Navid Tavakoli Shalmani

Data Engineer | Environmental data specialist
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Summary

Data Engineer with a BSc in Computer Science and an MSc in Environmental Engineering from Università di Bologna. Experienced in data analysis, machine learning, and geospatial modeling and analysis with strong expertise in Python, SQL, Tableau, and QGIS. Passionate about turning raw data into actionable insights and practical solutions that support better decision-making in environmental and urban contexts.

Experience

- **Data Engineer – Environmental and Socioeconomic Analytics — RavisCo, Iran (2019 – 2021)**
  - Built automated data pipelines and BI dashboards with Python, SQL, and Grafana.
  - Integrated Linux scripting, Dockerized environments, and Airflow orchestration to improve reliability and reproducibility of data workflows.
  - Managed and transformed large datasets in PostgreSQL, ensuring GDPR-compliant handling of sensitive data.
  - Developed predictive models for socioeconomic indicators to support resource allocation.
  - Collaborated via Git/GitHub and implemented CI/CD pipelines with GitHub Actions for workflow automation.
- **Junior Data & Sustainability Engineer — Kolbe Construction Co., Iran (2015 – 2018)**
  - Analyzed environmental and construction datasets to support sustainable urban development.
  - Conducted GIS-based site assessments using satellite imagery and QGIS.
  - Implemented early automation of data pipelines with cron jobs, later extended to Airflow for scheduling and monitoring.
  - Created energy optimization models, integrating structured and unstructured data into PostgreSQL databases.
- **Junior Data Analyst — GSS Co, Iran (2012 – 2013)**
  - Managed data entry and ensured data accuracy across multiple sources
  - Cleaned, validated, and organized raw datasets with Python and SQL.
  - Experimented with Linux automation scripts to streamline reporting tasks.
  - Contributed to monthly reports and data visualizations for management.
- **Data Analyst Intern — GSS Co, Iran (April 2012 – September 2012)**
  - Assisted in data collection, cleaning, and visualization using Excel and Python.
  - Built simple automation scripts to process online datasets.
  - Supported team in preparing analytical reports and dashboards.
- **Teaching Assistant — University of Guilan, Iran (2011 – 2012)**
  - Supported teaching of computational mathematics (MATLAB, Python, numerical methods)
  - Led lab sessions, supported students in understanding programming concepts, and assessed coursework.

Education

- **MSc. Environmental Engineering** — University of Bologna, Italy (2021 – 2024)
  Advanced Deep Learning Models in Earth Observation for Urban Applications: Bologna and Turin Case Studies.

- **BSc. Civil Engineering** —Azad University, Lahijan, Iran (2013 – 2016)
  Data-Driven Assessment of Building Performance for Sustainable Construction

- **BSc. Computer Science** — University of Guilan, Iran (2007 – 2011)
  Discrete Computational Models for Urban Growth: A Data Engineering Perspective

Projects

- **TOP – Turin Open Platform** link LIVE DEMO
  This project implements an automated data pipeline using Apache Airflow to extract data from Reddit, store it as CSV files, transform and combine the data, and finally load it into PostgreSQL. The workflow is designed with GDPR-awareness, ensuring proper handling and archiving of raw and processed data.

- **GDPR-Aware Reddit Data ETL Workflow (Apache Airflow, PostgreSQL)** link
  Implemented an automated ETL pipeline to extract, transform, and load Reddit data into PostgreSQL with GDPR- compliant data handling.

- **Urban Building Footprint Segmentation (Computer Vision, Deep Learning, Remote Sensing)** link
  Applied DeepLabV3 with ResNet-50 to extract urban building footprints from satellite imagery for urban planning.

- **Geostatistical Modeling and Environmental Data Analysis** link
  Geostatistically modeled ozone (O_3) density across five European countries using EEA data; cross-validated variogram models in R to select the optimum and generated kriging maps.

- **Geospatial Data Preparation for Deep Learning** link
  Developed Python scripts to preprocess and postprocess geospatial imagery, enabling clipping, tiling, CRS adjustment, format conversion, and vectorization for deep learning in remote sensing.

- **COVID-19 Data Web Scraping and Analysis** link
  Scraped global COVID-19 data from Wikipedia and performed comprehensive analysis on the collected dataset.

- **Movie Library Desktop Application** link
  Built a desktop application for managing a personal movie library with search, filter, and full CRUD functionality via a modern UI.

Language:

- **English** (Advanced) - **Italian** (Elementary) - **Persian** (Native)

Skills

- Programming: Python, R, MATLAB, SQL
- Data Engineering & Cloud: ETL pipelines, Apache Airflow, Docker, AWS, PostgreSQL, MariaDB, PostGIS
- Big Data & Streaming: Apache Spark, Apache Flink, Apache Kafka, ClickHouse, Elasticsearch
- Geospatial Tools: GIS (QGIS), GDAL, Remote Sensing
- Computer Vision & Machine Learning: OpenCV, TensorFlow, PyTorch, scikit-learn
- Data Analysis & Visualization: pandas, numpy, Tableau, matplotlib, seaborn
- Version Control & CI/CD: Git, GitHub Actions
- Other Tools: Git, SGems, Postgre, Post