Shayan Nazemi

Quantitative Research | Applied ML | Data Scientist

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Quantitative research-oriented PhD student with hands-on experience in automated trading systems, market microstructure modeling, and machine learning for time-series and networked data. Strong background in statistical modeling, optimization, and real-time system development, with applied experience across crypto and financial markets.

Technical Skills

Programming	Python, R, C/C++, Java, JavaScript
Machine Learning	PyTorch, TensorFlow, Graph Neural Networks, Scikit-learn
Systems	Git, Linux, Flask, MongoDB, PostgreSQL, AWS, OCI
Frameworks	STAN, ReactJS, React-Native
Quantitative Finance	Statistical Modeling, Time Series, Risk Modeling, Optimization Market Microstructure, Market Making, Volatility Modeling

Experience

Present – September 2023 — PhD Researcher (Quantitative Modeling), HEC Montréal, Montréal, Canada

- Stochastic modeling of large-scale networked systems.
- Spatio-temporal forecasting under dependency constraints.
- Uncertainty propagation across interconnected nodes.
- Heavy-tailed and skewed distribution modeling.
- Bayesian and likelihood-based inference.
- Quantitative orderbook modeling for high frequency trading applications.

Stochastic Modeling | Time Series | Bayesian Modeling | Algorithmic Trading | Quantitative Finance | HFT

December 2025 – April 2021 — Co-founder & Quantitative Developer, CryptoArb (Stealth Startup), Tehran, Iran

- Automated market-making strategy design.
- Volatility-aware dynamic spread quoting.
- Inventory-based risk control mechanisms.
- Real-time execution and monitoring systems.
- Data pipelines for live trading analytics.
- Automatic hedging and exposure management.

Market Making | Algorithmic Trading | Volatility Modeling | Cryptocurrency | Market Arbitrage

June 2022 – November 2019 — Machine Learning Research Assistant, Sharif University of Technology, Tehran, Iran

- Financial market forecasting with ML models.
- Graph Neural Networks for relational data.
- Cross-asset dependency modeling.
- Learning beyond historical price series.

Machine Learning | Graph Neural Networks | Financial Forecasting | Dependency Modeling

September 2020 – September 2019 — Frontend Developer, Nozhan Solutions, Tehran, Iran

- ReactJS-based marketplace frontend development.
- Modular UI components with Reactstrap and Semantic UI.
- Global state management using Redux.
- Real-time chat and audio streaming integration.
- Responsive and cross-browser design.

ReactJS | Redux | Frontend Architecture | Responsive Design | Web Applications

June 2017 – September 2017 — Summer Intern, Robotics and Multiperception Laboratory, HKUST, Hong Kong

- Worked on image-based visual servoing for mobile robot navigation.
- Developed vision-based control methods using omnidirectional camera data.
- Implemented and evaluated navigation algorithms on multi-checkpoint trajectories.

C++ | Python | Computer Vision | Robotics | Control Systems

Education

2023 – Present PhD in Data Science, HEC Montréal, Montréal, Canada
2019 – 2022 M.Sc. in Computer Engineering (Artificial Intelligence), Sharif University of Technology, Tehran, Iran
2013 – 2018 B.Sc. in Electrical Engineering (Minor: Economics), Sharif University of Technology, Tehran, Iran

Selected Projects

Automated Market Making System
2021–2025

Cryptocurrency Markets

Designed and deployed a live automated market-making system across multiple cryptocurrency assets. The system incorporates volatility-aware spread adjustment, inventory-based risk controls, and automatic hedging, supported by real-time execution, monitoring, and data collection pipelines.

Python | MongoDB | Flask | AWS | OCI

Post-disruption Travel Time Forecasting in Urban Metro Networks
2023–2025

PhD Research Project

Developed Bayesiam hierarchical spatio-temporal stochastic models to forecast train travel time and passenger waiting times in large-scale urban metro networks in post-disruption scenarios. The work focused on modeling heavy-tailed and skewed uncertainty in travel times and propagation of delay across interconnected nodes.

R | STAN | Bayesian Modeling | Spatio-temporal Modeling

Financial Market Forecasting with Graph Neural Networks
2019–2022

M.Sc. Thesis

Developed deep learning models for financial market forecasting using Graph Neural Networks to capture cross-asset dependencies. The approach leveraged relational and structured information beyond historical price series to model market interactions.

PyTorch | TensorFlow | Graph Attention Networks | Graph Neural Networks

Marketplace Platforms Frontend Development
2019–2020

Zamineh Ganjeh

Designed and implemented responsive frontend architectures for two production marketplace platforms using ReactJS. Zamineh is a social media and marketplace for presenting artworks. Ganjeh is a marketplace for buying and selling vintage and luxury clothing.

HTML | CSS | JavaScript | ReactJS | Redux | Frontend Architecture | Responsive Web Applications

Awards & Honors

2013 Silver Medal on International Olympiad on Astronomy & Astrophysics, Volos, Greece
2012 Gold Medal on National Olympiad in Astronomy & Astrophysics, Tehran, Iran

Languages

English ●●●●●
French ●●○○○
Farsi ●●●●●