Majid Najafibaghrabad

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Education

2018 – 2022 **Iran University of Science and Technology (IUST)**
- B.Sc in Civil Engineering
- GPA: **3.6/4**
- Last 2 years GPA: **3.91/4**

2022 – 2024 **Iran University of Science and Technology (IUST)**
- M.Sc in Transportation Engineering
- GPA: 4/4

Research Interests

- Big Data Analysis and Programming
- Developing Mobile Apps and Software
- Simulation
- Traffic Impact Studies
- Travel Demand Forecasting (four-step modeling)
- Air quality and Noise Impacts
- Machine Learning and AI
- Autonomous Vehicles

Courses and Accomplishments

University
- **Application of Computers in Transportation Engineering,** 4/4
- **Advanced Statistics and Probabilities,** 4/4
- **Road Safety Engineering,** 4/4
- **Sustainable Development and Energy,** 4/4
- **Advanced Traffic Engineering,** 4/4
- **Transportation Planning and Engineering,** 4/4

Honors and Awards

- **Top 1%** in the national university entrance exam among nearly 150,000 participants.
- **Ranked 1** in the first semester of 2019-2020 in civil faculty among 80 people.
- Admitted into the **master's program** in transportation among the 80 applicants without the entrance exam

Technical Skills

Programming Languages

Familiar with: Python (sklearn, networkx, Numpy, Pandas, matplotlib), Java, C++

Application Software

Familiar with: Android Studio, IntelliJ IDEA, Spring boot, PTV Visum, SPSS, NLOGIT, Aimsun, VBA in Excel, TNM, Microsoft Office, Power BI

Research Experience

Clustering Algorithm Spring 2023
- Comparing the Distribution-based Density clustering algorithm with other algorithms in transportation

Dynamic Traffic Assignment in Simulation Summer 2023

- Using Dynamic Traffic Assignment (DTA) in Aimsun for Macro, Meso and Micro Simulation Levels

Transportation Demand Fall 2022

- Algorithms and Linear Programming Optimization Methods (Genetic algorithm, Interior point, simplex methods)

Road Safety Engineering Fall 2021, Winter 2023

- Reviewing Methods for Reducing Traffic Accidents Fatalities and Optimizing Budget Allocation in Iranian Cities
- Investigation of different safety factors of Tehran province.

Transportation engineering Fall 2020

- Research on the pipeline transportation system

Principles of Airport Engineering Spring 2021

- Study of airport runway geometric design standards
- Review the role of air transportation and management in airports and investigation of the master plan of airports

Selected Projects

Clustering Algorithm Spring 2024

- Clustering a large database of Isfahan (a populated city in Iran) Using Self-Organizing Map, DBSCAN and Dijkstra Algorithm on the network

Developing an App and Software for Road Management Safety Winter 2023

- Developing a Mobile App with Android Studio (Java) for User Interface
- Utilizing Spring Boot for Receiving Data (e.g., selected options, images, videos, GPS) and Storage in a Database (PostgreSQL)
- Displaying Data on a software Using Python (Kivy)

Traffic Spring 2021

- Designing an intersection with Aimsun to compare the existing situation with the new situation (adding new phases to traffic lights)

Transportation Planning Fall 2022

- Trip generation: using a regression model based on the trip purpose to predict the model for horizon year for a city in Iran (aggregate model).
- Trip distribution: Comparison between using the gravity model (PTV Visum program) for predicting trip distribution matrix and Furness method with Python.
- Mode choice: using NLOGIT for calibrating Utility functions.
- Trip assignment: using PTV Visum program (all-or-nothing assignment, equilibrium assignment, incremental assignment).

Languages

Persian: Native **Turkish:** Native **English:** IELTS British Council 2024-2-18 (Overall Band:7)

References

Prof. Ali TavakoliKashani
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Prof. Pouyan Ayar
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Prof. Shahriyar Afandizadeh
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