Soroush Omranpour

github.com/s-omranpour soroush.omranpour@mila.quebec

Education

McGill University - Mila 2022 – Present
MSc. of Computer Science *Montreal, Canada*

Sharif University of Technology 2016 – 2021
BSc of Computer Engineering – GPA: 3.85 *Tehran, Iran*

Skills

Languages: Python, Bash, SQL, Java

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

Machine Learning: PyTorch, Tensorflow, NumPy, Pandas, Matplotlib, sklearn, Transformers, Deep Graph Library

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

Experience

Research Assistant 2022 – present
Quebec AI Institute (Mila) *Advisors: Reihaneh Rabbany, Guillaume Rabusseau*

- Developing a graph-theory-inspired spatiotemporal model to perform multivariate time series forecasting.
- Developing a dynamic graph learning method for mental health disorder detection on social media users.
- Developing a multimodal method to perform stock market movement prediction and forecasting using graph neural networks and Transformers.

Research Assistant 2021
Music and Artificial Intelligence Lab - Taiwan AI Labs *Advisor: Yi-Hsuan Yang*

- Developed a python library called **DeepMusic** (available via pip) supporting MIDI format to simplify musical data representation and data preprocessing for neural networks.
- Developed a music generation toolkit to train a transformer decoder on a large MIDI corpus capable of generating multi-instrument polyphonic symbolic music.
- Developed a method to perform melody extraction from symbolic music using transformer VAE architecture.

Deep Learning Engineer 2020 – 2022
ZLab - Fanap Inc. *Tehran, Iran*

- Speech to Text Project: Developed a production-ready pipeline for speech recognition on Persian including noise filtering, transformer-based audio encoder, transformer-based text decoder, and LM corrector all serving a FastAPI backend.
- Text to Speech Project: Developed a method to perform speech synthesis on Persian as a low-resource language using transfer learning across languages.
- Search Engine Project: Developed a production-ready hybrid search system using lexical (Elastic Search) and semantic (embedding vector) search algorithms for an online book store. This project required careful data collection, model training on a large corpus and exhaustive system finetuning.

Research Assistant 2019
Machine Learning and Computer Vision Lab - IST Austria *Advisor: Christoph Lampert*

- Developed a conditional variational autoencoder model trained on Raven Progressive Matrices to investigate abstract reasoning capabilities of neural networks.

Research Assistant 2018 – 2020

Data Science and Machine Learning lab - Sharif University of Technology *Advisor: Hamid R. Rabiee*

- Executed large-scale text data processing, model implementation, and performing experiments as part of the project for fake news detection on social networks.
- Investigated the cross-domain adaptation capacity of SOTA models for fake news detection by performing transfer learning among multiple datasets.
- Developed a python package called **SocialPhi** to calculate an information-theoretic metric to measure group performance based on temporal activities as time series. This was part of my bachelor thesis Unified Behavioral Analysis of Social Network Users.

Publication

- M. Ramezani, M. Rafiei, **S. Omranpour**, H. Rabiee. News Labeling as Early as Possible: Real or Fake? In IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining 2019

Awards & Achievements

- **Mila Graduate Scholarship**: Awarded to research students for demonstrated expertise in artificial intelligence in the form of a stipend.
- **Iran's National Elites Foundation Memeber**: For being ranked among the top 0.01 % of students in the nation-wide university entrance exam.