

Asadullah Hill Galib

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Education

Ph.D. in Computer Science and Engineering

August 2020 - Present

Michigan State University, MI, USA

Advisor: [Pang-Ning Tan](#), Domain: Deep Learning, Representation Learning, Time Series, Extreme Values, Generative Modeling

M.Sc. in Software Engineering

January 2019 - December 2020

University of Dhaka, Dhaka, Bangladesh

Thesis: Significant Features Analysis For Android Malware Detection Using Machine Learning Techniques

B.Sc. in Software Engineering

January 2015 - December 2018

University of Dhaka, Dhaka, Bangladesh

Technical Skills (* PROFICIENT)

Programming Languages: Python*, Java*, C*, C++, PHP, JavaScript, Assembly

AI & Machine Learning: PyTorch*, Lightning*, SK-learn*, Pandas*, NumPy*, Matplotlib*, Anaconda*, MATLAB, Keras

Miscellaneous: Android*, GCP*, MySQL, Oracle, SQLite, jQuery, React Native, Laravel, Selenium, Git*, Agile, MVC, SRS*

Experience

Researcher (Internship), [Frontier Development Lab \(FDL\) 2022](#) by [NASA](#) and the [SETI Institute](#) June 2022 - August 2022

- Collaborated with a multi-disciplinary team on the NASA challenge: Seismic Insight from Geomagnetic and Ionospheric Data.
- Carried out a statistical analysis that shows promising links between major earthquakes and ionospheric perturbations.
- Developed the first machine learning-ready dataset and statistical tool comprising spatiotemporally varying precursory data sources for studying pre-seismic and post-seismic disturbances.
- Built machine learning models for forecasting and detecting earthquakes from heterogeneous multivariate time series data.
- Developed a probabilistic model to learn the spatial variability of ionospheric observations around seismic locations.
- Research outcomes: 3 AGU abstracts, 1 paper in NeurIPS 2022 workshop - ICBINB, 1 technical memo, and 1 NASA NTR.

Graduate Research Assistant, [Michigan State University \(CSE\)](#)

January 2022 - Present

- Working in the NSF project: [Prediction and Characterization of Extreme Events in Spatio-Temporal Data](#) at [DMiner Lab](#).
- Developing novel deep learning algorithms addressing extreme events within spatio-temporal and time series data.

Graduate Teaching Assistant, [Michigan State University \(CSE\)](#)

August 2020 - December 2021

- Lead classes and labs of 260+ students in *CSE 102: Algorithmic Thinking and Programming (Python)*

Software Developer & Executive Assistant (Internship), [Brain Station 23](#)

January 2018 - June 2018

- Developed from scratch and maintained a web application and a mobile application, using Laravel Framework, PHP, MySQL, React-Native, Redux-Saga, Android Studio, Postman and proper version-controlling (Git, SourceTree).
- Analyzed requirement specification and design of an existing system for re-engineering. Analyzed two e-commerce frameworks.

Selected Publications (FULL LIST WITH DETAILS)

- **Galib, A. H.**, McDonald, A., Tan, P. N. & Luo, L. (2023, Jan.). Self-Recover: Forecasting Block Maxima in Time Series from Predictors with Disparate Temporal Coverage using Self-Supervised Learning. Accepted for **IJCAI 2023** (15% acceptance rate).
- **Galib, A. H.**, McDonald, A., Wilson, T., Luo, L., & Tan, P. N. (2022, Jul.). DeepExtrema: A Deep Learning Approach for Forecasting Block Maxima in Time Series Data. In **IJCAI 2022** (15% acceptance rate).
- Wilson, T., McDonald, A., **Galib, A. H.**, Luo, L., & Tan, P. N. (2022, Aug.). Beyond Point Prediction: Capturing Zero-Inflated & Heavy-Tailed Spatiotemporal Data with Deep Extreme Mixture Models. In **KDD 2022** (14.99% acceptance rate).
- Cullen*, L., **Galib***, **A. H.**, Smith*, A. W., Varshney*, D., Brown, E., Chi, P., ... & Svoboda, F. (2022, Dec.). Can We Forecast And Detect Earthquakes From Heterogeneous Multivariate Time Series Data? In **ICBINB@ NeurIPS 2022**.

Academic and Research Projects (FULL LIST WITH DETAILS)

- **Predicting GitHub Issues Lifetime using Machine Learning and Topic Modeling (LDA):** It outperforms the previous approach with a high precision and f1- measure. Also, it extracts distinguishable and comprehensible topics from issues. [PDF](#).
- **Pre-birth Factors in the Early Assessment of Child Mortality using Machine Learning Techniques:** It achieves an AUC score of 0.947 which outperforms the clinical standards. Also, it assesses the relative importance of the factors. [PDF](#).
- **Optimizing Search Space in Code Smells Detection using a Novel Metric:** Significantly reducing search space (i.e., 93% to 21%) using a novel metric called - NCPC, while maintaining the performance of code smells detection. [PDF](#).
- **Analyzing co-authorship network: Centrality Measure, Link Prediction, and Community Detection:** It analyzes a network of co-authorship relations, predicts missing link with 64% accuracy and detect community using the network modularity algorithm.