

## Shah Muhammad Hamdi, Ph.D.

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### A. Professional Preparation

Institution	Location	Major/Area of study	Degree	Year
Georgia State University	Atlanta, GA	Computer Science	PhD	2020
Georgia State University	Atlanta, GA	Computer Science	MS	2020
Rajshahi University of Engineering and Technology	Rajshahi, Bangladesh	Computer Science and Engineering	BSc	2014

### B. Appointments

From - To	Position Title, Organization and Location
August 2022 - Current	Assistant Professor (tenure-track), Dept. of Computer Science, Utah State University (USU), Logan, UT, United States.
August 2020 - August 2022	Assistant Professor (tenure-track), Dept. of Computer Science, New Mexico State University (NMSU), Las Cruces, NM, United States.
August 2015 - August 2020	Graduate Assistant, DMLab (Data Mining Lab), Dept. of Computer Science, Georgia State University (GSU), Atlanta, GA, United States.
June 2019 - August 2019	Applied Scientist Intern, Amazon Web Services Inc. (AWS), Seattle, WA, United States.
June 2018 - August 2018	Summer Intern - Technology, LexisNexis Risk Solutions, Alpharetta, GA, United States.
January 2014 - July 2015	Lecturer, Dept. of Computer Science, Northern University Bangladesh (NUB), Dhaka, Bangladesh.

### C. External Research Grants

- ❖ S. M. Hamdi (PI), S. F. Bourbahimi (Co-PI), L. Scherliess (Co-PI), "CAIG: Synthetic Data Generation for Solar Energetic Particle Events by Multimodal Augmentation", Division of Research, Innovation, Synergies and Education (RISE), National Science Foundation (NSF), Award #: [2530946](#), effective date: 01/01/2026 - 12/31/2028, budget: \$749,989.
- ❖ S. M. Hamdi (Sole PI), "SHINE: Understanding the Relationships of Photospheric Vector Magnetic Field Parameters in Solar Flare Occurrences using Graph-based Machine Learning

Models", Division of Atmospheric and Geospace Sciences (AGS), National Science Foundation (NSF), Award #: [2301397](#), effective date: 06/01/2023 - 05/31/2026, budget: \$437,703.

- ❖ S. M. Hamdi (Sole PI), "CRII: Cyberinfrastructure for Machine Learning on Multivariate Time Series Data and Functional Networks", Office of Advanced Cyberinfrastructure (OAC), National Science Foundation (NSF), Award #: [2305781](#), effective date: 06/01/2022 - 05/31/2025, budget: \$174,983.

## D. Publications

### D.1. Journal Articles (with impact factors)

#### 2025

- [J1] Li, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2025. Evaluating Time-series Augmentation Techniques for Deep Learning–Based Solar Flare Prediction. *The Astrophysical Journal Supplement Series*, 280(2), p.52. ([impact factor 2025: 8.6](#))
- [J2] Chapagain, S., Cascalheira, C.J., Hamdi, S.M., Boubrahimi, S.F. and Scheer, J.R., 2025. Advancing minority stress detection with transformers: insights from the social media datasets. *Social Network Analysis and Mining*, 15(1), pp.1-17. ([impact factor 2024: 2.8](#))
- [J3] Akkala, A., Boubrahimi, S.F., Hamdi, S.M., Hosseinzadeh, P. and Nassar, A., 2025. Improved Streamflow Forecasting Through SWE-Augmented Spatio-Temporal Graph Neural Networks. *Hydrology*, 12(10), p.268. ([impact factor 2024: 3.2](#))
- [J4] Vural, O., Hamdi, S.M. and Boubrahimi, S.F., 2025. Solar Flare Prediction Using Multivariate Time Series of Photospheric Magnetic Field Parameters: A Comparative Analysis of Vector, Time Series, and Graph Data Representations. *Remote Sensing*, 17(6), p.1075. ([impact factor 2023: 4.2](#))
- [J5] Hosseinzadeh, P., Boubrahimi, S.F. and Hamdi, S.M., 2025. An End-to-end Ensemble Machine Learning Approach for Predicting High-impact Solar Energetic Particle Events Using Multimodal Data. *The Astrophysical Journal Supplement Series*, 277(2), p.34. ([impact factor 2025: 8.6](#))
- [J6] Bahri, O., Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2025. Predicting Solar Energetic Particle Events with Time Series Shapelets. *The Astrophysical Journal*, 980(1), p.128. ([impact factor 2025: 5.4](#))
- [J7] Li, P., Bahri, O., Hosseinzadeh, P., Boubrahimi, S.F. and Hamdi, S.M., 2025. Info-CELS: Informative Saliency Map-Guided Counterfactual Explanation for Time Series Classification. *Electronics*, 14(7), p.1311. ([impact factor 2024: 2.6](#))
- [J8] Akkala, A., Boubrahimi, S.F., Hamdi, S.M., Hosseinzadeh, P. and Nassar, A., 2025. Spatio-Temporal Graph Neural Networks for Streamflow Prediction in the Upper Colorado Basin. *Hydrology*, 12(3), p.60. ([impact factor 2024: 3.2](#))

