

ARASH HAJISAFI

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EDUCATION

University of Southern California

Ph.D. in Computer Science

Los Angeles, USA

Jan 2022 – Present

Amirkabir University of Technology

B.Sc. in Computer Engineering, GPA: 19.28/20 (3.97/4)

Tehran, Iran

Sep 2017 – Sep 2021

TECHNICAL SKILLS

Programming Languages: Python, Java, JavaScript, C/C++, MATLAB

Machine Learning and Data Analysis: PyTorch (including PyTorch Geometric and Geometric Temporal), scikit-learn, pandas, NumPy, Matplotlib, Seaborn, Plotly

Web & Big Data Technologies: Flask, Streamlit, SQLAlchemy, Spark, Kafka

Database & DevOps: SQL (RDBMS: MySQL, PostgreSQL), Docker, Linux, Git, GitHub Actions

Cloud Computing: Google Cloud Platform (GCP)

WORKING EXPERIENCE

University of Southern California – InfoLab

Graduate Research Assistant

Los Angeles, USA

Jan 2022 – Present

Projects:

Wearables for Health (W4H) Toolkit

- Led the development of the W4H Integrated Toolkit, an **open-source** toolkit centralizing both real-time and offline wearable data from various sources (e.g., Garmin, Apple Watch, Fitbit).
- Designed a scalable system architecture separating data engineering, analysis, and visualization.
- The toolkit comprises the following open-sourced tools:
 - **StreamSim**: Real-time data streaming simulator using **Python** and **Flask**.
 - **W4H ImportHub**: Integrates stored datasets with **Python**, **SQLAlchemy**, and **Streamlit**.
 - **pyGarminAPI**: **Python** library for interacting with the Garmin API.
 - **Integrated Analytics Dashboard**: Core component for data extraction and analysis using **Streamlit**, **pandas**, **Flask**, **Spark**, and **Kafka**.
- Released the toolkit in two modes: a **Docker** image for local setup and a centralized version on USC clusters.

Accurate EEG Seizure Detection and Classification

- Designed and implemented a **GNN**-based model using **PyTorch** and **PyTorch Geometric** to dynamically model brain correlations using EEG signals.
- Utilized **pretrained LLMS** to enhance model performance, unveiling dynamic brain dependencies.

Learning Dynamic Graphs for Accurate Point-of-Interest Visit Forecasting

- Transformed the problem of predicting POI visits in the U.S. into a time-series forecasting task, leveraging multi-context correlations.
- Introduced BysGNN, a temporal graph neural network implemented using **PyTorch**.
- Utilized **pretrained LLMS** to optimize the model, achieving significant improvement in forecasting accuracy.

Mentoring and Training

- Trained and guided two undergraduate students on an academic project, enhancing their research capabilities and ensuring project success.

Summer 2022

Gam Electronics Co.

Software R&D Intern

Tehran, Iran

July 2020 – Sep 2020

- Engineered automated business processes using **Python**, **Flask**, and **Selenium**, enhancing efficiency.
- Conducted unit and integration testing using **pytest** and **unittest** libraries in **Python**.
- Developed interactive web dashboards using **HTML**, **CSS**, and **JavaScript** for enhanced user experience.

RESEARCH INTERESTS

Graph Neural Networks, Deep Learning, Spatio-Temporal Data Management and Forecasting

PUBLICATIONS

1. **A. Hajisafi**, H. Lin, et al., "Dynamic GNNs for Precise Seizure Detection and Classification from EEG Data," **Accepted: PAKDD '24**.
2. **A. Hajisafi**, M. D. Siampou, et al., "Wearables for Health (W4H) Toolkit for Acquisition, Storage, Analysis and Visualization of Data from Various Wearable Devices," **Accepted: ICDE '24** - Demo Track.
3. **A. Hajisafi**, H. Lin, et al., "Learning Dynamic Graphs from All Contextual Information for Accurate Point-of-Interest Visit Forecasting," **Published: SIGSPATIAL '23**, DOI:10.1145/3589132.3625567 (2023).
4. H. Nguyen, **A. Hajisafi**, et al., "An Evaluation of Time-Series Anomaly Detection in Computer Networks," **Published: 2023 International Conference on Information Networking (ICOIN)**, pp. 104-109. IEEE, 2023.
5. S. Shaham, **A. Hajisafi**, et al., "Holistic Survey of Privacy and Fairness in Machine Learning," **In-submission (ACM Computing Surveys)**, arXiv preprint arXiv:2307.15838 (2023).

AWARDS AND HONORS

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| · Ranked Within the Top 5% of My Class in Amirkabir University of Technology | 2021 |
| · Recognized as a Scientific Talent by the National Elites Foundation of Iran | 2020 |
| · Received Full Tuition Waiver Scholarship from Amirkabir University of Technology | 2017 |
| · Achieved the 229th Place Among 140,000 Applicants in the Iranian University Entrance Exam | 2017 |
| · Awarded the Certificate of Honor at the International Mathematical Kangaroo Contest | 2016 |