Arash Hajisafi | Curriculum Vitae

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 arashhs • in arash-hajisafi

Education

University of Southern California   **Los Angeles, USA**
Ph.D., *Computer Science*   *January 2022 – Present*
  Supervisor: **Prof. Cyrus Shahabi**

Amirkabir University of Technology   **Tehran, Iran**
Bachelor of Science, *Computer Engineering*   *September 2017 – September 2021*
  CGPA: 19.28/20 (3.97/4)
  Supervisor: **Prof. Mohammad Mehdi Ebadzadeh**

Related Coursework:

- Machine Learning
- Principles of Artificial Intelligence
- Computational Intelligence
- Data Mining
- Information Retrieval
- Applied Linear Algebra
- Advanced Programming
- Software Engineering (I) & (II)
- Software Testing
- Web Programming

Research Interests

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

Awards and Honors

2021: Ranked Within the Top 5% of My Class in Computer Engineering Department with a CGPA of 19.28 (out of 20), Amirkabir University of Technology

2017: Received Full Tuition Waiver Scholarship from Amirkabir University of Technology

2017: Achieved the Top 0.2% Place Among All Applicants in the Iranian University Entrance Exam (nearly 140000 applicants)

2016: Awarded the Certificate of Honor at The **International Mathematical Kangaroo Contest**

Experience

Research ....

Accurate Multivariate Time-Series Forecasting of POI Visits Numbers   **Los Angeles, USA**
PhD Research Assistant at InfoLab, USC   *January 2022 — Present*

- Building a state-of-the-art GNN-based forecasting model to predict the hourly number of visits to 500 most visited POIs in Houston
- More specifically, we are building our multivariate time-series forecasting model by applying Recurrent Neural Networks (RNNs) to capture the time dependencies within POIs and an attention-based mechanism to capture the inter-POI correlations. We further utilize Graph Neural Networks (GNNs) to learn new representations for POIs based on the derived intra- and inter-series correlations to be able to make accurate predictions

W4H: Wearables for Health and Disease Knowledge   **Los Angeles, USA**
PhD Research Assistant at InfoLab, USC   *January 2022 — Present*

- In this project, we are building an open-source toolkit to enable health facilities efficiently store, analyze, and visualize real-time wearable data from heterogeneous sources (e.g., Fitbit, Garmin, Apple Watch) under a unified data format that we are developing
- We are developing a layered system architecture to separate the data engineering, data analysis, and data visualization tasks
- We have utilized big data frameworks such as Spark and Kafka to meet the scalability and reliability requirements of our system

Gam Electronics Co.   **Tehran, Iran**
Software R&D Intern   *July 2020 – September 2020*
- Designing and building automated business processes
- Participating in the development of complex business processes
- Taking the high-level requirements and transforming them into functional specifications with detailed development plans
- Preparing and executing User Acceptance Testing (UAT) and developing improvement plans as well as taking accountability in fixing identified errors
- Creating Web Forms for the given specifications

Technical Skills

Programming
- Python
  - PyTorch
  - Scikit-Learn
  - Pandas
  - Seaborn
  - Matplotlib
  - Streamlit
  - NumPy
  - SQLAlchemy
  - PySpark
- Flask
- Java
  - Spring
  - Maven
- C/C++

Web Development
- HTML/CSS
- JavaScript
- Bootstrap 4

Big Data Technologies
- Spark
- Kafka

Miscellaneous
- SQL (MySQL/PostgreSQL)
- PostGIS
- Git
- LaTeX
- Linux
- OOP

Selected Course Projects

- **Information Retrieval - Information Retrieval System for a Collection of 50,000 Persian News**
  - Implemented in three phases, including building an inverted index, ranked-based processing of free-text queries, and implementation of clustering and classification algorithms

- **Principles of Artificial Intelligence - Improved Sudoku Constraint Satisfaction Problem (CSP)**
  - Solving the puzzle, in a manner that adjacent sub-grids hold different colors, using forward checking and backtracking as well as MRV and degree heuristics

- **Principles of Artificial Intelligence - Card game**
  - Solving the card game using breadth-first, iterative deepening depth-first, and A* search strategies

- **Computational intelligence - Solving three NP-Complete problems**
  - Solving Steiner Tree Problem, the Egg-holder function's minimum finding problem and a CSP using genetic algorithms and Evolution Strategy

- **Advanced Programming - JTanks Game**
  - A 2D tank game written in Java which features both multiplayer and single-player modes

- **Software Engineering (I) - That's MyTable V2**
  - Restaurant table booking and food reservation web application developed using Java, Spring MVC, Hibernate, and Maven

- **Database Design - Restaurant Management Database System**
  - A database system with GUI for restaurant management using Python, Tkinter library and MySQL

- **Computer Networks - NetWolf**
  - A Peer-to-Peer file sharing application implemented in Python

- **Operating Systems - Threads and Ticket Lock Implementation in Xv6**
  - Implementing threads and ticket lock in Xv6's kernel

***Further details regarding the projects are available through* arashhs.github.io/#projects**