#### 2024

- [J9] EskandariNasab, M., Hamdi, S.M. and Boubrahimi, S.F., 2024. Impacts of Data Preprocessing and Sampling Techniques on Solar Flare Prediction from Multivariate Time Series Data of Photospheric Magnetic Field Parameters. *The Astrophysical Journal Supplement Series*. ([impact factor 2025: 8.6](#))
- [J10] Alshammari, K., Hamdi, S.M. and Boubrahimi, S.F., 2024. Identifying Flare-indicative Photospheric Magnetic Field Parameters from Multivariate Time-series Data of Solar Active Regions. *The Astrophysical Journal Supplement Series*, 271(2), p.39. ([impact factor 2025: 8.6](#))
- [J11] Hosseinzadeh, P., Boubrahimi, S.F. and Hamdi, S.M., 2024. Improving Solar Energetic Particle Event Prediction through Multivariate Time Series Data Augmentation. *The Astrophysical Journal Supplement Series*, 270(2), p.31. ([impact factor 2025: 8.6](#))

- [J12] Hosseinzadeh, P., Filali Boubrahimi, S. and Hamdi, S.M., 2024. Toward enhanced prediction of high-impact solar energetic particle events using multimodal time series data fusion models. *Space Weather*, 22(6), p.e2024SW003982. ([impact factor 2025: 3.5](#))
- [J13] Johnson, R., Filali Boubrahimi, S., Bahri, O. and Hamdi, S.M., 2024. Combining Empirical and Physics-Based Models for Solar Wind Prediction. *Universe*, 10(5), p.191. ([impact factor 2024: 2.6](#))
- [J14] Filali Boubrahimi, S., Neema, A., Nassar, A., Hosseinzadeh, P. and Hamdi, S.M., 2024. Spatiotemporal data augmentation of MODIS-landsat water bodies using adversarial networks. *Water Resources Research*, 60(3), p.e2023WR036342. ([impact factor 2024: 5.4](#))
- [J15] Thota, S., Nassar, A., Filali Boubrahimi, S., Hamdi, S.M. and Hosseinzadeh, P., 2024. Enhancing Monthly Streamflow Prediction Using Meteorological Factors and Machine Learning Models in the Upper Colorado River Basin. *Hydrology*, 11(5), p.66. ([impact factor 2024: 3.2](#))
- [J16] Bahri, O., Li, P., Hosseinzadeh, P., Filali Boubrahimi, S. and Hamdi, S.M., 2024. Discord-based counterfactual explanations for time series classification. *Data Mining and Knowledge Discovery*, pp.1-25. ([impact factor 2024: 4.3](#))
- [J17] Saini, K., Alshammari, K., Hamdi, S.M. and Filali Boubrahimi, S., 2024. Classification of major solar flares from extremely imbalanced multivariate time series data using minimally random convolutional kernel transform. *Universe*, 10(6), p.234. ([impact factor 2024: 2.6](#))
- [J18] Velanki, Y., Hosseinzadeh, P., Boubrahimi, S.F. and Hamdi, S.M., 2024. Time-Series Feature Selection for Solar Flare Forecasting. *Universe*, 10(9), p.373. ([impact factor 2024: 2.6](#))
- [J19] Cascalheira, C.J., Corro, K., Hong, C., Rohleen, T.K., Trac, O., Beikzadeh, M., Scheer, J.R., Hamdi, S.M., Boubrahimi, S.F. and Holloway, I.W., 2024. An Analysis of Mpx Communication on Reddit vs Twitter During the 2022 Mpx Outbreak. *Sexuality Research and Social Policy*, pp.1-16. ([impact factor 2024: 2.4](#))

