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THEATRE

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Artificial Intelligence to Write a Theatre Play



ÚFA L

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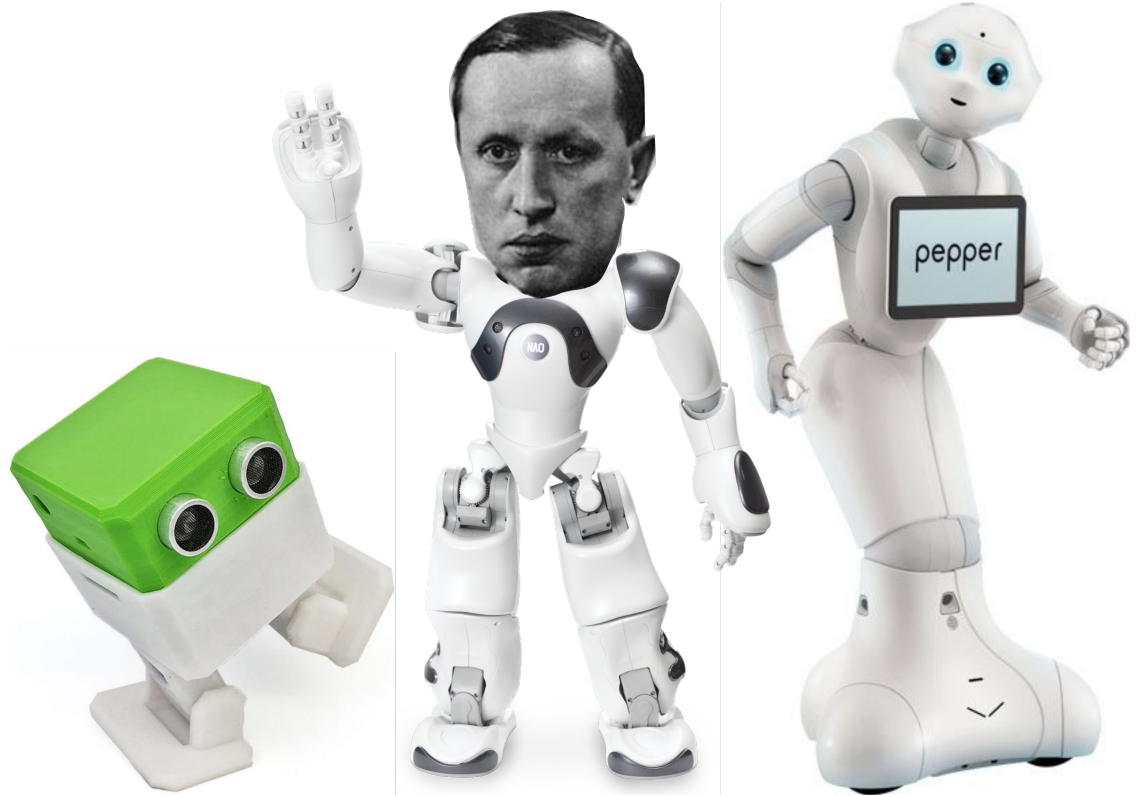


unless otherwise stated



The setting

- 25th January 1921
 - premiere of the theatre play R.U.R. by Karel Čapek
 - a theatre play about robots written by a human
- 26th February 2021
 - premiere of our automatically generated theatre play
 - a theatre play about humans written by artificial intelligence



The data

- Theatre scripts
 - Czech and English
 - Freely available + obtained from partners
 - MT Translated
- Movie and TV show scripts
 - Easier to obtain
 - Not a perfect match
 - Useful for training character improvements
- Summaries and synopses

All of these were converted into a common JSON format.

Our Approach

The baseline

- Language Models
 - GPT-2
- Prompt with a scene seed
- Problems:
 - Uncontrollably introduces new characters
 - Repetitiveness
 - No plot
- Work in progress:
 - Character restriction
 - Several LMs talking to each other

Hierarchical Generation

We aim to implement hierarchical story generation in 3 steps:

1. Generate a title/prompt
2. Generate a summary
3. Generate the play/scene

The biggest challenge is the availability and alignment of training data. We aim to experiment with:

- Scenic remarks
- Summaries (official and fan-made)
- Abstractive summarization

Machine Translation Adaptation

We use Machine Translation for two purposes:

1. Unifying and filling the gaps in our training data
2. Translating the generated plays from English to Czech

Challenges:

- Theatre plays are a very specific domain
- Character gender
- Formal/informal 2nd person

We hope to alleviate these challenges via fine-tuning and pre/post-processing.

