Alex Miller

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Summary

New grad with masters in Computer Science and publications in machine learning research.

Publications

Charles Dickens, Alex Miller, and Lise Getoor. "Online Collective Demand Forecasting for Bike Sharing Services." Hawaii International Conference on System Sciences. 2023.

- Implemented an online demand forecasting method for use in bicycle sharing services that makes use of the statistical relational learning framework Probabilistic Soft Logic (PSL) building on prior work in this area
- Contributed to the experiment code and results analysis

Charles Dickens*, Connor Pryor*, Eriq Augustine, Alex Miller, and Lise Getoor. "Context-Aware Online Collective Inference for Templated Graphical Models." International Conference on Machine Learning (ICML). 2021.

- Contributed experiments on bicycle sharing datasets to evaluate the performance of a novel online collective inference method in templated graphical models

Alex Miller, Naum Markenzon, Varun Embar, and Lise Getoor. "Collective Bio-Entity Recognition in Scientific Documents using Hinge-Loss Markov Random Fields." International Workshop on Mining and Learning with Graphs (MLG). 2020.

- Developed a biomedical entity disambiguation framework that leverages the statistical relational learning framework Probabilistic Soft Logic (PSL) to perform collective inference over entity mentions
- Applied specifically to disambiguate gene/protein mentions in biomedical text

Skills

Programming Languages: Python, C++

Data Analysis: Pandas, NumPy, SciPy, Statsmodels

Machine Learning: PyTorch, Scikit-learn

Data visualization: Matplotlib

Sample Projects

PSL-GWAS (Master's project)

Implemented a novel probabilistic microbial genome-wide association method using PSL and compared it to well-known baselines in experiments on a dataset with 355 E. Coli genomes and measurements of resistance to one of several antibiotics.

Technologies: Python, Pandas, NumPy, PSL

Data Augmentation for Biomedical Relation Extraction

Implemented a simple data augmentation (DA) strategy that incorporates biomedical domain knowledge and a BERT-based sequence classifier to perform biomedical relation extraction (bioRE). Compared the DA method and baseline methods; impact on bioRE performance in two datasets.

Technologies: Python, PyTorch, Pandas, NumPy

Education

University of California at Santa Cruz

- MS in Computer Science, 2023
- BS in Computer Science, Summa Cum Laude

Employment

University of California at Santa Cruz

- Graduate research assistant
- Teaching assistant for Computer Systems and Assembly Language and Advanced Programming