## 2023

- [J20] Cascalheira, C.J., Flinn, R.E., Zhao, Y., Klooster, D., Laprade, D., Hamdi, S.M., Scheer, J.R., Gonzalez, A., Lund, E.M., Gomez, I.N. and Saha, K., 2023. Models of Gender Dysphoria Using Social Media Data for Use in Technology-Delivered Interventions: Machine Learning and Natural Language Processing Validation Study. *JMIR Formative Research*, 7(1), p.e47256. ([impact factor 2024: 2.2](#))
- [J21] Hosseinzadeh, P., Nassar, A., Boubrahimi, S.F. and Hamdi, S.M., 2023. ML-Based Streamflow Prediction in the Upper Colorado River Basin Using Climate Variables Time Series Data. *Hydrology*, 10(2), p.29. ([impact factor 2024: 3.2](#))

## 2020

- [J22] Angryk, R.A., Martens, P.C., Aydin, B., Kempton, D., Mahajan, S.S., Basodi, S., Ahmadzadeh, A., Cai, X., Filali Boubrahimi, S., Hamdi, S.M. and Schuh, M.A., 2020. Multivariate time series dataset for space weather data analytics. *Scientific data*, 7(1), p.227. ([impact factor 2024: 6.9](#))

## 2019

- [J23] Hamdi, S.M., Wu, Y., Angryk, R., Krishnamurthy, L.C. and Morris, R., 2019. Identification of discriminative subnetwork from fmri-based complete functional connectivity networks. *International Journal of Semantic Computing*, 13(01), pp.25-44. ([impact factor 2024: 0.6](#))

## D.2. Conference Papers

### 2025

- [C1] EskandariNasab, M., Muhammad Hamdi, S. and Filali Boubrahimi, S., 2025. TIMED: Adversarial and Autoregressive Refinement of Diffusion-Based Time Series Generation. In *2025 IEEE International Conference on Data Mining (ICDM)*. (in press.).

