Babäk Firoozi Fooladi

LinkedIn | GitHub | StackOverFlow

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Data Analytics Engineer | Data Scientist

Service-minded data scientist and Ph.D. Candidate with extensive experience in designing, optimizing, and deploying complex data models and solutions. My expertise includes Data analysis, data transformation (ETL/ELT), extracting structured data using RAG, and performing econometric, machine learning and statistical modeling. I have successfully engineered efficient data pipelines, optimized SQL queries, resolved technical debt, and improved performance through migration and optimisation of the data models. I am proficient in Python, R, and SQL with experience of creating data visualizations and deriving forecasts and inference through interprating the results of statistical and ML models.

Technical Skills

Python:	●●●○○	**R:**	●●●●○	**Julia:**	●●○○○	**SQL:**	●●●●○
AZURE:	●●○○○	**Econometric:**	●●●●○	**Data Viz.:**	●●●●●	**Spatial data:**	●●●●●
PostgreSQL:	●●●○○	**SQLite:**	●●●○○	**DuckDB:**	●●●●○	**MongoDB:**	●●○○○
RAG:	●●●●●	**Data Analysis:**	●●●●○	**Feature Extraction:**	●●●●○	**Vector Database:**	●●●●●
ETL/ELT:	●●●●○	**PowerBI:**	●●○○○	**Tableau:**	●●●○○	**Excel:**	●●●●○

Soft Skills

Team work:	●●●○○	**Self-organised**	●●●○○	**Project management**	●●●●○
Accounting:	●●○○○	**Quality control:**	●●●●○	**Visual communication:**	●●●●●

Experience

DATA ANALYTIC ENGINEERING — Jan 2025 – Present
Self-Employed | Apex-Heat – Startup — *Part-time – Espoo, Finland*

- Resolving **technical debt**.
- Consulting the implementation of **Generative AI**.
- Migrating from **Pandas** to **Polars** to improve the efficiency and calculation time.
- Improving the design pattern, and **writing documentations**.
- Adjusting an improving data processing test coverage and **testing** methods.
- **Optimising** the SQL queries to improve response time.

Ph.D. Candidate — Sep 2020 – Dec 2024
Aalto University — *Full-time – Espoo, Finland*

- Performing **GIS analysis** to produce and maintain research datasets, and **geo-code** real estate transactions.
- Processing HTML and PDF files and implementing **RAG** to extract structured data from the land use plan documents.
- Applying Econometric, ML and data analysis for **quantitative research**.
- Designed and deployed database in **PostgreSQL** and **DuckDB** data lake for research data in our team.
- Preparing and updating **visualisations** for lecture and presentation.
- Performing **time-to-event** statistical modelling for my research using parametric, semi-parametric and non-parametric models. These models include longitudinal data, repeating event, multi-state and joint models.
- Experienced in preparing datasets for event history analysis.
- Deploying and maintaining **AZURE functions** to store real estate data for research. Scrapping websites for property advertisements.
- Self-taught programming skills, and further obtained formal education in data science.

Research assistant — Jun 2019 – Sep 2019
Aalto University Full-time – Espoo, Finland

- Working on an **Agent Based Modelling (ABM)** solution to simulate parking pressure in Otaniemi campus area.
- Collaborating MIT CityLab project on agent based modelling simulation.

- implementing simualtions in GAMA Platform

Data Analytics Engineer Sep 2020 – Dec 2024
Qissa kaupunkisuunnitteluanalytiikka Oy – Startup *Part-time – Espoo, Finland*

- Designing data pipeline to gather data form REST APIs, cleaning, **Geo-coding** and storing in accordance to the specifications requested by clients
- Creating **Spatial data** dashboard for spatial network analysis back-end. The analysis used HSL, HERE and HSY APIs to gather and process the data and perform **spatial network analysis**.
- Extracted, processed and served sensus data from US, Denmark, Sweden and Finland for calculating CO_2 emission from commuting.

Planning Assistant Nov 2018 – Jun 2021
WSP Finland Oy *Part-time – Helsinki, Finland*

- Performing **Spatial Data analysis**, Processing and storing spatial.
- Performing network analysis for pedestrian route choice forecast. The analysis was fine tuned to existing situation, and then used to forecast pedestrian flow after urban development
- Preparing analysis, graphs, maps and data **visualisations** for stakeholders, projects managers and clients.
- Providing **GIS analysis** to transport engineers, landscape designers, urban planners and architects.
- Programming and producing dynamic 3D model of the cities using ESRI CityEngine

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GIS Operator Aug 2015 – May 2016
University of Tehran *Part-time, Tehran, Iran*

- Gathering, processing and preparing GIS data for urban designers to implement and test new directives for urban design in Tehran City

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Chief Operating Officer Aug 2011 – Aug 2018
Airsa Dorsa Industries *Full-time, Karaj, Iran*

- **Accounting**, cost calculation, financial analysis, human resources and BI
- Provided in house **graphic design**, CAD and technical solutions for clients.
- Negotiating with the clients regarding their designs, pricing and production.
- Managing timelines of production, maintenance and order delivery.
- Admin duties, supervision duties, high-frequency welding, silk screen printing.

Education

Aalto University Espoo, Finland
Doctor of Philosophy in Technology, Real Estate Economics *Sep 2020 - Present*

Aalto University Espoo, Finland
MSc. (Tech.) Urban Studies and Planning in Real Estate Economics *Sep 2018 - Jul 2020*

University of Tehran Tehran, Iran
BA. Town Planning *Sep 2011 - Jun 2015*

Machine Learning | Statistical models | Econometrics

Uni-variate time-series: ●●●○○	**VAR time-series:** ●●●○○	**Co-integration time-series:** ●●○○○
multi-variate time-series: ●●●○○	**OLS:** ●●●●●	**IV-OLS:** ●●●●○
Panel data: ●●●●○	**Generalised Method of Moments:** ●●●●○	**Generalised linear models:** ●●○○○
Spatial econometrics: ●●●●○	**Survival/time-to-event:** ●●●●●	**Additive hazard models:** ●●●●●

Volunteer Work

- DataTribe collective moderator, contributor
- DataTribe collective speaker: Spatial data analysis, spatial data engineering
- Helsinki Data Week volunteer, contributor