Piotr Piękos

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Objective

Creating robust machines that can abstract their learned knowledge and use it effortlessly in new environments that share a similar structure.

Education

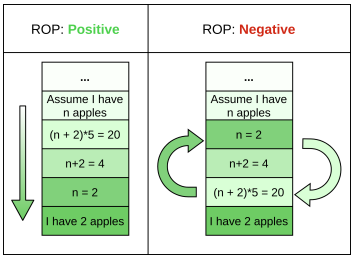
University of Warsaw **Master's Degree**
Mathematics, Master *Graduation: October 2021*
Faculty of Mathematics, Informatics and Mechanics,
Thesis was an investigation of mathematical abilities in language models. It was accepted to ACL-IJCNLP 2021 in the form of a publication. More on that below.

University of Warsaw **Bachelor's Degree**
Mathematics, Bachelor *Graduation: April 2018*
Faculty of Mathematics, Informatics and Mechanics,
Thesis about using residual connections in recurrent neural networks

University of Warsaw **Bachelor's Degree**
Computer Science, Bachelor *Graduation: September 2017*
Faculty of Mathematics, Informatics and Mechanics,
Thesis about porting OpenFace for face recognition on the phone

Publications

Measuring and Improving BERT's Mathematical Abilities by Predicting the Order of Reasoning (ACL, oral)



This project investigates mathematical abilities in language models and proposes training on rationales as a bridge between informal natural language and formal mathematics. Additionally proposes novel losses for better utilization of the rationales. Our model is the state of the amongst model with low inductive biases and the results are comparable with hand-crafted models.
Research was done under the supervision of Mateusz Malinowski, PhD (DeepMind) and Henryk Michalewski, PhD (Google, University of Warsaw)

Conferences and workshops:
- **ACL-ICJNLP 2021 (Main Conference, oral)**
- EEML 2021 (Best poster award)
- MathAI (ICLR 2020 Workshop)
- BayLearn 2020

Arxiv link Project website

Research Experience

Polish Academy of Sciences, AWARElab group
Researcher *01.2022–now*
Working on a next version of Subgoal Search For Complex Reasoning Tasks - a method of improving search in combinatorial environments by predicting intermediate states/goals.

Commercial Experience

Allegro.pl
Research engineer *10.2021– 01.2022*
Improving the quality of search neural reranking model. I increased the training speed around 3 times, decreasing the training time of one epoch from approximately 1 day to 8 hours.

ITMagination
Data Science/ ML Team Leader *07.2019–06.2020*
I was responsible for designing solutions to handle business problems with machine learning. I also together with the team implemented these solutions in PyTorch / TensorFlow. Example Project: Categorizing patent ideas by natural language descriptions. One of methods involved using sentence embeddings produced by fine-tuned BERT.

ITMagination
Data Science / ML Consultant *07.2017–07.2019*
Implementing machine learning solutions for external companies.

Hcore
Python Developer Internship *07.2016–09.2016*
Writing backend software in Python.

Open-source

BERT for trax | **trax**: Open source contribution for trax (google library for neural networks using jax) It adds BERT model and masked language modeling pipeline preparation. Github

Languages

English: Advanced (111/120 TOEFL score)

Polish: Native

Interests

Chess, Computer Games, Psychology