- [C2] Chapagain, S., Hamdi, S.M. and Filali Boubrahimi, S., 2025. Pruning Strategies for Backdoor Defense in LLMs. In *Proceedings of the 34th ACM International Conference on Information & Knowledge Management (CIKM)* (in press.).
- [C3] EskandariNasab, M., Muhammad Hamdi, S. and Filali Boubrahimi, S., 2025. AVATAR: Adversarial Autoencoders with Autoregressive Refinement for Time Series Generation. In *Proceedings of the 2025 SIAM International Conference on Data Mining (SDM)* (pp. 548-557). Society for Industrial and Applied Mathematics.
- [C4] Hosseinzadeh, P., Li, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2025. CACTUS: Cross-Aligned Counterfactual Explanation for Time Series Classification. In 2025 IEEE 12th International Conference on Data Science and Advanced Analytics (DSAA) (in press.).
- [C5] Li, P., Bahri, O., Hosseinzadeh, P., Boubrahimi, S.F. and Hamdi, S.M., 2025. Diverse and Plausible Counterfactual Explanations for Time Series via Latent Space Optimization. In 2025 IEEE 12th International Conference on Data Science and Advanced Analytics (DSAA) (in press.).
- [C6] Bahri, O., Li, P., Hosseinzadeh, P., Boubrahimi, S.F. and Hamdi, S.M., 2025. Improving Causal Feasibility in Counterfactual Explanations for Multivariate Time Series Classification. In *2025 IEEE International Conference on Big Data (BigData)*. (in press.).
- [C7] Vural, O., Hamdi, S.M. and Boubrahimi, S.F., 2025. Global Cross-Time Attention Fusion for Enhanced Solar Flare Prediction from Multivariate Time Series. In *2025 IEEE International Conference on Big Data (BigData)*. (in press.).
- 2024**
- [C8] EskandariNasab, M., Hamdi, S.M. and Boubrahimi, S.F., 2024, December. SeriesGAN: Time Series Generation via Adversarial and Autoregressive Learning. In *2024 IEEE International Conference on Big Data (BigData)* (pp. 860-869). IEEE.
- [C9] Vural, O., Hamdi, S.M. and Boubrahimi, S.F., 2024, December. EXCON: Extreme Instance-based Contrastive Representation Learning of Severely Imbalanced Multivariate Time Series for Solar Flare Prediction. In *2024 IEEE International Conference on Big Data (BigData)* (pp. 1476-1483). IEEE.
- [C10] Li, P., Hosseinzadeh, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2024, December. Reliable Time Series Counterfactual Explanations Guided by ShapeDBA. In *2024 IEEE International Conference on Big Data (BigData)* (pp. 1574-1579). IEEE.
- [C11] Hosseinzadeh, P., Li, P., Bahri, O., Boubrahimi, S.F. and 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.
- [C12] Vural, O., Hamdi, S.M. and Boubrahimi, S.F., 2024. Contrastive Representation Learning for Predicting Solar Flares from Extremely Imbalanced Multivariate Time Series Data. In *2024 Intl. Conf. on Machine Learning and Applications (ICMLA)* (pp. 1077-1082). IEEE.
- [C13] EskandariNasab, M., Hamdi, S.M. and Boubrahimi, S.F., 2024. Enhancing Multivariate Time Series-based Solar Flare Prediction with Multifaceted Preprocessing and Contrastive Learning. In *2024 Intl. Conf. on Machine Learning and Applications (ICMLA)* (pp. 369-376). IEEE.
- [C14] EskandariNasab, M., Hamdi, S.M. and Boubrahimi, S.F., 2024. ChronoGAN: Supervised and Embedded Generative Adversarial Networks for Time Series Generation. In *2024 Intl. Conf. on Machine Learning and Applications (ICMLA)* (pp. 567-574). IEEE.
- [C15] Alshammari, K., Hamdi, S.M. and Boubrahimi, S.F., 2024, December. Transformer Model for Multivariate Time Series Classification: A Case Study of Solar Flare Prediction. In *Intl. Conf. on Pattern Recognition (ICPR)* (pp. 238-254). Cham: Springer Nature Switzerland.

