Mumtozbek Akhmadjonov

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Education

Moscow Institute of Physics and Technology

M.S. in Computer Science and Data Science — *Sep. 2023 - Aug. 2025*

Relevant Courses: Deep Learning, Computer Vision, Natural Language Processing

B.S. in Computer Science and Technology — *Sep. 2019 - Aug. 2023*

Relevant Courses: Algorithms and Data Structures, Linear Algebra, Calculus I and II, OOP (C++), Convex Optimizations, Probability Theory and Mathematical Statistics, Random Processes

Experience

Yandex

Intern ML Engineer — *Sep. 2023 - Dec. 2023*

- Finetuned Llama 2 in a multimodal setting using speech tokens from both CommonVoice and CoVoST2 datasets to make ASR and AST. Achieved a BLEU score similar to Google's AudioPaLM-1 8B on CoVoST2.
- Introduced GPTQ, a SotA int4 quantization algorithm, for the Seq2Seq ASR model from the production increasing it's quality (WERp -2.87% on hard samples) and inference speed. Reduced the required GPU memory by 3 times.

DeepPavlov

Junior DL Researcher — *Sep. 2022 - Jul. 2023*

- Developed approaches to evaluate and enhance Dialogue Graph Auto-Construction (DGAC) method on different dialogue datasets. Co-authored a paper accepted to AINL 2023.
- Outperformed the approach described in the paper on user attribute extraction and inference from dialogues with SOTA transformer architectures.

Research Intern — *Feb. 2022 - May. 2022*

- Achieved a similar performance using DialoGPT with special tokens to the approach leveraging projected attention layers to control different dialogue attributes. Reviewed dozens of articles on the related topics on ArXiv.

Publications

XXV International Conference on Neuroinformatics

- Co-authored a conference paper about dialogue response selection enhancement using conversational graphs.

Neuroinformatics 2022 NN workshop

- Presented a poster describing controllable DialoGPT.

Projects

RLHF for GPT2

- My attempt to align GPT2 using PPO, DPO and SFT on different datasets, and serve the aligned models using FastAPI and gRPC.

PEFT for BERT

- My attempt to fine-tune BERT-like models on MLM task using HuggingFace PEFT.

Controllable DialoGPT

- Flask API to serve a chat model trained in this notebook.

Skills

Languages:

Python, C, C++, Java

Technologies & Tools:

PyTorch, PyTorch Lightning, HuggingFace Transformers, Accelerate, PEFT, trl, scikit-learn, numpy, pandas matplotlib, Git, Docker, Flask, FastAPI, MapReduce (YTsaurus, Hadoop)

Achievements

OpenDoors International Student's Olympiad 2023

- winner diploma in Math&AI track
- winner diploma in CS&DS track

Skolkovo Hack 2022

- Top-4 with team ”ProDaters”.

Tinkoff & MSU Math Contest 2021

- winner diploma

Languages

Uzbek: Native	Russian: Bilingual Proficiency	English: C1	Spanish: A2

Job Preferences

Data Science & Machine Learning Engineer/Researcher:

NLP, Computer Vision, Conversational AI, Generative models (GPT family)