

Shervin Hakimi

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Applied Scientist / ML Engineer (MMath, University of Waterloo) with **8+ years** building and shipping ML systems across production pipelines, large scale optimization, and applied research. Strengths in time series modeling, interpretability (SHAP/DeepSHAP), and end-to-end deployment on enterprise-scale data (Amazon, Bell, Rogers).

Experience

Data Scientist, Numeris

Toronto, ON, Apr 2024 to Present

- Designed and deployed ML pipelines on national-scale heterogeneous datasets (Amazon, Bell, Rogers), combining data fusion, reweighting, and measurement error correction.
- Parallelized iterative reweighting via constrained optimization, cutting runtime from **multiple days to 2 hours** while maintaining model fidelity.
- Shipped a production calibration model estimating audience lift by demographic group, closing a critical measurement gap influencing national estimates.

Research Associate, University of Waterloo

Waterloo, ON, May 2023 to Mar 2024

- Built physics-informed neural network (PINN) prototypes and mechanistic PDE/ODE simulation models; results published in a peer-reviewed journal.

Data Scientist (MedTech), Mindpax

Prague, Czech Republic, Jul 2018 to Aug 2020

- Developed ARIMA and LSTM forecasting models for time series classification, achieving **AUROC 0.73** on held-out data; deployed into production dashboards across multiple hospital sites.
- Built unsupervised user trajectory models (DTW, shapelets) for behavioral cohort segmentation and personalized real time monitoring.

Research Collaborator (Voluntary), TeIAS

Tehran, Iran, Jun 2019 to Mar 2020

- Built a random forest model with a full backtesting framework for financial time series; achieved **60% directional accuracy** and **15% improvement** over baseline under distribution shift.

Research Highlights

Interpretable Deep Learning, DeepSHAP, 100K+ Records

- Trained deep learning models on **100K+** records; applied DeepSHAP attribution to surface predictive features and support downstream decision-making.

Robust Explanations under Perturbation, Adversarial Training

- Improved SHAP attribution stability under input noise via adversarial training constraints, increasing consistency across high-dimensional feature sets.

Publications

Hakimi S., Dutta P., Layton A. T. *Coupling of renal sodium and calcium transport*. American Journal of Physiology – Renal Physiology, 2023.

Education

University of Waterloo, MMath in Applied Mathematics

Jan 2021 to May 2023

- Thesis: physics-informed neural networks (PINNs) and numerical simulation of dynamical systems; published in a peer-reviewed journal.

Sharif University of Technology, BSc Electrical Engineering, Minor in Mathematics

Sep 2014 to Feb 2019

- Capstone: EEG-based BCI system; improved signal classification by **12%** via Common Spatial Pattern (CSP) optimization.

Technical Skills

Languages: Python, SQL, R, MATLAB

ML & Modeling: Deep Learning, Time Series Forecasting, Interpretability (SHAP/DeepSHAP), Adversarial Training, LLMs, Physics-Informed Neural Networks

Frameworks: PyTorch, TensorFlow, Keras, scikit-learn

Methods: Statistical Modeling, Constrained Optimization, Bayesian Inference, Numerical PDE/ODE Solvers