- [C16] Hosseinzadeh, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2024, December. FAT-LSTM: A Multimodal Data Fusion Model with Gating and Attention-Based LSTM for Time-Series Classification. In *International Conference on Pattern Recognition (ICPR)* (pp. 430-445). Cham: Springer Nature Switzerland.
- [C17] Bahri, O., Li, P., Hosseinzadeh, P., Boubrahimi, S.F. and Hamdi, S.M., 2025. Denoising Optimization-Based Counterfactual Explanations for Time Series Classification. In *International Conference on Pattern Recognition (ICPR)* (pp. 162-179). Springer, Cham.
- [C18] Chapagain, S., Zhao, Y., Rohleen, T.K., Hamdi, S.M., Filali Boubrahimi, S., Flinn, R.E., Lund, E.M., Klooster, D., Scheer, J.R. and Cascalheira, C.J., 2024, October. Predictive Insights into LGBTQ+ Minority Stress: A Transductive Exploration of Social Media Discourse. In *2024 IEEE 11th International Conference on Data Science and Advanced Analytics (DSAA)* (pp. 1-9). IEEE.
- [C19] Cascalheira, C.J., Chapagain, S., Flinn, R.E., Klooster, D., Laprade, D., Zhao, Y., Lund, E.M., Gonzalez, A., Corro, K., Wheatley, R. and Gutierrez, A., 2024, May. The lgbtq+ minority stress on social media (missom) dataset: A labeled dataset for natural language processing and machine learning. In *Proceedings of the International AAAI Conference on Web and Social Media (ICWSM)* (Vol. 18, pp. 1888-1899).
- 2023**
- [C20] Bahri, O., Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2023, December. Multiloss-Based Optimization for Time Series Data Augmentation. In *2023 IEEE International Conference on Big Data (BigData)* (pp. 325-330). IEEE.
- [C21] Cascalheira, C.J., Chapagain, S., Flinn, R.E., Zhao, Y., Boubrahimi, S.F., Klooster, D., Gonzalez, A., Lund, E.M., Laprade, D., Scheer, J.R. and Hamdi, S.M., 2023, December. Predicting linguistically sophisticated social determinants of health disparities with neural networks: The case of LGBTQ+ minority stress. In *2023 IEEE International Conference on Big Data (BigData)* (pp. 1314-1321). IEEE.
- [C22] Li, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2023, December. CELS: Counterfactual Explanations for Time Series Data via Learned Saliency Maps. In *2023 IEEE International Conference on Big Data (BigData)* (pp. 718-727). IEEE.
- [C23] Alshammari, K., Saini, K., Hamdi, S.M. and Boubrahimi, S.F., 2023, December. End-to-End Attention/Transformer Model for Solar Flare Prediction from Multivariate Time Series Data. In *2023 International Conference on Machine Learning and Applications (ICMLA)* (pp. 558-565). IEEE.
- [C24] Bahri, O., Li, P., Hosseinzadeh, P., Boubrahimi, S.F. and Hamdi, S.M., 2023, December. Shapelet-Preserving Bootstrapping For Time Series Data Augmentation. In *2023 Intl. Conf. on Machine Learning and Applications (ICMLA)* (pp. 453-458). IEEE.
- [C25] Li, P., Hosseinzadeh, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2023, December. Adversarial Attack Driven Data Augmentation for Time Series Classification. In *2023 Intl. Conf. on Machine Learning and Applications (ICMLA)* (pp. 653-658). IEEE.
- [C26] Hosseinzadeh, P., Bahri, O., Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2023, December. METFORC: Classification with Meta-Learning and Multimodal Stratified Time Series Forest. In *2023 International Conference on Machine Learning and Applications (ICMLA)* (pp. 1248-1252). IEEE.
- [C27] Bahri, O., Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2023, August. Motif alignment for time series data augmentation. In *International Conference on Big Data Analytics and Knowledge Discovery* (pp. 42-48). Cham: Springer Nature Switzerland.



[C28] Li, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2023, August. Attention-based counterfactual explanation for multivariate time series. In *International Conference on Big Data Analytics and Knowledge Discovery* (pp. 287-293). Cham: Springer Nature Switzerland.

## 2022

[C29] Bahri, O., Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2022, December. Shapelet-based temporal association rule mining for multivariate time series classification. In *2022 IEEE International Conference on Big Data (Big Data)* (pp. 242-251). IEEE.

[C30] Li, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2022, December. SG-CF: Shapelet-guided counterfactual explanation for time series classification. In *2022 IEEE International Conference on Big Data (Big Data)* (pp. 1564-1569). IEEE.

[C31] Filali Boubrahimi, S. and Hamdi, S.M., 2022, October. On the mining of time series data counterfactual explanations using barycenters. In *Proceedings of the 31st ACM International Conference on Information & Knowledge Management (CIKM)* (pp. 3943-3947).

[C32] Bahri, O., Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2022, December. Temporal rule-based counterfactual explanations for multivariate time series. In *2022 21st IEEE International Conference on Machine Learning and Applications (ICMLA)* (pp. 1244-1249). IEEE.

[C33] Li, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2022, December. Fast counterfactual explanation for solar flare prediction. In *2022 21st IEEE International Conference on Machine Learning and Applications (ICMLA)* (pp. 1238-1243). IEEE.

[C34] Cascallheira, C.J., Hamdi, S.M., Scheer, J.R., Saha, K., Boubrahimi, S.F. and De Choudhury, M., 2022, May. Classifying minority stress disclosure on social media with bidirectional long short-term memory. In *Proceedings of the International AAAI Conference on Web and Social Media (ICWSM)* (Vol. 16, pp. 1373-1377).

## 2021

[C35] Muzaaheed, A.A.M., Hamdi, S.M. and Boubrahimi, S.F., 2021, December. Sequence model-based end-to-end solar flare classification from multivariate time series data. In *2021 20th IEEE Intl. Conf. on Machine Learning and Applications (ICMLA)* (pp. 435-440). IEEE.

