# 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
- **Math 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*        **Summer 2023**
*CTO Office Intern - Compute Architecture and OSPO*

- Increased security of Bloomberg's public GitHub organization by ensuring appropriate removal of inactive accounts through automated access revocation using **LDAP** and **Python**, deployed in a **Docker**-containerized **Jenkins Pipeline**
- 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*

- 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 a set of vertices
- Utilized **arbitrary insertion** heuristic approach to generate approximate solutions for the **traveling salesperson problem** with quadratic time complexity, allowing for computation for **+10,000** points 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 such as 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