Soroush Omranpour

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Highlight

5+ years of academic and industrial expertise in developing deep learning pipelines and training machine learning models, with a focus on Foundation Models, Graph Learning, Natural Language and Speech Processing, and Timeseries Forecasting.

Education

McGill University - Mila 2022 – Present
MSc. of Computer Science *Montreal, Canada*
- Grade: 3.65 / 4.00

Sharif University of Technology 2016 – 2021
BSc of Computer Engineering *Tehran, Iran*
- Grade: 3.85 / 4.00
- Thesis: Unified Behavioral Analysis of Social Network Users

Publications

- **Omranpour, S.**, Rabbusseau, G., Rabbany, R. *Higher Order Transformers: Enhancing Stock Movement Prediction on Multimodal Time-Series Data.* Workshop on Machine Learning in Finance, International Conference on Knowledge Discovery and Data Mining 2024.
- Ramezani, M., Rafiei, M., **Omranpour, S.**, Rabiee, H. *News Labeling as Early as Possible: Real or Fake?.* IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining 2019.

Industry & Research Experience

LUCID May 2024 – September 2024
Scientist In Residence *Montreal, Canada*
- Worked with an interdisciplinary team led by Aaron Labbe.
- Developed a Generative AI system that creates audio-synchronized music videos with audio signal processing and Stable Diffusion.

Quebec AI Institute / McGill University September 2022 – Present
Research Master's Student *Montreal, Canada*
- Worked with Complex Data Lab supervised by Reihaneh Rabbany on developing temporal graph learning methods for mental health disorder prediction on social networks users.
- Worked with Tensor Network group supervised by Guillaume Rabusseau on tensor factorization techniques to make Transformers more efficient and faster on higher orders.

Taiwan AI Labs / Academia Sinica February 2021 – November 2021
Research Intern *Remote*
- Worked with an interdisciplinary team at Music AI Lab supervised by Yi-Hsuan Yang on symbolic music generation and melody extraction for multi-instrument polyphonic music.
- Developed two open-source python packages: **DeepMusic** for MIDI data processing and **Music-Generation** for training transformer models on MIDI corpus.

ZLab - Fanap Inc. February 2020 – August 2022
Deep Learning Engineer *Tehran, Iran*
- Technical Leadership for Persian Speech2Text and Text2Speech projects.
- Developed a production-ready hybrid search system using lexical and semantic search algorithms for an online bookstore.

MLCV Group - Institute of Science and Technology Austria June 2019 – September 2019
Research Intern *Klosterneuburg, Austria*

- Advised by Christoph Lampert.
- Developed a VAE-based generative model to solve Raven Progressive Matrices, investigating abstract reasoning capabilities of neural networks.

DML Group - Sharif University of Technology September 2018 – September 2019
Research Assistant

- Advised by Hamid R. Rabiee
- Executed large-scale text data processing, model implementation, and performing experiments for fake news detection on social networks.
- Investigated the cross-domain adaptation capacity of SOTA models for fake news detection.

Skills

Languages: Python, Bash, SQL, Java, JS

Tools/Frameworks: Git/Github, Flask, FastAPI, Docker, SLURM

Machine Learning: PyTorch, Tensorflow, HF Transformers, Pytorch-Geometric, Essentia, Librosa, Music21, Nvidia Nemo-Toolkit, NumPy, Scipy, Pandas, Matplotlib, Scikit-Learn

Relevant Courses: Applied Machine Learning, Probability and Statistics, Signal Processing, Linear Algebra, Algorithms and Data Structures, Tensor Decomposition, Advanced Speech Processing, Natural Language Understanding