TIMOFEI GRITSAEV

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EDUCATION

National Research University Higher School of Economics, Moscow, Russia — September 2020 – June 2024
Applied Mathematics and Computer Science, Bachelor degree — Major GPA: 3.78 out of 4
Specialization: Machine Learning — Specialization GPA: 3.95 out of 4

EXPERIENCE

Yandex — Russia, Moscow
Intern Machine Learning Engineer — June 2023 - September 2023

- Successfully researched how to finetune model in order to apply quantization, before model was trained with LoRa and could not be quantized. The quality increased by SbS, GPU memory consumption and inference time reduced twice. You can try the summarization model here.
- Completely on my own implemented chats summarization model, I was responsible for all steps of the chat summarization process, from collecting data in real-time and training model to building a service that responds to summarization requests.
- Invented and implemented quality metrics for the summarization task, which simplified choosing the best model.
- Added reward models and researched its' quality for the summarization task according to team's and assessors' markups. As the result, it dramatically simplified and accelerated experiments and models comparison.
- Participated in the new YandexGPT model launch.
- Fixed and improved team's training, testing pipelines. Added reward model metrics into the training and production pipelines.
- Implemented pipeline for automatic searching optimal inference configuration and found better inference config.
- Invented and implemented production-ready algorithm based on DSSM-model for linking a summary thesis to the certain position in the text, it achieved 99% accuracy. Advised backend team in the algorithm implementation.
- Noticed ineffective markup method and proved why it prevented to use better model in the production. As a result, choosing the best model approach was changed to SbS markup. Also proposed bayesian estimation for more detailed assessors' markup analysis.
- Entirely created questions & answers knowledge base (approximitely 500k QAs) for a new Yandex QA-service.
- Invented and implemented answers fact checking algorithm. It had high correlation between assessors' markup and answers' correctness, thus all answers could be qualified as accurate or uncertain. It created new useful functionality for the service and led to substantial cost reduction and process simplification.
- Completely on my own implemented and supported an internal telegram bot for scheduled summarization in yandex business chats.

Mosaic Capital — Australia, remote
Intern Researcher — July 2022 - September 2022

- Implemented log-parser for collecting and calculating features.
- Implemented model predicting future price in 1-3 minutes.
- Implemented, trained and compared different ML-models for predicting price. Best result for predicting price in 1 minute with LSTM-model is R2=0.37.

AIMTech (currently, Pinely) — Moscow, Russia
Intern Researcher — August 2021 – October 2021

- Invented and implemented order position tracking algorithm and covered it by unit tests. Invented and implemented 2 metrics for verifying my algorithm quality. My order queue tracking was close to alternative queue tracking, which implementation was slow. Team and I used prediction for improving strategy performance in production.
- Invented and implemented orders cancelling method, which could delete unprofitable orders. It made the strategy less risky and more profitable, 15% increase in daily profit in the simulator.
- Noticed non-optimal implementation in the most important part of the code (hot way). Proposed and implemented faster solution.
- Noticed and fixed bug in the team's strategy code, which could affect production result.
- Noticed critical error in team's member analysis, which had been stopping research progress for 3 weeks.
- Implemented utilities in C++: orders profit estimator, basic classes for incoming and outgoing objects, etc.
- Implemented utilities in Python: measuring and comparing code latency, cancelled orders analysis.

Tinkoff Bank — Moscow, Russia
Intern Analyst — April 2021 – July 2021

- Implemented several profitable trading strategies, implemented several models for predicting stock price.
- Fully on my own implemented exchange simulator in Python, which simulated the whole trading process.

Other experience

Machine Learning Teaching Assistant at the HSE — January 2024 – June 2024
Matrix Computation Teaching Assistant at the HSE — January 2023 – June 2023
Mathematical Statistics Teaching Assistant at the HSE — January 2023 – June 2023

Python Teaching Assistant at the HSE September 2022 – December 2022
Algorithms and Data Structures Teacher for high school students September 2020 – December 2021

SKILLS & INTERESTS

- *C++*, *Python*. High knowledge and broad experience in the both languages.
- Probability Theory and Mathematical Statistics, Matrix Computations, Machine Learning and Deep Learning (NLP, RL, diffusion models, uncertainty estimation and bayesian methods, interpretability of deep learning models).

ACHIEVEMENTS

- #1300 among all Codeforces users, top–1%, my account.
- *All-Russian Informatics Olympiad 2020*. Prize winner, #58 out of more than 100'000 participants.
- *All-Russian Informatics Team Olympiad 2020*. 1-st degree diploma, #18 out of more than 3000 teams from Russia, Europe and the CIS.
- *International Zhautikov Olympiad 2020*, silver medal, #37 out of more than 400 participants.
- *All-Russian Informatics Olympiad 2019*, #140 out of more than 100'000 participants.

PROJECTS

DL in Audio

- Speech to Text with DeepSpeech2 `https://github.com/tgritsaev/deepspeech2`
- Speech separation with SpEx+ `https://github.com/tgritsaev/spex-plus`
- Text to Speech with FastSpeech2 `https://github.com/tgritsaev/fastspeech2`
- Mel to Wav with HiFi-GAN `https://github.com/tgritsaev/hifi-gan`
- Antispoofing with Rawnet2 `https://github.com/tgritsaev/rawnet2`

DL

- Transformer for generation simple stories `https://github.com/tgritsaev/tinystories`
- Image generation using DCGAN, CVAE, DDPM `https://github.com/tgritsaev/image-generation`
- Pytorch analogue `https://github.com/tgritsaev/pytorch-analogue`

Other

- Various distributed systems concepts `https://github.com/tgritsaev/distsys-homework`
- Created tasks for high-school students olympiads with solutions and test system `https://github.com/tgritsaev/tasks-w-test-system-implementation`