Daniil Cherniavskii

Moscow

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Github

Google Scholar

Born 13 May 1997

EDUCATION

2020 – 2022

Master's degree in Data Science

Double degree program at Skolkovo Institute of Science and Technology (Skoltech) and Moscow Institute of Physics and Technology (MIPT)

- Research in Topological Data Analysis and its applications to Natural Language Processing
- Academic Excellence Scholarship winner (top 5%)
- GPA: 4.81 / 5

2015 – 2020

Bachelor's degree in Physics and Applied Mathematics

Moscow Institute of Physics and Technology (MIPT)

- Major in Data Science
- Thesis: "User's intents in conversational systems"
- GPA: 8.68 / 10

PUBLICATIONS

#1 Kushnareva, L., Cherniavskii, D., Mikhailov, V. et al.
Artificial Text Detection via Examining the Topology of Attention Maps.
In Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (pp. 635-649). 2021, November. link

#2 Malykh, V., D. Cherniavskii, and A. Valukov.
Summary construction strategies for headline generation in the Russian language.
Computational Linguistics and Intellectual Technologies. 2020. link

#3 Kuratov, Y., Yusupov, I., Baymurzina, D., Kuznetsov, D., Cherniavskii et al.
DREAM technical report for the Alexa Prize 2019.
Alexa Prize Proceedings. 2020. link

SELECTED PROJECTS

#1 **Disentangled Representation Learning as Nonlinear ICA**

Final project on Skoltech course "Geometric models in Machine Learning".

- Implemented from scratch an algorithm of Nonlinear Independent Component Analysis
- Discovered latent representation features responsible for line thickness in case of MNIST dataset, and age in case of CelebA

#2 **Generative models for brain aging and gender differences**

The main goal of this project was to explore brain with generative models and derive healthy patterns of brain data connected to gender and age both on morphometry and full size MRI data.

- Participated in implementation and training of autoencoder model for full size MRI images from Human Connectome Project.
- With the help of BrainPainter visualization, discovered statistically significant differences in some parts of the brain that are due to gender and age.

#3 **Investigation of topological losses for neural text generation**

- Full code implementation of GPT-2 finetuning and topological loss based on the differences in sum of length of barcodes for attention maps of natural and generated texts.
- Came up with an idea of approximation to topological features.

WORK EXPERIENCE

June 2021 – August 2021

Research intern at Huawei

Noah's Ark Lab, Moscow

- Performed a research on adversarial text generation with the help of topological features of Transformer-like models.
- Single-handedly coded GAN training procedure and the calculation of topological features.

October 2019 – May 2021

Research assistant at DeepPavlov Neural Networks Lab

MIPT, Moscow

- Represented MIPT in the chat-bot competition called Alexa Prize Socialbot Grand Challenge 3 as the only undergraduate and the member of DREAM team.
- Developed a crucial system of user intent detection responsible for the user-bot interaction and maintained it through the entire competition.
- The user intent detection algorithm was later included into the DeepPavlov library.
- As a member of the "NeuralReading" team, participated in development of an automated school essay checking system during "Prochtenie" competition. Our team took 1st place.

ADDITIONAL INFORMATION

Technical skills

- Python (4+ years)
- SQL, Docker, Git, Bash, LaTeX
- C/C++ (basics)

Languages

- English (Fluent)
- Deutsch (Anfänger)
- Russian (Native)