Hai Le

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https://highly0.github.io/

INTEREST

Natural Language Processing, Large Language Models, Explainable AI, AI Optimization, Generative AI.

EDUCATION

Skolkovo Institute of Science and Technology — Moscow, Russia
M.S. Mathematics and Computer Science — Sep. 2021– Jun. 2023
Supervised by Professor Alexander Panchenko and Mikhail Salnikov.

- Distinction/Cum Laude (GPA: 4.85/5.0)
- Thesis: Knowledge Graphs Question Answering: Sequence to Sequence (Seq2Seq) Model with Redirects, Subgraphs Extraction & Re-ranking.
- Relevant Courses: Machine Learning, Deep Learning, Deep Learning for Natural Language Processing, Numerical Linear Algebra, Introduction to Recommender System, Neuroimaging and Machine Learning for Biomedicine, Introduction to Blockchain.

University of Maryland, College Park — Maryland, USA
B.S. Computer Science — Aug. 2017– May 2021

- Relevant Courses: Computer Network & Security Computer Algorithms, Object-Oriented Programming, Cryptography, Programming Handheld Systems, Advanced Data Structures, Organization of Programming Languages, Game Programming.

HONORS AND AWARD

Skolkovo Institute of Science and Technology Fellowship, 2021-2023.
Academic Excellence Scholarship, Skolkovo Institute of Science and Technology, 2022-2023.
Industrial Immersion Excellence award, 2022
Outstanding project for MIT's Global Startup Lab, 2023.
Dean's List, University of Maryland, 2019-2021.

PUBLICATION

Mikhail Salnikov*, Hai Le*, Prateek Rajput, Irina Nikishina, Pavel Braslavski, Valentin Malykh and Alexander Panchenko. **Large Language Models Meet Knowledge Graphs to Answer Factoid Questions.** *In proceedings of Pacific Asia Conference on Language, Information and Computation* (PACLIC 2023).

RESEARCH EXPERIENCE

Generative AI & AI Optimization Lab, VinAI Research — Hanoi, Vietnam
Applied Research Engineer — Aug. 2024 – Current

- With a focal point of various diffusion models, read and gather ideas from prior state-of-the-art research papers on top level NLP conferences and journal.
- Research and implement various optimization techniques to deploy Large Language Models on low resource devices.

Center for Artificial Intelligence Technologies, Skoltech, AIRI, & SberAI — Moscow, Russia
Research Engineer (Advisor: Professor Alexander Panchenko) — Jul. 2022 – Aug. 2024

- Read and gather ideas from prior state-of-the-art research papers on top level NLP conferences and journals.
- Research and develop a Proof of Concept pipeline for Knowledge Graph Question Answering (QA).
- Conduct, write, and publish experiments on different QA datasets.

Samsung AI Center — Moscow, Russia
Research Intern (Advisor: Dr. Alexander Limonov) — Jun. 2022 – Aug. 2022

- Worked on indoor positioning tasks for robot navigation and 3D models of indoor environment.
- With stationary ultrasound beacons responsible for mapping coordinates via triangulation, implemented an optimization algorithm that can minimize the error discrepancies from 0.179m to 0.81m.

TEACHING

Evolution of Large Language Models, NRU Higher School of Economics — Moscow, Russia
Invited Lecturer — April. 2024

- Held a mini-course on rudimentary Natural Language Processing concepts and the current state-of-the-arts in the scope of machine translation. Different topics include: word embeddings, transformer and attention architecture, encoder-only, decoder-only and encoder-decoder architectures.

Introduction to Object-Oriented Programming, University of Maryland — College Park, USA
Teaching Assistant — Jan. 2021 – May. 2021

- CMSC131 and CMSC132 in the Department of Computer Science. These courses covered basic object-oriented concepts (polymorphism, inheritance) and basic data structures (linked list, graphs, queues, stacks, hashed-maps, and others).
- Ran discussion for over 40 students twice a week, had office hours every week, answered questions in person and online, marked assignments, and proctored exams.

Introduction to Data Science, University of Maryland — College Park, USA
Teaching Assistant — Aug. 2020 – May. 2021

- CMSC320 in the Department of Computer Science. The course covered basic data science concepts such as scraping, cleaning, regression & classification techniques in R.
- Held office hours every week, answered questions in person and online, marked assignments, and proctored exams.

PROJECTS

Image Caption Generator Case Study
Deep Learning & Deep Learning for Natural Language Processing — Skoltech, 2022

- Implemented and benchmarked the image captioning performance of several models in the encoder-decoder framework with backbones such as convolution neural network (`VGG16` `Densenet161`, `InceptionV`), recurrent neural network (`LSTM`, `GRU`) and transformers (`DiET`, `ViT`) [Code]

Image Restoration with SwinIR
Machine Learning — Skoltech, 2022

- Re-implemented `SwinIR` for image restoration using Transformers by adding Gaussian noise compared performance using `PSNR` and `SSIM` metrics. [Code]

Tensor Decomposition Case Study
Numerical Linear Algebra — Skoltech, 2023

- Implemented Canonical Polyadic decomposition (CPD) and Tucker Decomposition. Examined performance of classical CNN architectures such as `Resnet` and `Densenet` with the addition of the tensor decomposition. [Code]

Case Study of Hybrid Recommender Architecture
Introduction to Recommender System — Skoltech, 2023

- Implemented and compared the performance of a hybrid model - `DeepFM` (utilizing both low and high order user-item interaction) against several baselines - `SVD`, `LightFM`, `DSSM`. [Code]

COMPETENCES

Programming Languages Python, C/C++, Java, R, GraphDB, MATLAB, LaTeX.
Programming Libraries & Tools Pytorch, Hugging Face, Transformers, Tensorflow, Keras, Onnx, Scikit-learn, Scipy, NumPy, Git, Docker.
Languages English (*native*), Vietnamese (*native*)

REFERENCES

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