Conner Rose

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Education

University of Michigan, *Ann Arbor, MI* **August 2022 – May 2025**

B.S.E. in Computer Science, Completing Requirements for B.S. in Honors Mathematics *GPA: 3.88/4.0*

- **CS Coursework**: Programming and Data Structures, Data Science for Engineers, Data Structures and Algorithms, Discrete Mathematics, Machine Learning, Algorithm and Computation Theory, Computer Organization, Web Systems
- **Mathematics Coursework**: Calculus I-IV, Linear Algebra, Combinatorics and Graph Theory, Probability, Real Analysis, Probability Theory, Theoretical Statistics
- **Extracurricular**: Traders at Michigan, Quantitative Investment Society, Michigan Hackers, Mathematics Club, MRun

Experience

Bloomberg L.P., *New York, NY* **May – August 2023**

CTO Office Intern - Compute Architecture and OSPO

- Designed automated access revocation system using **Python** and **LDAP**, deployed to **Docker**-containerized **Jenkins Pipeline**, ensuring appropriate removal of inactive accounts from Bloomberg's open-source GitHub repositories
- Developed a GitHub crawler using **Python** to scan all projects contributed to by Bloomberg employees over 10 years, automating contribution cataloging and open-source license compliance verification, increasing audited projects by **3x**

Projects

Historical Landmark Image Classifier **October – November 2023**

Python, PyTorch, Pandas, NumPy, Matplotlib, Computer Vision

- Designed and implemented **convolutional neural networks** for multiclass image classification of historical landmarks
- Researched **model architecture** and **data augmentation**, employing subsampling and noise generation to improve accuracy and mitigate overfitting while training model with 5 convolutional layers and **+2,000,000** learnable parameters
- Utilized **transfer learning**, leveraging multiclass model to initialize weights for training on binary classification target problem, reducing training time, preventing overfitting, and fine-tuning fully-connected layers to improve performance

Movie Review Prediction System **September – October 2023**

Python, Scikit-learn, Pandas, NumPy, Gensim, Matplotlib

- Trained **support vector machines** capable of classifying positive and negative reviews movie reviews achieving **92%** accuracy through **sentiment analysis** techniques, including learned word association and negation handling
- Identified gender bias within dataset, leveraging **word embeddings** to determine association of male and female gendered language with positive and negative terms in reviews

MST/TSP Solution Generator, *C++* **April 2023**

- Developed an implementation of **Prim's algorithm** to efficiently find **minimum spanning trees** for complete graphs
- Utilized **arbitrary insertion** heuristic approach to generate approximate solutions for the **traveling salesperson problem** with quadratic time complexity, allowing for computation for **+10,000-order** complete graphs in seconds
- Created a **branch and bound** algorithm to guarantee optimal solutions to the traveling salesperson problem and optimized via **solution tree pruning**, using MST-derived upper bound, reducing runtime by **90%**

SQL Clone, *C++* **February 2023**

- Implemented a database and query command language similar to **SQL**, including various database and table commands including table creation, deletion, insertion, conditional printing, conditional deletion, and inner join
- Incorporated **red-black trees** and **hash tables** to index tables, increasing efficiency of conditional print commands
- Utilized map indices to optimize inner join command from quadratic to linear time complexity

Technical Skills

Languages: Python, C++, Java, JavaScript/TypeScript, HTML/CSS, SQL (SQLite), LaTeX
Tools: Git, Docker, Jenkins, Jupyter Notebook, MongoDB, Pandas, NumPy, Scikit-learn, Django, LDAP