[C36] Chowdhury, S.S., Boubrahimi, S.F. and Hamdi, S.M., 2021, December. Time series data augmentation using time-warped auto-encoders. In *2021 20th IEEE International Conference on Machine Learning and Applications (ICMLA)* (pp. 467-470). IEEE.

[C37] Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2021, December. Shapelets-based data augmentation for time series classification. In *2021 20th IEEE International Conference on Machine Learning and Applications (ICMLA)* (pp. 1373-1378). IEEE.

## 2020

[C38] Boubrahimi, S.F., Hamdi, S.M., Ma, R. and Angryk, R., 2020, December. On the mining of the minimal set of time series data shapelets. In *2020 IEEE International Conference on Big Data (Big Data)* (pp. 493-502). IEEE.

## 2019

[C39] Hamdi, S.M. and Angryk, R., 2019, November. Interpretable feature learning of graphs using tensor decomposition. In *2019 IEEE International Conference on Data Mining (ICDM)* (pp. 270-279). IEEE. (acceptance rate: 9.08%)

[C40] Hamdi, S.M., Filali Boubrahimi, S. and Angryk, R., 2019, November. Tensor decomposition-based node embedding. In *Proceedings of the 28th ACM International Conference on Information and Knowledge Management (CIKM)* (pp. 2105-2108).

## 2018

[C41] Hamdi, S.M., Aydin, B., Boubrahimi, S.F., Angryk, R., Krishnamurthy, L.C. and Morris, R., 2018, September. Biomarker detection from fmri-based complete functional connectivity networks. In *2018 IEEE First International Conference on Artificial Intelligence and Knowledge Engineering (AIKE)* (pp. 17-24). IEEE. (**Best Paper Candidate**)

[C42] Hamdi, S.M., Wu, Y., Boubrahimi, S.F., Angryk, R., Krishnamurthy, L.C. and Morris, R., 2018. Tensor decomposition for neurodevelopmental disorder prediction. In *Brain Informatics: International Conference, BI 2018, Arlington, TX, USA, December 7–9, 2018, Proceedings II* (pp. 339-348). Springer International Publishing.

[C43] Boubrahimi, S.F., Ma, R., Aydin, B., Hamdi, S.M. and Angryk, R., 2018, August. Scalable knn search approximation for time series data. In *2018 24th International Conference on Pattern Recognition (ICPR)* (pp. 970-975). IEEE.

## 2016

[C44] Kucuk, A., Hamdi, S.M., Aydin, B., Schuh, M.A. and Angryk, R.A., 2016, October. Pg-trajectory: A postgresql/postgis based data model for spatiotemporal trajectories. In *2016 IEEE International Conferences on Big Data and Cloud Computing (BDCloud), Social Computing and Networking (SocialCom), Sustainable Computing and Communications (SustainCom)(BDCloud- SocialCom-SustainCom)* (pp. 81-88). IEEE.

## 2014

[C45] Hamdi, S.M., Zuhori, S.T., Mahmud, F. and Pal, B., 2014, April. A Compare between Shor's quantum factoring algorithm and General Number Field Sieve. In *2014 International Conference on Electrical Engineering and Information & Communication Technology* (pp. 1-6). IEEE.

### D.3. Workshop Papers

## 2025

[W1] Chapagain, S., Hamdi, S.M. and Boubrahimi, S.F., 2025. Advancing Hate Speech Detection with Transformers: Insights from the MetaHate. *ASONAM workshop for Deviant Dynamics in Digital Spaces (DEVLANCE)*. (in press.).

## 2024

[W2] Li, P., Bahri, O., Boubrahimi, S.F. and Hamdi, S.M., 2024. Info-CELS: Informative Saliency Map Guided Counterfactual Explanation for Time Series Classification. *CIKM workshop for Trustworthy Machine Learning (TRAI)*.

## 2022

[W3] Alshammari, K., Hamdi, S.M. and Boubrahimi, S.F., 2022, December. Feature Selection from Multivariate Time Series Data: A Case Study of Solar Flare Prediction. In *2022 IEEE International Conference on Big Data (Big Data)* (pp. 4796-4801). *IEEE Big Data Workshop on Big Data Analytics for Humanitarian Crises*.

