Khachatur Dallakyan

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EDUCATION

The Chinese University of Hong Kong   Hong Kong S.A.R.

Bachelor of Science in Artificial Intelligence: Systems and Technologies (GPA: 3.269 / 4.00)   2020-2024 (expected)
- **Awards:** Honours at Entrance, Belt and Road Scholarship

International Baccalaureate Diploma Programme at Quantum College   Armenia

Total points: 37/45   2018-2020

Subjects: Mathematics HL(6), Computer Science SL(6), ITGS SL(6), Armenian SL(7), Economics HL(4), English HL(6).

WORK EXPERIENCE, PROJECTS, AND RESEARCH

Retrieval Augmented Single Cell Foundation Model (ongoing)   Hong Kong

Model aiming to extrapolate the encoder's potential in gene expression from large single-cell atlases and adapt it for different downstream tasks, especially in scenarios with limited data   2023
- Evaluated Geneformer in single-cell data classification on various datasets, considering future improvements.
- Used FAISS for efficient similarity search on vector representation of cell composed using Geneformer encoder.
- Currently at the stage of combining Genecorpus-30M, CellXGene, and other single-cell datasets.

Comparison using state-of-the-art image-to-image translation models (ongoing)   Hong Kong

To evaluate cell morphology generation model, conducted comparisons with different other models   2023
- Ran experiments on data from the JUMP cell painting datasets on DMIT and DRIT++ models.
- Currently running experiments on drug-perturbed cell morphology data.

Internship at CPII   Hong Kong

AI research company targeting sectors of healthcare, urban services, and reindustrialization   2023
- As part of the creation of an interactive chatbot for elderly people, developed a prototype speech interaction with LLMS without relying on ASR or TTS systems, instead using "hidden unit" clusters to encode the audio.
- During the project, worked on models such as LLAMA, Hubert, Tacotron2, and HiFi-GAN.

Internship at ONEFi (iPYGG)   Hong Kong

Fintech company aiming to connect Asia-pacific banking into a single application   2022
- Designed a machine learning algorithm using SVM for transaction classification with above 92% accuracy.
- Developed a transformer model for transaction description summarization.

Movement Detection Software   Hong Kong

Movement detection software similar to the squid game using yolov4 object detection model   2021
- Applied yolov4 object detection classification model for face detection.
- Designed an algorithm for differentiating between moving and fixed faces.

Article classification   Armenia

News article scraper and classification software   2020
- Scraped data from chosen website using framework selenium.
- Created a soft voting classifier for an effective combination of different machine-learning classification models.

ACHIEVEMENTS

"Belt and Road" scholarship   Hong Kong
- Scholarship for outstanding new students from the Belt and Road Region countries.   2020

"Best student" state prize   Armenia
- Republic of Armenia State Prize in Information Technologies.   2018

"Algorithmization Methods" Programming Contest   Belarus
- Second and third places (top 0.5%) in Autumn and Winter Cup contests respectively.   2017

EXTRACURRICULAR ACTIVITIES

Armenian Red Cross Society (ARCS)   Armenia
Volunteered in the programs "Psycho-Social Support" and "COVID-19: raising awareness"   2019-2020

Global Innovation Forum   Armenia
Volunteered during Aurora Humanitarian Initiative   2019

- Together with other volunteers, organized the opening and closing ceremony of GIF 2019.
- Helped to organize a talk about the scientific computing framework Torch and its use cases.

Competitive programming   2017-2019

- Codeforces: https://codeforces.com/profile/khachdallak
- SPOJ: https://www.spoj.com/users/khachdallak/
- Developed and tested competitive programming problems for Armenian SPOJ.