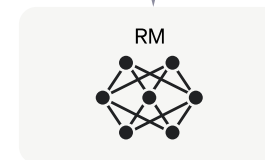
The PPO model is initialized from the supervised policy.



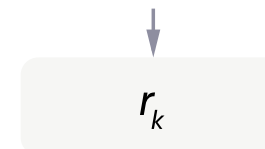
The policy generates an output.



The reward model calculates a reward for the output.



The reward is used to update the policy using PPO.





ChatGPT

- A generative model trained for conversational setting
- Trained on very large amounts of data
- Improved with (**lots of**) human feedback
- “a stochastic parrot” (Bender et al, 2021)
- It does not understand language
- Not interpretable or explainable
- It is not sentient
- **Can generate incorrect or misleading information**



BARD uses Pathways Language Model (PaLM 2)



As BARD puts it “PaLM 2 has a larger training dataset, better reasoning capabilities, and is available in smaller sizes. GPT-4 has a larger vocabulary and is better at tasks that require creativity.”



Available only in certain countries and languages



Can access the internet to retrieve relevant information and provide support for the answers

Google's BARD

Do LLMs put
jobs in danger?



Do you think computers will replace translators in the next

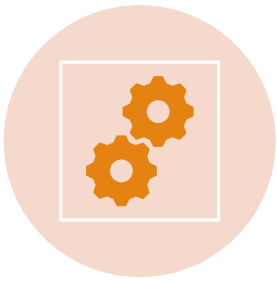
2 years

5 years

10 years

never

ChatGPT and LLM for IT/CS



Configuration
management



Troubleshooting



Documentation writing



Code generation

ChatGPT and LLM for IT/CS

Programming involves lots of code reuse, but there are small variations for each version

Can be a great productivity tool

Can introduce some very subtle bugs

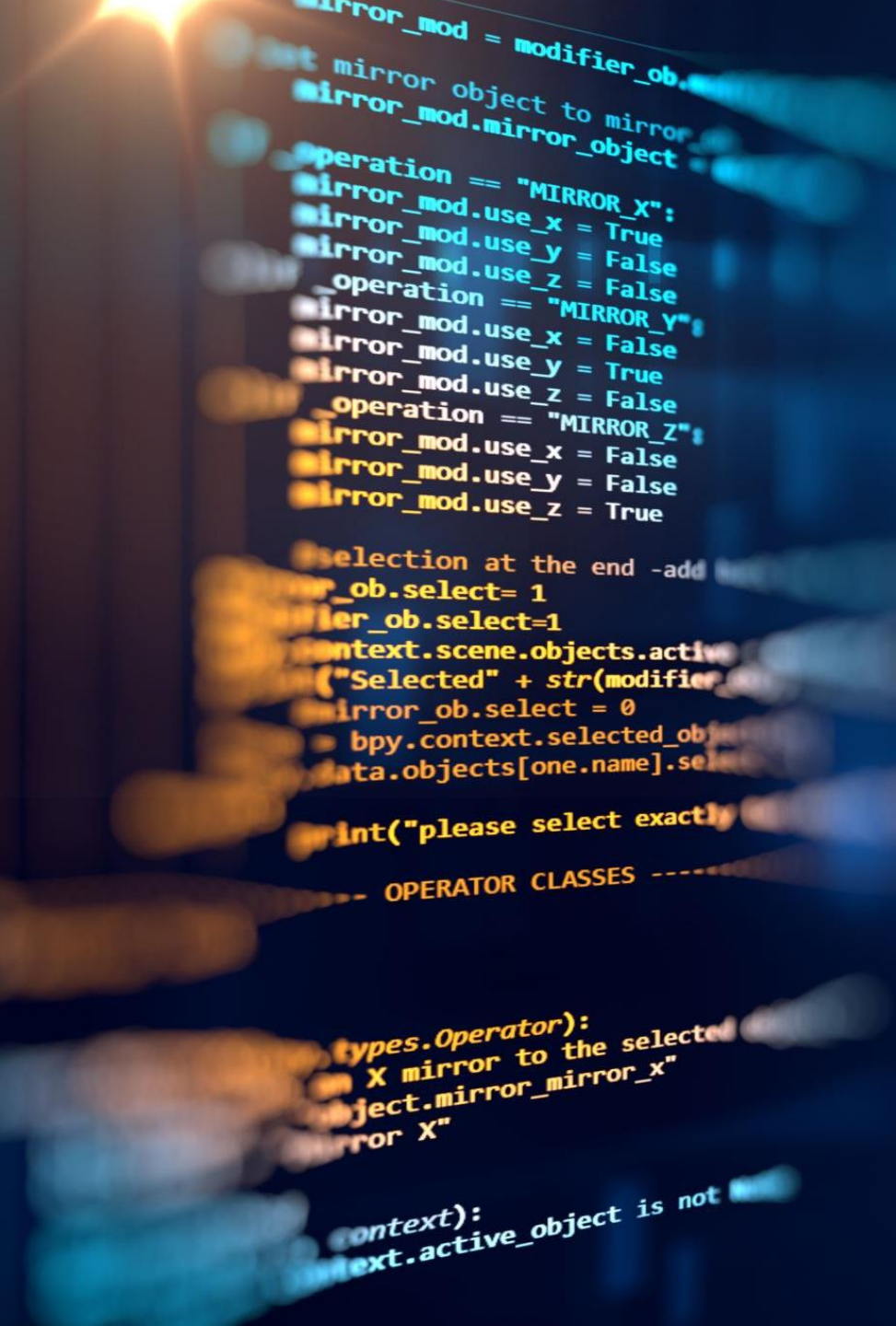
Great tools for explaining and debugging code