[W4] Hamdi, S.M., Ahmad, A.F. and Filali Boubrahimi, S., 2022, January. Multivariate time series-based solar flare prediction by functional network embedding and sequence modeling. In *CIKM workshop for Applied Machine Learning Methods for Time Series Forecasting (AMLTS) 2022*.

[W5] Alshammari, K., Hamdi, S.M., Muzahed, A.A. and Filali Boubrahimi, S., 2022, January. Forecasting multivariate time series of the magnetic field parameters of the solar events. In *CIKM workshop for Applied Machine Learning Methods for Time Series Forecasting (AMLTS) 2022*.

[W6] Bahri, O., Boubrahimi, S. F., and Hamdi, S. M., 2022. Shapelet-Based Counterfactual Explanations for Multivariate Time Series. *SIGKDD Intl. Workshop on Mining and Learning from Time Series*.

[W7] Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2022, August. Motif-guided time series counterfactual explanations. In the International Conference on Pattern Recognition (pp. 203-215). *ICPR workshop on Explainable and Ethical AI (XAIE)*.

[W8] Johnson, R., Boubrahimi, S.F., Bahri, O. and Hamdi, S.M., 2022, August. Physics-Informed Neural Networks for Solar Wind Prediction. In the International Conference on Pattern Recognition (pp. 273-286). *ICPR workshop on Pattern Recognition and Remote Sensing*.

[W9] Li, P., Boubrahimi, S.F. and Hamdi, S.M., 2021, December. Graph-based clustering for time series data. In *2021 IEEE International Conference on Big Data (Big Data)* (pp. 4464-4467). IEEE.

## 2017

[W10] Hamdi, S.M., Kempton, D., Ma, R., Boubrahimi, S.F. and Angryk, R.A., 2017, December. A time series classification-based approach for solar flare prediction. In *2017 IEEE International Conference on Big Data (Big Data)* (pp. 2543-2551). IEEE. *IEEE Big Data Workshop on Management, Search and Mining of Massive Repositories of Solar and Stellar Astronomy Data* (pp. 2543-2551).

[W11] Ma, R., Boubrahimi, S.F., Hamdi, S.M. and Angryk, R.A., 2017, December. Solar flare prediction using multivariate time series decision trees. In *2017 IEEE International Conference on Big Data (Big Data)* (pp. 2569-2578). IEEE. *IEEE Big Data Workshop on Management, Search and Mining of Massive Repositories of Solar and Stellar Astronomy Data* (pp. 2569-2578).

## 2016

[W12] Hamdi, S.M., Aydin, B. and Angryk, R.A., 2016, December. A pattern growth-based approach for mining spatiotemporal co-occurrence patterns. In *2016 IEEE 16th International Conference on Data Mining Workshops (ICDMW)* (pp. 1125-1132). IEEE.

## E. Graduate Students

### E.1. Current Students

Name	Degree	Since	Project
Reza EskandariNasab	PhD, CS, USU	Summer 2023	Time series data augmentation and developing ML cyberinfrastructure in multivariate time series
Onur Vural	PhD, CS, USU	Fall 2023	Developing contrastive learning algorithms for multivariate time series data and functional network embedding.
Santosh Chapagain	PhD, CS, USU	Spring 2023	NLP (natural language processing) projects, focusing on text representation and classification from social media datasets.
Nathan Nelson	MS, CS, USU	Fall 2024	Causal inference on multivariate time series data of solar eruptive events
Kishore Ragul Alagarsamy	MS, CS, USU	Fall 2025	Scalable Web-Based Cyberinfrastructure for Multivariate Time Series Learning on HPC Systems



