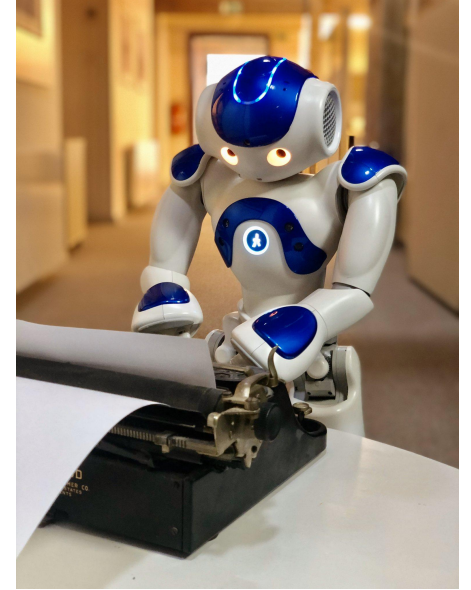


Rudolf Rosa, Patrícia Schmidtová, Tomáš Musil, Ondřej Dušek, Dominik Jurko,
David Mareček, Ondřej Bojar, Tom Kocmi, Alisa Zakhtarenko, Daniel Hrbek, David Košťák,
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THEAITRE

Interactive automated generation
of theatre play scripts

Concluding the project



Projekt TL03000348 je spolufinancován se státní podporou Technologické agentury ČR v rámci Programu ÉTA 3.



Univerzita Karlova
Matematicko-fyzikální fakulta
Ústav formální a aplikované lingvistiky

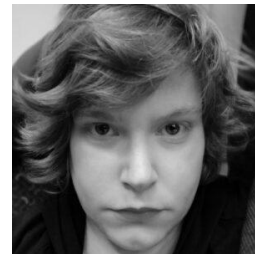


What is THEaiTRE

- AI to generate theatre play scripts
 - based on GPT2 language model & CUBBITT
- timeline
 - May 2019: first idea
 - Apr 2020: official start of project
 - Feb 2021: online premiere of 1st play
 - *AI: When a Robot Writes a Play*
 - script: 90% AI, 10% human
 - [on repeats in Švandovo theatre](#)
 - Jun 2022: premiere of 2nd play in New York
 - *Permeation/Prostoupení*
 - script: 90% AI, 10% human
 - Sep 2022: end of project
 - THEaiTRE book
 - public demo at theaitre.com/demo
 - source codes & models released



Team



Hierarchical Generation of Scripts

Hierarchical Generation: A Promising Idea

- Patrícia Schmidtová
- idea: title → synopsis → script
 - type/generate a title for the theatre play
 - generate a play synopsis (storyline) conditioned on the title
 - cut the synopsis into chunks (lines/sentences)
 - expand each synopsis chunk into a script chunk
- motivation
 - before: generate each scene independently (GPT-2 context window: 1024 tokens)
 - hope: generate whole script within one process
 - before: significant human interference (10%)
 - hope: require less human interference
- approach
 - get scripts and synopses, cut, align
 - fine-tune two GPT2 language models: synopsis model, script model
 - tons of experiments...

Hierarchical Generation: Positive/Negative Result?

- some hopes fulfilled
 - a coherent script for a full play generated end to end
 - world's first!
- intrinsic evaluation: good
 - automated evaluation, manual evaluation
 - hierarchical generation better than flat baseline
 - also more efficient (hiero = GPT-2 medium, base = GPT-2 XL)
- extrinsic evaluation: bad
 - generation conditioned by previous and current synopsis and script lines
 - but NOT by future synopsis lines
 - lot of effort needed to force the generation to fit future synopsis lines
 - → significantly MORE human interference needed

Dramatic Situations

Dramatic Situations

- David Mareček, DAMU people
- dramatic situations
 - basic building block of drama
 - e.g. “Intruder”: a new person appears unwanted as a disturbance
- plan
 - 1. annotate in some plays
 - 2. automatically identify in other plays
 - 3. train situation-aware script generator
- result
 - ~50 Czech play scripts annotated with a subset of 5 situations
 - internal data (do not share): <https://ufallab.ms.mff.cuni.cz/~rosa/theatre/situace/>
 - 9 play annotations public: <http://hdl.handle.net/11234/1-4820>
 - preliminary identification experiments (Tomáš Musil)
 - bad results, very low accuracy (~40%)
 - frozen

Work in Progress & Future Work & Spin-offs

Already Existing

- Prague Clockwork Cabaret by [PLai Prague](#)
 - AI generated script, music, visuals
 - for Czech presidency of Council of EU
 - Prague premiere 9th Oct
 - EU tour: Berlin, Brussels, Warsaw, Wien, Bratislava
 - Tomáš Studeník, DAMU, some Prague city funding
- AI in Context ([aivk.cz](#))
 - informal interdisciplinary group (no funding yet)
 - MFF: Rudolf Rosa, Jindřich Libovický, Tereza Hannemann
 - AI in Context invited lectures: Thu 17:30 S4, [aivk.cz#prednasky](#)
 - was: AI in art, ethics, journalistics, medicine, religion
 - planned: memory, music, archeology, law
 - CUNI guarantors of Elements of AI+ course: [aivk.cz#elements](#)
 - free online course by Uni Helsinki, intro to AI for anyone
 - part of [Didaktikon](#) mini science centrum at Kampus Hybernská
 - other ideas, e.g. AI pub: a pub as a mini science centre (Svijany)



In Progress, in Preparation

- summarize&generate, interleaved synopsis/script generation
 - 1. generate a new synopsis line
 - 2. expand it into a script chunk
 - 3. summarize the script chunk
 - 1. generate a new synopsis line... (conditioned by the previous summary)
 - research project of Rishu Kumar
- persona-aware generation: personalities for characters
 - some experiments in THEaiTRE: Patrícia Schmidtová, Dávid Javorský
 - research project of Goutham Venkatesh
 - preparing GAČR-Weave project with Lucie Flek (Marburg Uni)
- neural modelling of Czech poetry
 - with ÚČL AV ČR, experts on poetry (Karel Piorecký, Zuzana Husárová)
 - submitted NAKI, preparing TAČR Sigma submission
- assistive tool for starting authors of short stories
 - with Prague Municipal Library and Czech sci-fi authors (Míla Linc, Julie Nováková)
 - maybe preparing a TAČR Sigma submission

Text Generation Demos

Text Generation Free Online Demos

- THEaiTRobot demo (ours)
 - GPT-2, fine-tuned for theatre script generation
 - <https://theaitre.com/demo>
- OpenAI Playground (not ours)
 - GPT-3, various models
 - <https://beta.openai.com/playground>

THEaiTRE: Concluding the project

- Project is successfully concluding
 - Two plays, demo, software, models, book
- Not all good ideas work well in practice
 - Hierarchical generation
 - Dramatic situations
- Plenty of further opportunities
 - Research projects, student projects...
 - AI cabaret, AI in Context, personas, poetry, short stories...
 - Funding: in progress :-)