SAEED REZAEE, Ph.D.

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Summary

Data scientist with a strong background in time series modeling and large-scale data analysis. Experienced in applying advanced machine learning and statistical methods to complex datasets across tech, finance, and astrophysics. Skilled at building scalable solutions, extracting insights, and collaborating with cross-functional teams to drive impactful results.

Skills

- **Time Series Analysis & Forecasting**: Multivariate Time Series Modeling, High-Frequency Financial Data Analysis, Market Microstructure Analysis, ARIMA/SARIMA, ARIMAX, Vector Autoregression (VAR), State Space Models, Kalman Filtering, Recurrent Neural Networks (RNN), LSTM, GRU, Temporal Convolutional Networks (TCN), Transformer-based Architectures for Time Series (Temporal Fusion Transformer, Informer), Cointegration Analysis, Volatility Modeling (GARCH, EGARCH), Event-Driven Backtesting, Feature Engineering for Time Series (lag features, rolling statistics, Fourier transforms), Anomaly Detection in Time Series (Isolation Forest, Autoencoders, Prophet, Statistical Tests)
- **Machine Learning & Deep Learning**: PyTorch, TensorFlow, XGBoost, LightGBM, Random Forest, Hyperparameter Optimization (FLAML, Optuna, Hyperopt, Bayesian Optimization), Automated ML Pipelines, Model Selection, Cross-validation Strategies for Time Series, Ensemble Learning, Meta-Learning, Online Learning for Streaming Data
- **Data Engineering & MLOps**: Data Preprocessing for Irregular/Noisy Time Series, Outlier Removal, Data Imputation, Pipeline Orchestration (Airflow, Prefect), Model Monitoring, and Version Control (MLflow, Weights & Biases), Docker, Kubernetes, CI/CD for ML Deployment, Real-Time Data Processing (Kafka, Spark Streaming, Flink)
- **Statistical & Analytical Techniques**: Hypothesis Testing, Statistical Inference, Regression Modeling, Principal Component Analysis (PCA) & Dimensionality Reduction for Time Series, Spectral Analysis, Wavelet Transforms, Cross-Correlation & Auto-Correlation Analysis
- **Databases & Programming**: SQL, Hive, Spark, Teradata, Python (NumPy, Pandas, statsmodels, tsfresh, darts, sktime, gluonts), R, MATLAB, C++
- **Cloud Computing**: AWS (SageMaker, EC2, S3), Azure, GCP
- **Operating Systems**: Linux/Unix, Windows

Work Experience

University of California Riverside **Feb 2025 - Present**
Project Scientist *Riverside, CA*
- Contributed to developing a web application for database exploration by relative image similarity using self-organizing map (SOM) techniques.
- Analyzed James Webb Space Telescope images to understand the evolution of galaxies in early universe.
- Mentored junior graduate scientists in Python programming, emphasizing best practices for efficient coding and effective data visualization techniques.
- Developed and delivered coursework on Large Language Models (LLMs), Generative AI, and Agentic AI workflows, focusing on practical applications in scientific research and data analysis.

Valkyrie Trading **Jan 2024 - Sep 2024**
Quantitative Researcher *Chicago, IL*
- Applied machine learning techniques, such as Random Forest and XGBoost, to model high-frequency trading strategies for US Treasury Futures, improving prediction accuracy and trading efficiency.
- Conducted comprehensive market data analysis using Hive and TensorFlow to optimize trading models, leading to enhanced model performance and increased profitability.

University of California Riverside **Oct 2023 - Jan 2024**
Project Scientist *Riverside, CA*
- Identified AGN host galaxies using advanced machine learning techniques, enhancing the accuracy of astronomical data analysis and contributing to research publications.

Aspen Technology, Inc. **May 2023 - Sep 2023**
Data Scientist Intern *Boston, MA*
- Developed automated machine learning pipelines for hyperparameter optimization and model selection, focusing on XGBoost, Graph Neural Networks, and transformer-based models.
- Researched and implemented AI models for anomaly detection and operational forecasting, leading to more accurate predictions and enhanced decision-making processes.

University of California Riverside **Sep 2017 - May 2023**
Graduate Researcher *Riverside, CA*
- Modeled the geometry of interstellar dust particles using machine learning, enhancing the understanding of cosmic dust properties.
- Analyzed astronomical databases with over 300 million records using SQL, improving data retrieval efficiency for research purposes.

- Applied logistic regression to identify galaxies with active galactic nuclei, aiding in the classification of celestial objects.
- Developed Gaussian likelihood models for tracing star formation activities, contributing to more accurate predictions of stellar evolution.
- Analyzed Hubble Space Telescope data to estimate star formation rates, providing insights into the lifecycle of stars.

University of California Riverside **Sep 2017 - Sep 2018**
Teaching Assistant *Riverside, CA*

- Led lab sessions and facilitated discussions for undergraduate physics courses, enhancing student understanding and engagement.
- Assisted in curriculum design, grading, and provided one-on-one student support, contributing to improved student performance and course satisfaction.

Education

University of California Riverside **Sep 2018 - May 2023**
Ph.D., Physics

University of California Riverside **Sep 2017 - Sep 2018**
Master of Science, Physics

University of Tehran **Sep 2012 - Sep 2016**
Bachelor of Science, Physics

Publications

- Evolution of H-alpha Equivalent Widths from z ~ 0.4 - 2.2: Implications for Star Formation and Legacy Surveys with Roman and Euclid.Published in Monthly Notices of the Royal Astronomical Society (MNRAS)
- Ly-alpha Halo Properties and Dust in the Circumgalactic Medium of z ~ 2 Star-forming Galaxies.Published in Monthly Notices of the Royal Astronomical Society (MNRAS)
- Exploring the Correlation between H-alpha-to-UV Ratio and Burstiness for Typical Star-forming Galaxies at z ~ 2.Published in Monthly Notices of the Royal Astronomical Society (MNRAS)
- The MOSDEF-LRIS Survey: Detection of Inflowing Gas towards Three Star-forming Galaxies at z ~ 2.Published in Monthly Notices of the Royal Astronomical Society (MNRAS)
- The MOSDEF-LRIS Survey: Connection between Galactic-scale Outflows and the Properties of z ~ 2 Star-forming Galaxies.Published in Monthly Notices of the Royal Astronomical Society (MNRAS)
- The Impact of Star-Formation-Rate Surface Density on the Electron Density and Ionization Parameter of High-Redshift Galaxies.-Published in The Astrophysical Journal
- Variation of the Nebular Dust Attenuation Curve with the Properties of Local Star-forming Galaxies.Published in Monthly Notices of the Royal Astronomical Society (MNRAS)