Stephanie Ger

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Education

Northwestern University — Evanston, IL *Fall 2014-present*

- MS, Engineering Sciences and Applied Mathematics (2015), PhD (2020, Expected)
- Thesis research focused on developing deep learning models for sequential data with industry partners.
- 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*

- BA in Mathematics

Current Projects

Anomaly Detection on Temporal Data — in collaboration with industry partner *Spring 2017-Fall 2018*

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

Predicting Customer Churn — in collaboration with industry partner *Fall 2017-present*

- Working to build recurrent neural network models with Keras to predict customer churn, focusing on developing an architecture that allows explainability without sacrificing accuracy.

Sequences with Equal Time Events — in collaboration with industry partner *Spring 2018-present*

- Working to build a recurrent neural network model for partially ordered timeseries data using Tensorflow and Keras to improve model performance for streaming data where the data order may not be known.
- Developing an equal time model architecture that uses transition probabilities between events in order to improve classification accuracy.

Experience

Bioinformatics Summer Intern at Ancestry — San Francisco, CA *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 at Lawrence Berkeley National Laboratory — Berkeley, CA *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, and D. Klabjan. *Autoencoders and Generative Adversarial Networks for Anomaly Detection for Sequences.* arXiv preprint arXiv:1901.02514 (2019).

Bailey, D., **SG**, et al. *Statistical overfitting and backtest performance.* Risk-Based and Factor Investing (pp. 449-461). (2015).

Interests

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