## E.2. Past Students

Name	Degree	Mentoring Duration	Thesis Title	Current Position (2025)
Dr. Khaznah Alshammari	PhD, CS, NMSU	Spring 2022 - Fall 2024	Multivariate Time Series Classification and Feature Selection from Photospheric Magnetic Field Data for Solar Flare Prediction	Assistant Professor (tenure-track), Computer Science, Northern Border University, Saudi Arabia
Dr. Cory Cascalheira	PhD, Psychology, NMSU	Spring 2021 - Summer 2024	Computational Methods Investigating Psychosocial Stressors Among Sexual And Gender Minority People: A Machine Learning And Natural Language Processing Approach	Postdoctoral scholar, VA Puget Sound Health Care System, Seattle, WA, USA
Kartik Saini	MS, CS, USU	Fall 2022 - Summer 2023	Solar Flare Prediction from Extremely Imbalanced Multivariate Time Series Data using Minimally Random Convolutional Kernel Transform	Software Development Engineer (SDE-2), Amazon Web Services (AWS) Inc, Seattle, USA
Junyong Lee	MS, CS, NMSU	Spring 2021 - Fall 2021	Implementation Of Web-based Interface For Graph Embedding Methods And Machine Learning Pipeline	Full stack developer, University of New Mexico.

## F. Courses Taught

- ❖ **Artificial Neural Networks:** Fall 2025, Fall 2024 (broadcast-distance course), Spring 2024, Spring 2023, Fall 2021 (NMSU), Fall 2020 (NMSU, online)
- ❖ **Graph Mining:** Fall 2023, Fall 2022 (broadcast-distance course), Spring 2022 (NMSU), Spring 2021 (NMSU, online)
- ❖ **Algorithms and Data Structures:** Spring 2025, Fall 2024, Spring 2022 (NMSU), Fall 2021 (NMSU)

## G. Services

### G.1. Professional Services

- **Panelist**
  - NSF OAC (Office of Advanced Cyberinfrastructure) panel, 2025
  - NSF IIS (Information and Intelligent Systems) panel, 2023
  - NSF IIS (Information and Intelligent Systems) panel, 2023

- NSF AGS (Atmospheric and Geospace Sciences) panel, 2022
- NSF OAC (Office of Advanced Cyberinfrastructure) panel, 2022
- Fred Hutch/NMSU Partnership for the Advancement of Cancer Research, 2021
- **Program Committee Member in Conferences**
  - Knowledge Discovery in Databases (KDD), 2024, 2023, 2022
  - SIAM International Conference on Data Mining (SDM'24), 2023
  - International Joint Conference on Artificial Intelligence (IJCAI), 2023, 2022, 2021
  - International Conference on Artificial Intelligence and Statistics (AISTATS), 2022, 2021 (recognition of top reviewer)
  - Conference on Information and Knowledge Management (CIKM), 2022
  - European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), 2022
- **Journal Reviewers and Other Roles**
  - IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), impact factor 2024: 18.6, 2025
  - IEEE Transactions on Knowledge and Data Engineering (TKDE), impact factor 2025: 8.9, 2025
  - IEEE Transactions on Neural Networks and Learning Systems (TNNLS), impact factor 2025: 8.9, 2025
  - Data Mining and Knowledge Discovery (DMKD), impact factor 2024: 4.8, 2024
  - IEEE Transactions on Artificial Intelligence (TAI), impact factor 2022: 3.84, 2021
  - IEEE Transactions on Medical Imaging (TMI), impact factor 2021: 6.69, 2020
  - Judge in NSF SHINE poster contest, 2022
  - Mentoring native American undergraduate students in NASMP (Native American Summer Mentorship Program) in Summer 2024
  - Organizing committee member in CAHSI (Computing Alliance of Hispanic Serving Institutes) Data Analytics Challenge, 2021
  - Guest lecture (online), "The Trends of Deep Learning", course: Advanced Data Mining, Spring 2021, Computer Science, Utah State University.

## **G.2. University Services**

- Faculty search committee member, Fall 2023 - Spring 2024
- Scholarship committee member, Summer 2024, Spring 2023
- BPC (Broadening Participation in Computing) committee coordinator, Summer 2023
- Undergraduate curriculum committee member, Spring 2025 - current
- Graduate committee member, CS NMSU, Spring 2022

## **H. Awards**

- Faculty Researcher of the Year, Department of Computer Science, Utah State University, 2024.
- ICDM Student Travel Award, 2019.
- Second Century Initiative (2CI) University Doctoral Fellowship under Stellar Astrophysics and Astroinformatics cluster of Georgia State University (2015 - 2019).
- Student of the Year, Rajshahi University of Engineering and Technology, 2012.