Navid Tavakoli Shalmani

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SUMMARY

Environmental Engineer and Data Analyst with a strong foundation in **mathematics** and a **multidisciplinary background**. Experienced in working with **diverse data types**—spatial, tabular, and imagery—using **Python**, **R**, **MATLAB** and **SQL**. Skilled in applying **AI** and **machine learning** techniques to solve complex problems, from **geospatial modeling** to **predictive analysis**. Passionate about leveraging **data science** and artificial intelligence to drive innovation, support decision-making, and create sustainable, technology-driven solutions.

EDUCATION AND TRAINING

- **MSc Environmental Engineering**

  Università di Bologna [2021 – 2024]

  Country: Italy

  Final grade: 102 |

  Thesis:

  Advanced Deep Learning Models in Earth Observation for Urban Applications: Bologna and Turin Case Studies (Link1) (Link2)

  Developed **deep learning models** to extract building footprints from **satellite imagery** of Turin and Bologna, aiding urban planning and **renewable energy analysis**.

  achieving high accuracy and adaptability. Predicted rainfall and solar potential, automated footprint extraction, and refined municipal data via **web scraping** and **data wrangling** to enhance model precision.

  Relevant Coursework: Environmental Impact Assessment, Machine Learning, Geospatial Analysis, Applied Geomatics.

- **BSc Civil Engineering**

  University of Azad Lahijan [2013 – 2016]

  Country: Iran

  Thesis:

  Data-Driven Assessment of Building Performance for Sustainable Construction

  Used **Python** and **MATLAB** to analyze building performance data, identifying trends in material efficiency and energy use to support **sustainable design** and optimize construction practices.

  Relevant Coursework: Transportation Engineering, Structural Analysis, Sustainable Urban Planning.

- **BSc Pure Mathematics**

  University of Guilan [2007 – 2011]

  Country: Iran

  Thesis:

  Mathematical Modeling of Urban Growth Patterns Using Discrete Systems

  Using **discrete models** and **sequence analysis**. Applied number theory and combinatorics to simulate population growth and spatial trends, supporting **predictive modeling** in urban planning.

  Relevant Coursework: Statistics,Optimization, Numerical Methods.

WORK EXPERIENCE

- **Data analyst**

RavisCo [2019 –2021]

Used **data analysis** to support ATM operations and banking system efficiency. Built **dashboards** and **reports** with **Python**, **SQL**, **Tableau**, and **Excel** to track transactions, performance, and customer trends. Applied **geospatial analysis** to optimize ATM locations and used **predictive models** to forecast cash demand. Automated reporting and delivered insights for strategic planning.

- **Junior Data & Sustainability Engineer**

Kolbe construction company [2015 – 2019]

Analyzed construction and environmental data using **Excel**, **Access**, and **MATLAB**, identifying patterns in urban development, resource consumption, and energy efficiency to support project planning.

Conducted **geospatial analysis** using satellite imagery and **GIS** to assess urban expansion and site sustainability.

Leveraged a background in **pure mathematics** to build **predictive models** capturing seasonal and economic trends, and optimized **building energy efficiency** based on smart home data.

PROJECTS

- **Geostatistical Modeling of air pollution (O3) in five European countries**

[06/2023 – 08/2023] (Link)

Analyzed O_3 density across five European countries using **web scraping** and **R**. Performed **data wrangling**, **variogram modeling**, and **cross-validation** to select the best model. Created **kriging maps** to visualize spatial distribution.

Awards

- **Scholarship for Final Thesis Abroad, DICAM Master's Degree Program**

Selected as a winner in a highly competitive process to conduct my final thesis research abroad, as part of the Environmental and Territorial Engineering program at Università di Bologna, 2023.

LANGUAGE SKILLS

- **English** (Proficient)
- **Italian** (Basic)

DIGITAL SKILLS

Python / MATLAB / R / SQL / Machine Learning / Deep Leaning / Tableau / QGIS / Microsoft Office (word, Excel, PowerPoint) / Adobe creative suites / Google Suite (Docs, Sheets, Slides) / Sgems