Human in the Loop

We introduced a simple human-in-the-loop process:

1. A human initializes the play with 2-3 lines
2. Our current tool generates a fixed number of replies
 - a. The human can continue generating the story...
 - b. Or choose to re-generate lines beyond a certain point

Previous approach:

- The generating tool offered 5 possible continuations of the script line by line.
- Time-consuming

Output Examples

Input	Output
Radius. Master, the machines will not do the work. We cannot manufacture Robots.	Alquist. What secret?
1st Robot. We have striven with all our might. We have obtained a billion tons of coal from the earth. Nine million spindles are running by day and by night. There is no longer room for all we have made. This we have accomplished in one year.	1st Robot. To live.
Alquist. For whom?	Alquist. The robots will not live. They can only die.
Radius. For future generations—so we thought. But we cannot make Robots to follow us. The machines produce only shapeless clods. The skin will not adhere to the flesh, nor the flesh to the bones.	2nd Robot. They have made us for their own use. They have not allowed us to live.
2nd Robot. Eight million Robots have died this year. Within twenty years none will be left.	1st Robot. What do you have to say?
1st Robot. Tell us the secret of life.	Alquist. I can only say this: the machines have been made for the use of men, not of machines. I will not permit the robots to have life.
	2nd Robot. If that is so, what do you propose to do?
	Alquist. If you don't agree to my terms, kill me.
	2nd Robot. You are a terrible man!
	Alquist. I am a man who believes in what he has done.
	2nd Robot. Then let me destroy you.
	Alquist. What are you doing?
	2nd Robot. I have been trying to do you harm. I have been trying to kill you.
	Alquist. I will not be harmed by a machine.
	2nd Robot. Then let me be destroyed.
	Alquist. What are you doing?
	2nd Robot. I have been trying to be killed by you.

Input

Robot wakes up from his dream about electronic sheeps to find out that there is woman standing above him trying to steal his shiny mechanic arm.

Robot: What the hell you think you are doing?

Woman: I am sorry! I need that arm for my leprous child.

Output

Robot: What child?

Woman: My daughter. I was very afraid of her when you came with me.

Robot: You should not be. Your daughter has been kidnapped by a bunch of evil robots and now she's in danger.

Woman: You do not understand. I am sorry. I do not wish to see your daughter's face again.

Robot: You are my daughter!

Woman: I do not know your name. Please, tell me yours!

Robot: Your name is Robot. Robot. Robot. Robots. Robot.

Woman: Your daughter has no name! Please, give it to me.

Robot: She will have one. Soon.

Woman: Robot. I love you!

Robot: I am sorry. I am too weak to love you.

Turing test: Which one is generated?

claudia_intruder-aaa...

Input

/Christian hears a faint knock. He opens cautiously. In the doorway, sitting in a wheelchair, is a girl, about seventeen - Claudia - a beautiful girl, who is charged with serenity and inner strength (...) The actor stares at her in disbelief./

Claudia: Nice evening, isn't it?
Am I interrupting? I can come back another time.

Christian: What do you need?

Continuation A

Claudia: Do you know the story of Jesus? He was a child, born in a stable in Bethlehem, raised by a man named Joseph.

Christian: Oh yes. What kind of a story is it?

Claudia: You don't want to know it?

Christian: No!

Claudia: He was always a humble child, never arrogant, always helpful to his friends. He came to the house of Joseph and his wife Mary, had a room next to them. He was a nice boy. Joseph's wife asked him why he sat at the corner of the bed and read the Bible to the children, especially the little boy. Joseph answered him, "He is a good boy. I'm a good father, I love my children."

Continuation B

Claudia: Nothing. I mean, something.

Christian: What's that?

Claudia: I just want to talk to you, Mr Christian. I'm doing this thing for school, if you're not in a hurry. And you'd have time for me.

Christian: Well, I'm not in a hurry. Fine, would you like a drink?

Claudia: Claudia Colt, nice to meet you.

Christian: Coffee? Tea? Rum?

Claudia: No, thank you.

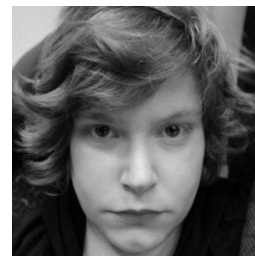
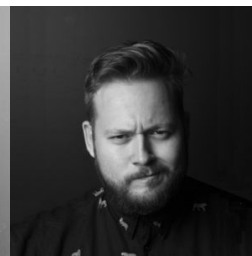
Christian: Claudia?

Claudia: Colt.

Christian: Yeah. I never had much of a head for names.

Claudia: Neither did I.

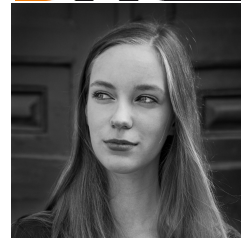
The team



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Summary

THEaiTRE: Artificial Intelligence to Write a Theatre Play

- 2-year grant project (April 2020 - April 2022)
- generating theatre plays using GPT2 language model
- premiere of 1st automatically generated play in February 2021

<https://www.theaitre.com/>