Pouya Hosseinzadeh

Logan, UT, USA pouya.hosseinzadeh@usu.edu
pouya-hosseinzadeh pouyahosseinzadeh https://pouyahosseinzadeh.github.io

Education

Ph.D. in Computer Science **Utah State University, USA** **January 2022 – December 2026**
- Main research: Time Series Data Mining, Machine Learning, Data Condensation, XAI
- GPA: 3.8/4

M.Sc. in Computer Engineering **University of Siena, Italy** **September 2017 – July 2021**
- Thesis: Comparison of the Statistics of Human and Automatically Generated Texts
- GPA: 3.7/4

Skills

Programming Languages: Python, MATLAB, Java, R, Assembly
Machine Learning (Python) Environments: PyCharm, Anaconda, Google Colaboratory, Jupyter Notebook
Engineering Softwares: MySQL, Cisco Packet Tracer, Simatic Manager 5.5
Domain Knowledge: Time Series Forecasting, Machine Learning, Deep Learning, Data Mining, Space Weather Prediction, Multimodal Time Series Classification, Data Condensation, Augmentation, Visualization, Natural Language Processing, Explainable AI

Experiences and Projects

Graduate Research Assistant — January 2022 – Present

Awarded fully-funded Graduate Research Assistantship (GRA) for Computer Science Ph.D. program

Python (Numpy, Pandas, SciPy, Scikit-learn, Tensorflow, Keras, Pytorch, OpenCV, Matplotlib)
- Conducted research on time series prediction, machine learning, explainable AI, multimodal Data Analysis, leading to multiple publications in peer-reviewed scientific journals and conferences.
- Contributed to NSF-funded research projects focusing on solar energetic particle (SEP) event prediction.

Graduate Teaching Assistant — January 2022 – May 2022

Awarded fully-funded Graduate Teaching Assistantship (GTA) for Computer Science Ph.D. program

Data Structure and algorithm
- Assisted in teaching for undergraduate and graduate students in Introduction to Computer Science (Java Programming language), including grading assignments and helping students during office hours.
- Topics covered included data structure, algorithm, Java programming language

Guest Lecturer

- Guest lecturer in Applied Deep Learning, Utah State University, March 2023.
- Guest lecturer in Time Series Data Mining, Utah State University, November 2023.

Research Projects

Physics and ML-based Models for Full-Energy-Range Solar Energetic Particle Events Prediction

$527,129 (National Science Foundation (NSF), through Division of Atmospheric and Geospace Sciences (AGS)) #2204363
- Principal Investigator: Dr. Soukaina Filali Boubrahimi (Utah State University)
- Role: Graduate Research Assistant News

Improving Water Bodies Data and Streamflow Prediction

Enhancing MODIS-Landsat Satellite Data Quality Using Adversarial Networks

Selected Publications (Full List)

Hosseinzadeh, P., Li, P., Bahri, O., Boubrahimi, S. F., & Hamdi, S. M. (2024, December). Acts: Adaptive counterfactual explanations for time series data using barycenters. In *2024 IEEE International Conference on Big Data (BigData)* (pp. 1327-1332). IEEE. https://doi.org/10.1109/BigData62323.2024.10825642

Hosseinzadeh, P., Li, P., Bahri, O., Boubrahimi, S. F., & Hamdi, S. M. (2025, October). CACTUS: Cross-Aligned Counterfactual Explanation for Time Series Classification. In *2025 IEEE International Conference on Data Science and Advanced Analytics (DSAA)*. IEEE. Accepted.

Hosseinzadeh, P., Boubrahimi, S. F., Hamdi, S. M., "Improving Solar Energetic Particle Event Prediction through Multivariate Time Series Data Augmentation," *The Astrophysical Journal Supplement Series (ApJS)*, 2024. https://doi.org/10.3847/1538-4365/ad1de0

Hosseinzadeh, P., Boubrahimi, S. F., Hamdi, S. M., "Toward Enhanced Prediction of High-Impact Solar Energetic Particle Events Using Multimodal Time Series Data Fusion Models," *Space Weather*, 2024. https://doi.org/10.1029/2024SW003982

Filali Boubrahimi, S., Neema, A., Nassar, A., **Hosseinzadeh, P.**, & Hamdi, S. M., "Spatiotemporal Data Augmentation of MODIS-Landsat Water Bodies Using Adversarial Networks," *Water Resources Research*, 60(3), e2023WR036342. https://doi.org/10.1029/2023WR036342

Update of October 2025