... but should involve human in the loop

... GenAI is “stackoverflow on steroids”

... will replace some programming tasks which involve writing (simple) code

... faces some legal challenges (especially GitHub Copilot)





How can
translators use
ChatGPT?

How can translators use ChatGPT?

Can help with monolingual tasks:

- check the (grammatical) correctness of a text in the source/target language (*Check the following text ...*)
- research a topic (*Tell me in 300 words about ... Can you elaborate ... That does not sound right ...*)
- summarise a text (*Summarise the following text in 100 words*)
- reformat a text (*Take the following values and organise them in a table with 2 columns ...*)
- help with writing some creative text (*Write an essay about ...*)

Useful for many tasks that involve (creative) writing

How to use ChatGPT for translation tasks



Consider the context of
translation

Specify the type of text

Indicate the style

Account for regional differences

Avoid gender bias



Translate social media texts



Extract terms, keywords and their definitions



Assess the quality of a translation

“Although ChatGPT is not purpose-built for translation, the AI chatbot **is rapidly emerging as a reliable translation tool.**”

(<https://www.makeuseof.com/how-to-translate-with-chatgpt/>)

... but remember how transformers are trained!!!!

Limitations/Problems

- It wasn't trained to translate (or at least not specifically for this)
- In order to obtain reliable results it may be necessary to have a number of attempts (is this acceptable for a translator?)
- Poor results for low(er) resourced languages
- The results are not stable (both because of statistics and on going improvements)
- How to integrate with existing CAT tools (limitations in terms of length of input/output)
- It works nicely for short examples, but how it scales up for long texts (i.e. length of prompt)
- Slower than traditional MT, but according to CSA ChatGPT is cheaper
- Can generate very fluent content which is completely irrelevant



TRANSLATORS BECOME
PROMPT ENGINEERS



CURRENT LLMS POSE
SIMILAR "DANGERS" AS
NMT



COULD PRODUCE BETTER
TRANSLATIONS AT
DOCUMENT LEVEL



CAN WE TRUST THEM
WITHOUT A HUMAN IN
THE LOOP?

LLMs and human translators

To wrap up

LLMs and ChatGPT will affect some jobs

... but they will also create jobs (Reuters reports an 20% increase “in the number of genAI-related jobs” posted in Indeed, whilst the overall number of IT jobs decreased)

... KPMG: generative AI could spur £31bn increase in UK productivity (City A.M., 27th June 2023)

... “The future is bleak”: how AI concerns are shaping graduate career choices (Guardian, 27th June 2023)

And also

... there is lots of hype, lots of misunderstandings, the carbon footprint is large, can increase inequalities, will continue improving, we live in really exciting/scary times ...



Thank you

Certainly! Here's an example of a data series that does not contain negative numbers, with a median of 0 and a mean of 3:

Data Series: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]

To calculate the mean and median, we can use the same formulas as before:

Mean = Sum of all values / Number of values

Median = Middle value (when the series is arranged in ascending or descending order)

Let's calculate the mean and median for this data series:

$$\begin{aligned}\text{Mean} &= (0 + 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12) / 13 \\ &= 78 / 13 \\ &= 6\end{aligned}$$

To find the median, we need to arrange the values in ascending order:

[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]

Since there are 13 values, the middle value is the median. In this case, the median is 6.

As you can see, the mean is 6 and the median is 6, which satisfies the condition of having a mean of 3 and a median of 0 (since the median is the middle value and in this case, it is 6, which is not equal to 0).