Ali Vaezi

MSc Digital Skills for
Sustainable Societal Transitions

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About Me

Industrial engineer with **5 years of industry experience** in data analysis and a research profile combining **machine learning, reinforcement learning, and mathematical optimization**. Published in *J. Cleaner Production* (IF 10, **46 citations**). Paper **under review at IEEE RA-L**. Placed **#1 on the leaderboard** at an AI hackathon at Politecnico di Torino.

Education

2024 – Present: **MSc Digital Skills for Sust. Societal Transitions**
Politecnico di Torino (QS #241)
GPA: 101/110 (≈ 3.7/4.0). *Final semester.*

2019 – 2023: **BSc Industrial Engineering**
Islamic Azad Univ., S&R Branch
(QS #151–175) · GPA: 3.69/4.0
Thesis: BWM-MULTIMOORA for sustainable supplier selection.

Skills

Python (NumPy, Pandas, Sklearn)

PyTorch / TensorFlow

RL (PPO, SAC, DQN)

Optimization (Gurobi, CPLEX)

Others: SQL, R, MATLAB, Docker, Git, REST APIs, MQTT, QGIS

Experience

Oct 2019 – Sep 2024 Automotive Supply Chain — Business Data Analyst
Parva Co. — Tehran, Iran

Analyzed supply chain data (orders, inventory, supplier performance) using Python, SQL, and statistical methods for procurement, logistics, and demand planning. Built KPI dashboards, automated reporting pipelines, and predictive models. Collaborated cross-functionally over 5 years.

Publications

[1] Vaezi, A., Rabbani, E., Yazdian, S.A. (2024). "Blockchain-Integrated Sustainable Supplier Selection Using BWM-MULTIMOORA." *J. Cleaner Production*, 444, 141216. **46 citations.** DOI

[2] Vaezi, A., Fayyaz, Y., Shahali, S., Hashemi Alvar, P. "Synergistic Effects of Curriculum Randomization and Entropy Scheduling for Robust Sim-to-Sim Locomotion." *IEEE RA-L*. **Under Review.**

[3] Vaezi, A., Rabbani, E., Bruno, G. "Hybrid FBWM-FTOPSIS-PPO for Dynamic Order Allocation Under Uncertainty." *In Preparation.*

Plus 6 SSRN working papers. ResearchGate · Google Scholar

Certifications

Machine Learning (Stanford) · Deep Learning (deeplearning.ai)
Data Science Professional (IBM) · Data Analytics (Google)
CS50x: Introduction to CS (Harvard) · Reinforcement Learning (Udemy)

Research Projects

SUPRA-PPO: Hybrid MCDM–RL for Dynamic Optimization
2024 – Present
Two-phase framework combining Fuzzy BWM + Fuzzy TOPSIS with a custom PPO agent for supplier order allocation under stochastic demand, lead-time uncertainty, and systemic disruptions. Gymnasium-based supply chain simulator with three market scenarios. Ablation study: 3 models × 3 scenarios × 3 seeds. *With E. Rabbani & Prof. G. Bruno, Politecnico di Torino.*

Sim-to-Real RL for Robust Locomotion
2025
Trained robust locomotion policies (REINFORCE, Actor-Critic, PPO) with domain randomization and curriculum learning (ES-CDR) on a custom MuJoCo Hopper with randomized friction, mass, and joint properties. 6 physics parameters and 3 RL algorithms. *With Y. Fayyaz, S. Shahali & P. Hashemi Alvar. Paper under review at IEEE RA-L.*

WeldFusionNet: Multimodal Weld Defect Classification #1 Leaderboard
2026
Multi-task fusion (sensor 1D-CNN + audio 1D-CNN + video MobileNetV2), F1 = 0.957 on 7-class weld defect classification. 15-step pipeline with focal loss and temperature scaling. *With S. Shahali & K. Salimi. I3P Hackathon, Politecnico di Torino.*

MoveWise: AI-Powered Sustainable Mobility Platform
2026
MaaS super-app using DQN with a Habits-Utility-Rationality behavioral model for multimodal route recommendations via a Generalised Cost function. React + Three.js frontend, FastAPI + PyTorch + Docker deployment. *With S. Shahali, K. Salimi & Prof. C. Pronello. NEXUS 2026 Hackathon, Politecnico di Torino.*

Turin Micromobility Analysis: 2.5M+ E-Scooter Trips
2024 – 2025
Spatial-temporal analysis using STL decomposition, Kaplan-Meier survival, Moran's I spatial autocorrelation, and Monte Carlo simulation (10,000 iterations). *With Prof. C. Pronello. Dataset published on Kaggle with DOI.*

Smart Precision Irrigation – IoT Microservices
2025 – 2026
IoT platform: 6 Python microservices, MQTT, REST APIs, Raspberry Pi, weather-aware automation, Telegram monitoring. *With R. Tossato Silva, L. Deriu & N. Restrepo Lopez.*

OpenCLD: System Dynamics Simulation Library
2025
Open-source Python library on PyPI for causal loop diagrams, stock-flow modelling, and time-series simulation. *With F.M. Ottaviani, G. Zenezini, A. Ferrari, M. Rebuglio, P. Viero, F. Incerti & M.O. Nesanir.*

Languages & Availability

English: C1/C2 (Advanced) · Persian: Native · Italian: A2

GRE: 332/340 (Verbal 163, Quantitative 169)

I hereby authorize the processing of the personal data contained in this CV in compliance with the Italian Personal Data Protection Code (Decree no. 196/2003).