

MATTHEW MAITLAND

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Education

Cornell Tech , New York, NY	August 2024 - May 2025
Master of Engineering in Computer Science	GPA: 4.2
Cornell University, Bowers College of Computing and Information Science , Ithaca, NY	August 2020 - May 2024
Bachelor of Science in Information Science, Data Science Concentration	
Degree Honors: Cum Laude, Dean's List (Spring 2022, Fall 2022, Spring 2024)	GPA: 3.5
CET Academic Program , Florence, Italy	January 2023 - May 2023

Professional Experience

Cisco Systems , New York, NY, <i>Data Science Technical Intern</i>	May 2023 - August 2023
<ul style="list-style-type: none">Designed and implemented a “playground” using Python for users to explore sustainable network configurationsGenerated design documentation, responded to iterations of feedback from team, and presented to 150 colleagues, including executivesLeveraged both static internal and user inputted data to generate digestible insights into network-derived emissionsUsed Gradio for UI, and Numpy, Pandas, Matplotlib for back-end and insights	
Barstool Sports , New York, NY, <i>Data Analyst Intern</i>	April 2022 - August 2022
<ul style="list-style-type: none">Created Python models to predict and maximize podcast success based on personnel and logistical dataUsed Numpy/Pandas to clean data, Scikit-Learn to make predictions, and Matplotlib to visualize dataIdentified, collected, and cleaned relevant metadata from Barstool Sports’ videos and podcasts using Microsoft Excel and Google SheetsAssisted in the UI/UX design of an internal platform that centralizes metadata from Barstool Sports’ videos and Podcasts	

Projects and Research

Minitorch: Building a Deep Learning Framework from Scratch	August 2024 - December 2024
<ul style="list-style-type: none">Implemented core machine learning concepts, including tensors, backpropagation, and auto differentiation without using high-level librariesOptimized computational graph creation and tensor operations to provide scalability for billions of parametersParallelized higher-order functions using CUDA, achieving significant performance improvements by leveraging GPU accelerationDesigned custom convolutional neural networks, mimicking features of deep learning frameworks like PyTorch	
Algorithmic Pricing Agent with Capacity Constraints	November 2024 - December 2024
<ul style="list-style-type: none">Built gradient-boosted decision trees with XGBoost to optimize personalized pricing based on consumer data and purchase behaviorApplied dynamic programming to manage capacity constraints, maximizing revenue across 2,500 simulation periodsDeveloped game-theory-based strategies to enable competitive pricing against adversarial agents	
Movie Rating from Text Review Sentiment Analysis with Data Augmentation	October 2024
<ul style="list-style-type: none">Earned first place in Kaggle competition of >100 participants by implementing a data preprocessing pipeline and NLP modelsIncreased training data by 82% using Logistic Regression to impute high-confidence labels and iteratively augmenting training corpusPreprocessed and vectorized text data using TF-IDF with tri-grams and a 50,000-feature limit, capturing contextual nuances	
NLP Research of Presidential Speeches to Identify Political Party Affiliation/Philosophy Shift (PDF)	January 2024 - May 2024
<ul style="list-style-type: none">Through ensemble sentiment analysis/embedded topic modeling on public speeches, clustered presidents into modern political partiesCompared modeled labels with true labels in order to map how the speech style and party philosophies have changed over timeApplied NLP/Deep Learning techniques such as Zero-Shot Learning, tokenization and TfIdf Vectorization	
Spotify Song Popularity Predictor	August 2022 - November 2022
<ul style="list-style-type: none">Built/trained a Random Forest Regressor to predict song popularity given features from Spotify’s API with <4% error rateUsed K-Means Clustering to identify features with relevant affects on our target variableAccessed Spotify API in order to generate random datasets for training and testing	

Relevant Coursework

Machine Learning (ML) Engineering, Applied ML, Statistics for ML, ML for Business Applications, Advanced Data Science, NLP Research in Humanities, Large Language Models, Data-Driven Web Applications, R Analytics, Statistical Theory and Application, Object-Oriented Programming and Data Structures, Business Intelligence Systems, Web Development (Front and Back-End), Calculus, Privacy/Security in the Data Economy

Skills

Technical Skills:	Python, R, SQL, PyTorch, Java, C++, JavaScript, HTML, CSS, PHP, d3, Numpy, Pandas, Scikit-Learn, Matplotlib, Git, Excel, Tableau, Boomi, WhereScape, TensorFlow
General Skills:	Machine Learning, Data Visualization, NLP, Data Engineering, Data Collection/Preprocessing, Statistical Analysis, Data Insights Generation, Data Structures and Algorithms, Leadership, Collaborative Problem Solving, Technical/Non-Technical Communication