

ALEXANDER SAFF

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EDUCATION

Cornell Tech, New York, NY

Aug 2021- May 2022

Master of Engineering in Computer Science | GPA: 3.829

Specialized in machine learning and artificial intelligence. Graduated with thirty-five credits.

Relevant Coursework: Machine Learning Engineering, Applied Machine Learning, Machine Learning Hardware & Systems, Deep Learning, Modeling Under Uncertainty

Honors/Awards: Merit Scholarship Recipient

Rutgers University, New Brunswick, NJ

Sept 2017- May 2021

Bachelor of Science in Computer Science, Bachelor of Science in Economics | GPA: 3.928

Completed the Artificial Intelligence & Cognitive Science track in Computer Science and the Computational Economics & Data Analytics Certificate in Economics. Took graduate-level computer science courses. Graduated with 158 credits.

Relevant Coursework: Machine Learning, Principles of Artificial Intelligence, Intro to Artificial Intelligence, Forecasting & Big Data, Computational Economics, Data Structures, Computer Architecture, Design & Analysis of Computer Algorithms

Honors/Awards: Summa Cum Laude, Honors College Scholar, Highest Honors in Computer Science, Eugene E Agger Memorial Award, Milton Friedman Distinguished Scholar Award, Dean's List all semesters, Henry Rutgers Merit Scholarship, Rutgers Trustee Merit Scholarship, Omicron Delta Epsilon Member (economics honors society), Phi Beta Kappa Member (academic honors society)

EXPERIENCE

Amazon, Software Development Engineer Intern, Seattle, WA

May 2021- Aug 2021, May 2020- Aug 2020

- Added backend and frontend features in Java and JavaScript to the electronic invoicing application for the External Systems Integration Team
- Implemented automated EMR cluster resize stress test tool as part of larger EMR cluster resize stability project
- Worked across five teams in multiple countries to modify several microservices in order to add a new feature with end-to-end functionality
- Rolled out code changes to frontend and backend code. Developed architectural changes to create new code tests and test host machines in automated CI/CD Pipelines. Implemented automated app log collection and central log storage database.
- Two return offers made – second declined to pursue a master's degree

Colgate-Palmolive, Software & Applications Development Intern, Piscataway, NJ

Sept 2020- May 2021, Sept 2019- May 2020,
June 2018- May 2019

- Created automated sales dashboard systems for Hill's Pet Nutrition Europe. Developed with agile methodology and met with stakeholders in Europe twice a week. System is currently used daily by all company sales representatives in Europe.
- Developed a recurrent deep learning model to predict order cuts and made an automated data pipeline to pull data for model training
- Produced a GitHub Action for building Docker images with automatic semantic versioning and caching (reducing build times by up to 60%) and created a Python library for Docker container development using Kubernetes with CI/CD
- Contributed to 2 of 15 public repositories
- Three return offers made – third declined to pursue a master's degree. Worked 40 hours per week over school breaks and 15 hours per week during the semester

Capital Group, Predictive Analytics Summer Associate, Irvine, CA

June 2019- Aug 2019

- Worked in the newly created Predictive Analytics Lab to predict call center volume and reason-for-call to optimize call center staffing and improve call routing
- Implemented regressions, random forests, k-nearest neighbors, and deep learning models
- Presented exploratory analysis and experimental results for future R&D

Storming Robots, Lead Instructor, Branchburg, NJ

Aug 2014- Aug 2017

- Mentored and coached competitive robotics teams
- Lead instructor for high and middle school students on C programming. Represented the company at the Maker's Faire in NYC
- My team placed second nationally in Zero Robotics. Finals were at MIT where NASA ran our code on SPHERES aboard the ISS
- Taught Sunday classes during school semesters, and Monday-Friday during breaks

TECHNICAL SKILLS

Coding Language:	Python, Java, R, JavaScript, Bash, SQL, Rust, C
Operating Systems:	Windows, Linux (Debian, RHEL, Arch)
Other Tools:	PyTorch, NumPy, Pandas, Scikit-learn, Jupyter Notebooks, Docker, AWS, GCP, GitHub Actions, Apache Airflow

PROJECTS

Citi Bike Traffic Prediction, Python Spring 2022

Graph neural network to predict Citi Bike station traffic

- Used distance between stations as the graph edge weights, traffic at each station as node weights
- Predicted 2.5 hours ahead using 5 hours of traffic history
- Achieved mean average error of just 1.84 riders

Citi Bike Availability Prediction, Python Fall 2022

Markov model using exponential distributions to predict Citi Bike availability

- Transformed the Citi Bike dataset, which shows each individual ride, into a data set of station capacity
- Performed analysis at both five- and ten-minute intervals
- Built Markov models using exponential distributions for the three most active stations to predict station capacity

Water Mark Remover, Python Spring 2021

Deep CNN GAN to remove water marks from images

- Added random watermarks to the Flickr8k image dataset and trained model to remove them
- Compared the results from deep CNN, CNN based GAN, and transformer models, as well as gradient averaging
- Analyzed the pros and cons of each approach given various time and compute constraints

Yelp Business Categorizer, Python Fall 2020

Natural language model to classify Yelp businesses based on user reviews

- Used Yelp's dataset to classify businesses into one of 1200 categories based on customer reviews
- Custom data preprocessing pipeline
- Used BERT as a pretrained model, and finetuned it for this specific task

Debate Sentiment Analyzer, Python Spring 2019

Natural language model to analyze sentiment around presidential candidates on Twitter during debates

- Trained an encoder model to perform sentiment analysis on Tweets
- Custom pipeline using Twitter's RESTful API to get tweets and feed them into the model
- Monitored sentiment around each candidate in near-real-time during presidential debates

Neural Network from Scratch, Python Fall 2018

Fully connected neural network made using only NumPy

- Fully connected MNIST classifier using only NumPy
- Did not use any machine-learning specific Python libraries

EXTRACURRICULAR

Cornell Tech Running Club, President & Founder, New York, NY Aug 2021- May 2022

- Organized group runs and managed the Strava club

Cornell Tech Sports Club, President, New York, NY Aug 2021- May 2022

- Managed various bureaucratic tasks and worked to secure club funding

Rutgers Habitat for Humanity, Builds Manager, New Brunswick, NJ May 2019- May 2021

- Facilitated several builds each month; ensured all volunteers had transport and were prepared

Rutgers IEEE – ML/AI Division, Member, New Brunswick, NJ Sep 2017- May 2021

- Attended weekly meetings to discuss ML principles and recent ML developments
- Worked independently on an ML project every Spring

Rutgers Rugby Football Club, Player, New Brunswick, NJ Sep 2017- May 2021

- Played number 13 (outside center) and number 14 (right wing)

Rutgers University Outdoors Club, Member, New Brunswick, NJ Sep 2017- May 2021

- Provided transport and attended backpacking, hiking, kayaking, and skiing trips throughout the semester