

STEPHANIE GER

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Education

Northwestern University — Evanston, IL

Fall 2014–Fall 2020

MA, Engineering Sciences and Applied Mathematics (2015), Ph.D. (2020)

Thesis: *Deep Learning: Neural Network Applications and Architectures in Sequence Classification and Explanation* (Advisor: Prof. Diego Klabjan)

Relevant coursework includes Deep Learning, Machine Learning, Stochastic Processes, High Performance Computing, Optimization 2, Big Data

National Science Foundation Graduate Research Fellowship (Summer 2015-Spring 2020)

Boston College — Chestnut Hill, MA

Fall 2010 – Spring 2014

B.A. in Mathematics

Research Projects

Classification of Partially Ordered Sequences — Northwestern University & Allstate *Spring 2018 - Fall 2020*

Developed an equal time model architecture with Tensorflow that uses transition probabilities between events in order to improve classification accuracy for partially ordered streaming data.

Explainable Attention-Based Classification — Northwestern University & Allstate *Fall 2017 - Fall 2020*

Built a recurrent neural network models with Keras to predict customer churn, focusing on developing an explainable architecture without sacrificing accuracy.

Anomaly Detection on Temporal Data — Northwestern University *Spring 2017-Fall 2018*

Developed deep learning algorithms for synthetic data generation in order to improve classification accuracy for recurrent models on imbalanced multivariate temporal data using Tensorflow and Keras.

Experience

Data Scientist — Apple

Nov 2020 - Feb 2024

While as a data scientist on the FaceID Algorithms team, I developed policies based on machine learning models and worked on understanding model performance using large datasets.

Bioinformatics Intern — Ancestry DNA

Summer 2018

Built a neural network based model to predict traits such as male pattern baldness from genomic data. Explored interpretability of deep neural network models to determine important features for model prediction.

Summer Undergraduate Laboratory Internship — Lawrence Berkeley National Laboratory

Summer 2014

Built a web application using PHP and Python to visualize the effects of statistical overfitting and backtest overfitting on trading algorithms to disseminate information to the general public.

Selected Papers and Publications

SG, Jambunath, Y.S., Klabjan, D. (2023, December) *Autoencoders and Generative Adversarial Networks for Imbalanced Sequence Classification* 2023 IEEE International Conference on Big Data.

SG, Jambunath, Y.S., Klabjan, D., & Utke, J. (2023, December) *Cohesive Attention-Based Explanations for Sequences and Explainability in Presence of Event Types* 2023 IEEE International Conference on Big Data.

SG, Klabjan, D., & Utke, J. (2021, September) *Classification Models for Partially Ordered Sequences*. International Conference on Artificial Neural Networks

Interests

data analysis and visualization, optimization and machine learning, deep learning, anomaly detection, algorithm design, scientific computing, computational biology, explainable neural networks, imbalanced classification