Alireza Hashemi

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EDUCATION

The City University of New York — New York, USA
PhD Student in Physics — Sep 2022 –
- Applied graph theory and graph machine learning on biological data.

Sharif University of Technology — Tehran, Iran
Master of Science in Physics — Sep 2019 – Jan 2022
- Numerical simulation of chaos in a system with multiple topological defects.

University of Zanjan, — Zanjan, Iran
Bachelor of Science in Physics — Sep 2015 – Jun 2019

WORK EXPERIENCE

blubank, *Data Scientist* — May 2020 – Aug. 2022
- Fraud detection on user transactional data using isolation forests, autoencoders, and other anomaly detection methods.
- Fine-tuning and training of several CNNs for face vs. ID card verification and liveness detection.
- Development of a Neo4j graph database from various internal data sources to identify money-laundry networks, community detection, fraud detection, and recommender system in a user transaction data.
- Data engineering pipelines & automations with Apache Airflow and ETL with Python on different databases (SQL, NoSQL).

Rahnema College, *Machine Learning Course Mentor* — Mar. 2021 – Jun. 2021
- Mentored a group of interns to work on machine learning projects in anomaly detection and music recommender system.

PUBLICATIONS

Visiting distant neighbors in graph convolutional networks
Alireza Hashemi, Hernán A. Makse *arxiv preprint* (2023)

Social distancing in pedestrian dynamics and its effect of disease spreading
Alireza Hashemi, Sina Sajjadi and Fakhteh Ghanbarnejad - *Physical Review E* (2021)

Chaotic dynamics of active topological defects
Alireza Hashemi, Mohammad Reza Ejtehadi - *Soft Materials* (2021)

Analysis of the ground-state energy eigenvalues of fractal quantum potentials
Alireza Hashemi, Amirhossein Darooneh - *Physica Scripta* (2019)

Many-body effects on the radiative heat transfer in fractal nanostructures
Moladad Nikbakht, Serviyeh Ahmadian, **Alireza Hashemi** - *IJAA* (2017)

Translation of the book "Dark Matter & Dark Energy" by Brian Clegg to Farsi (2020)

CONFERENCE PRESENTATIONS

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

Programming Languages: Python, C++, MATLAB, R, **Standard Learning Libraries:** NumPy, Pandas, scikit-learn, SciPy, NetworkX, Keras, TensorFlow, PyTorch (and PyTorch geometric), graph-tool, PyMC, **Parallel Computation**: LAPACK, OpenMP, basic CUDA, **SQL & NoSQL Databases**: PostgreSQL, MongoDB, Neo4j, **Machine Learning:** Supervised/Unsupervised/Semi-Supervised algorithms with standard libraries, **Deep Learning:** Image processing with CNN, Graph neural networks, Autoencoders **Timeseries:** Causal impact analysis, timeseries prediction, Anomaly & Fraud Detection **Teamwork Tools:** Jira, Git, Confluence, **Data Reporting:** Metabase, Superset, **Data Engineering & ML Automation Tools:** Apache Airflow, Python ETL

OTHER

NTD Hackathon runner-up team (report on NPR.org), 23rd & 24th school on physics at IASBS, Tehran School on Complex Networks (TACN2018) participant, Teaching experience as an adjunct lecturer

LINKS

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