REZA SAFARZADEH

PhD Student | Spatial Data Scientist

Calgary, Canada | +1(403)708-5652 | Reza.safarzadehramho@ucalgary.ca
linkedin.com/in/safarzadehreza | safarzadeh-reza.github.io

SUMMARY

Ph.D. student at the Department of Geomatics Engineering, University of Calgary, Canada. Main responsibilities include developing novel geospatial AI algorithms and systems for logistics, such as smart route recommendation systems for transporting goods, and optimization of regional logistics networks for parcel delivery services. 3 years of experience at PARSA Co. (FANAP ICT group) as spatial data analyst, working on developing spatial models to provide real-time vehicles route planning service and providing spatial web services for online fleet management system.

EDUCATION

05/2021 - NOW
Calgary, Canada

Doctor of Philosophy, Geographic Information Science
University of Calgary
GPA: 3.9 / 4

- **Supervisor:** Prof. Xin Wang
- **Research topic:** Smart Route Recommendation Systems and Trajectory Mining

09/2014 - 09/2017
Tehran, Iran

Master's Degree, Geographic Information Science
K. N. Toosi University of Technology
GPA: 17.5 / 20

- **Supervisor:** Prof. Mohammad Karimi
- **Thesis title:** Optimization of Urban Land use allocation using meta-heuristic algorithms and spatial metrics

09/2009 - 05/2013
Tehran, Iran

Bachelor's Degree, Geomatic Engineering
Iran University of Science and Technology
GPA: 16.5 / 20

SKILLS AND INTERESTS

Programming and Software

Programming: MATLAB, Java, Python (ArcPy, Pandas, NumPy, Geopandas, Shapely, NetworkX, OSMNX, Scikitlearn, Geopy, PyTorch, Scipy, TensorFlow, Folium, Matplotlib, Bokeh, Plotly)
Web Technologies: HTML, CSS, JavaScript (Spatial Libraries: ESRI JavaScript API, OpenLayers), GeoServer, MapServer, Django, FLASK
GIS Software: ESRI products (ArcGIS Desktop, ArcGIS Pro, ArcGIS Server, ArcSDE), QGIS, AutoCad, Civil 3D
Databases: MSSQLServer, MySQL, PostgreSQL, PostGIS

Research Area/Interests

Spatial Data Mining
Spatial Trajectory Mining
Geospatial Computing
Artificial Intelligence
Reinforcement Learning
Deep Learning
Machine Learning
Spatial analysis and visualization
GIS Web-based Mapping

EXPERIENCE

05/2021-Ongoing
Calgary, Canada

Postgraduate Researcher

University of Calgary - Intelligent Geospatial Data Mining Lab (IGDM)

https://ucalgary.ca/labs/intelligent-geospatial-data-mining/home

Main responsibilities:

- Developing deep learning based algorithm for traffic forecasting across city roads
- Spatial analysis of truck drivers' behavior and drivers route choice modeling
- Personalized smart route planning for trucks under extreme weather conditions
- Data-driven truck trajectory map matching using reinforcement learning approach

Skills achieved: Python programming (Packages: Pandas, NumPy, PyTorch, TensorFlow, SciPy, scikit-learn, GeoPandas, Shapely, GeoPy, NetworkX, etc.), ESRI Products (ArcGIS Desktop, ArcGIS Pro, ArcGIS Server, ArcSDE), QGIS, PostgreSQL (PostGIS extension), MSSQL Server

09/2018-05/2021
Tehran, Iran

Spatial Data Analyst

PARSA Co. (FANAP ICT Group)

https://www.linkedin.com/company/fanapco

Main responsibilities:

- Design and implementation of a GPS tracking server and fleet management system that shows the exact position of the desired vehicles on map and takes detailed reports of the mission, travelled path, fuel consumption rate, speed limits, and other necessary information according to the company's requests. (Programming languages that has been used are : Java for handling server side interactions and HTML,CSS, JavaScript for handling web interface, OpenLayers framework to handle spatial analysis and GeoServer to run a map engine)
- Developing a real-time route planning service for replenishment vehicles (The main algorithm is written by Python programming language using NetworkX, Shapely, SciPy, Scikit-learn, ... packages, and Flask framework to develop python APIs and HTML, CSS, JavaScript to create web interface)
- Design and implementation of a GIS-Based approach to identify suitable location for establishing Automated Teller Machines (ATM) and Optimization of ATMs' network. (Using spatial and statistical models, ArcGIS, QGIS, ArcGIS Model Builder and Python language for writing scripts and automation of model, PostgreSQL for data storing and PostGIS for spatial querying the data)

Skills achieved: Python programming (Packages: Pandas, NumPy, NetworkX, Shapely, SciPy, Scikit-learn, etc.), ESRI Products (ArcGIS Desktop, ArcGIS Pro, ArcGIS Server, ArcSDE), QGIS, PostgreSQL (PostGIS extension), Flask, Django, GeoServer, MapServer, MapBox.

09/2018-05/2021
Tehran, Iran

GIS Specialist

AvayarSanat

https://avayar.app

Main responsibilities:

- Editing and creating features on different maps.
- Managing geodatabases and feature datasets in ArcGIS and QGIS.
- Working with layouts in ArcGIS and generating maps for reports.
- Producing georeferenced imagery and maps, and digitizing new features upon request using AutoCAD and ArcGIS.
- Performing research and giving contributions and feedbacks to improve the outcome of the team.
- Preparing comprehensive reports of the progress of the work.

Skills achieved: ESRI Products (ArcGIS Desktop, ArcGIS Pro, ArcGIS Server, ArcSDE), QGIS, PostgreSQL, MSSQL Server, AutoCAD.

HONORS AND AWARDS

Esri Student of the Year Award
Issued by: Esri Canada Centre of Excellence · Sep 2022

International Graduate Student Award Scholarship
Issued by: University of Calgary · May 2021

Awarded as the best publication paper
Issued by: 2nd National Conference on Geospatial Information Technology (NCGIT) · May 2017

Member of Iran's National Elites Foundation
Iran's National Elites Foundation · 2018-2021

Ranked 30 in the nationwide Master of Science entrance exam
Ranked 30 among 3000 applicants in the nationwide Master of Science entrance exam · May 2014

PUBLICATION

Multi-Task Graph Neural Network for Truck Speed Prediction Under Extreme Weather Conditions
30th ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL)
Safarzadeh, R., Mozhdehi, A., Kalantari, S., Wany, Y., Sun, S., Wang, X
2022 https://dl.acm.org/doi/10.1145/3557915.3561029

Multi Objective Optimization of Urban Land Use Allocation Using Meta-Heuristic Algorithms and Spatial Metrics
Journal of Geomatics Science and Technology, JGST
Safarzadeh, R., Karimi, M., and Alaei Moghadam, S
2018 http://jgst.issge.ir/article-1-607-en.html

Optimization of Urban Land Use Allocation using Non-dominated Sorting Genetic Algorithm and Spatial Metrics
2nd National Conference on Geospatial Information Technology (NCGIT)
Safarzadeh, R., Karimi, M., and Alaei Moghadam, S
2017 https://en.civilica.com/doc/895118

VOLUNTARY EXPERIENCES

Member of Awards Committee, Graduate Students' Association
University of Calgary · 2022-2023

Mentoring Webber Academy Grade 10 students in Applied Science
Calgary, Canada · 2022-2023

Member of executive committee
The 1st National Conference on Geospatial Information Technology, Tehran, Iran · 2016

Member of the Geomatics academic committee,
Iran University of Science and Technology, Tehran, Iran · 2011-2012