Alireza Hashemi

alireza.hashemi13@outlook.com ialireza13.github.io

EDUCATION

The City University of New York, Graduate Center, New York, USA
Physics **PhD Student** Aug. 2022 – Present
Sharif University of Technology, Tehran, Iran
Physics **Master of Science** Sep. 2019 – Jan. 2022
University of Zanjan, Zanjan, Iran
Physics **Bachelor of Science** Sep. 2015 – Jun. 2019

WORK EXPERIENCE

blubank, *Data Scientist,* Tehran, Iran May. 2020 – Aug. 2022

- Fraud detection on user debit card transactional data using isolation forests, autoencoders, and feature engineering.
- Training and stacking of several CNN architectures for face vs. ID card verification using transfer learning, face liveness detection on streaming video.
- Knowledge graph design and building, designed and developed a Neo4j database from several data sources to identify money-laundry networks, community detection, fraud detection, and recommender system.
- Marketing analysis & A/B testing, high level presentations for managers and strategic planning.
- Data engineering pipelines and automation DAGs using Apache Airflow and ETL with Python. working with different databases: Oracle, PostgreSQL, MongoDB, MySQL, Clickhouse.

Rahnema College, *Machine Learning Course Mentor,* Tehran, Iran Mar. 2021 – Jun. 2021

- Mentored a small group of interns in machine learning for three months as a part of volunteer work.

Rahnema College, *Machine Learning Intern,* Tehran, Iran Jan. 2019 – Mar. 2020

- 3-month training program in basics of machine learning. Final project: A recommender system for a music streaming service.

PUBLICATIONS

Social distancing in pedestrian dynamics and its effect of disease spreading *Physical Review E* (2021)
Chaotic dynamics of active topological defects *Soft Materials* (2021)
Analysis of the ground-state energy eigenvalues of fractal quantum potentials *Physica Scripta* (2019)
Many-body effects on the radiative heat transfer in fractal nanostructures *IJAA* (2017)
Translation of the book "Dark Matter & Dark Energy" by Brian Clegg to Farsi (2020)

CONFERENCES

Social distancing in pedestrian dynamics. *Dynamical Biological Systems* (2020), **COVID-19 in Iran**. *NetSci* (2020)
Effectiveness of social distancing through the lens of ABM. *Complex Systems Society* (2020)

RELEVANT SKILLS

Python: NumPy, Pandas, scikit learn, NetworkX, Keras, TensorFlow, PyTorch (and PyTorch geometric), graph-tool, PyMC **C++**: LAPACK, OpenMP, Computational Physics, **Matlab**, **R**, **Basic Linux**, **SQL & NoSQL Databases**, **CUDA**, **Machine Learning:** Supervised/Unsupervised/Semi-Supervised algorithms with standard libraries, **Deep Learning:** Image processing with CNN, Transfer learning, Graph neural networks, Autoencoders, **Timeseries:** Causal impact analysis, timeseries prediction algorithms for strategic planning, **Anomaly Detection**, **Graph Databases:** Neo4j, **Teamwork Tools:** Jira, Git, Confluence, **Data Reporting:** Metabase, Superset, **Data Engineering:** Apache Airflow, Python ETL

OTHER

NTD Hackathon runner-up team (report on NPR.org), TA for 5 courses during B.Sc. and M.Sc. studies, 23rd & 24th school on physics at IASBS, Tehran School on Complex Networks (TACN2018) participant

LINKS

Google Scholar **Researchgate** **Linkedin** **Github**