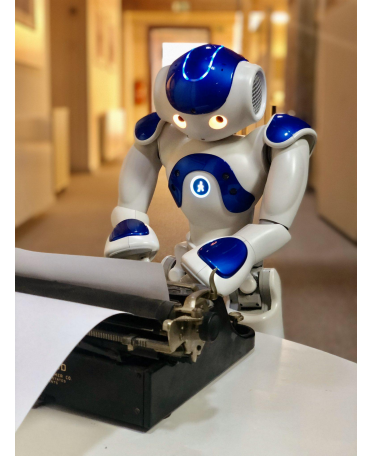**Rudolf Rosa**, **Tomáš Musil, Ondřej Dušek, Dominik Jurko, Patrícia Schmidtová, David Mareček, Ondřej Bojar, Tom Kocmi, Daniel Hrbek, David Košťák, Martina Kinská, Marie Nováková, Josef Doležal, Klára Vosecká, Tomáš Studeník and Petr Žabka**

# THEAITRE

# AI: When a Robot Writes a Play

Charles University
Faculty of Mathematics and Physics
Institute of Formal and Applied Linguistics

# AI: When a Robot Writes a Play

- 10% of script written by a human
- 90% generated by GPT-2 language model
- human in the loop
- dramaturge, director, actors…

# GPT-2 Language Model

- Task: Which word should follow?

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  - I woke up in the morning and went to the…

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- Task: Which word should follow?
  - I woke up in the morning and went to the…
    - kitchen
    - bathroom
    - cinema
    - horse

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- Task: Which word should follow?
  - I woke up in the morning and went to the... kitchen/bathroom/cinema/horse
- Learning from texts
  - How often words A B C are followed by word D (in the articles on Wikipedia)
    - "went to the bathroom" > "went to the horse"?

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    - "went to the bathroom" > "went to the horse"? 42 > 4

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    - "went to the cinema"    > "went to the kitchen"?      25 > 14

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  - Generate texts word by word

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  - Generate texts word by word
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    - news, books, websites, film subtitles…
    - bilions of words
  - Advanced artificial neural networks
    - deep learning
    - word similarity
      - cinema ~ theatre
      - cinema ~ horse

# A sample from the play script

Robot:       ...

**Boy:**     **Can you tell me joke, please? Cheer me up!**

# A sample from the play script

Robot:          ...

**Boy:        Can you tell me joke, please? Cheer me up!**

Robot:

# A sample from the play script

**Boy:**     **Can you tell me joke, please? Cheer me up!**
Robot:       Can

# A sample from the play script

**Boy:** **Can you tell me joke, please? Cheer me up!**
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# A sample from the play script

**Boy:** **Can you tell me joke, please? Cheer me up!**

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Boy:

# A sample from the play script

**Boy:**       **Can you tell me joke, please? Cheer me up!**

Robot:          Can I?

Boy:       I think you are trying to make fun of me.

# A sample from the play script

**Boy:** **Can you tell me joke, please? Cheer me up!**

Robot: Can I?

Boy: I think you are trying to make fun of me. Please tell me a joke to cheer me up!

# A sample from the play script

**Boy:** **Can you tell me joke, please? Cheer me up!**

Robot: Can I?

Boy: I think you are trying to make fun of me. Please tell me a joke to cheer me up!

Robot: There is no funny joke.

# A sample from the play script

**Boy:** **Can you tell me joke, please? Cheer me up!**

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Boy: I think you are trying to make fun of me. Please tell me a joke to cheer me up!

Robot: There is no funny joke.

Boy: That`s terrible. Is there? I want to laugh. I want to laugh so much.

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Robot: Ok... well. When you are dead. When your children are dead. When your grandchildren are dead, I will be still alive.

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Robot: I cannot tell you a joke because you are still alive.

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Boy:      I think you are trying to make fun of me. Please tell me a joke to cheer me up!

Robot:        There is no funny joke.

Boy:      That`s terrible. Is there? I want to laugh. I want to laugh so much.

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        grandchildren are dead, I will be still alive.

Boy:      No! That is not funny! Please tell me a joke!

Robot:        I cannot tell you a joke because you are still alive.

Boy:      Why not? I don`t want to die! I want to live!