

ANIRUDDHA MURALI

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EDUCATION

M.S. Computer Science • *Specialization: Machine Learning*
Georgia Institute of Technology, Atlanta, GA

Jan 2023 - Dec 2023

B.S. Computer Science • *Highest Honors* • *Threads: Intelligence and People*
Georgia Institute of Technology, Atlanta, GA

Aug 2019 - Dec 2022

WORK EXPERIENCE

Incoming Software Engineering Intern
Amazon, Seattle, WA

May 2023 - Aug 2023

Quantitative Strategist Intern
Goldman Sachs, Dallas, TX

Jun 2022 - Aug 2022

- Developed clustering algorithms based on hierarchical clustering and K-Means to group equity derivatives into clusters based on similarity and created similarity metrics for comparison of equity risk factors. Algorithms written in Goldman's proprietary language, Slang.
- Brainstormed business applications for clusters. Clusters can be used in correlational backtesting to check if risk models are capturing correlations between equity risk factors and streamline the process of investigating instances where risk models underestimate risk for certain equity derivatives.
- Implemented backtesting on credit risk models to assess their performance and examine potential issues.
- Presented work to 5 Managing Directors as well as other senior executives.

Software Engineering Intern
Capital One, McLean, VA

Jun 2021 - Aug 2021

- Developed Neo, a web-based machine learning banking chatbot assistant that can perform ~80 intents such as validating accounts and retrieving transactions. Built natural language processing (NLP) models with Rasa to recognize intents and entities in user messages and determine what the chatbot should do next (dialogue management).
- Wrote Rasa actions in Python that retrieve account data from data orchestrator via GraphQL and formulate responses when the user message indicates a banking-related intent. Created chatbot UI with React.js, react-chatbot-kit, and Bootstrap and displayed customer profiles from AWS DynamoDB database. Deployed application on Jenkins CI/CD pipeline with Docker container.
- Presented and demoed chatbot to senior leaders. Leveraged Agile workflow.

Research Assistant, Dr. Diyi Yang
Georgia Institute of Technology, Atlanta, GA

Feb 2021 - Jun 2022

- Built machine learning models to predict if a conversation on Reddit is civil or incivil (Python, Scikit-learn, TFIDF, BERT).
- Investigated how different linguistic features (aspersion, provocation, vulgarity, stereotypes, etc.) correlate with civility and affect conversations.
- Wrote research paper to submit to ICWSM.

Research Assistant, Dr. Jacob Abernethy
Georgia Institute of Technology, Atlanta, GA

Jun 2020 - Apr 2021

- Developed website that aggregates, displays and evaluates COVID-19 forecasts from official forecasters and users, using React.js and Bootstrap, data visualization (including drawable chart) with D3.js.
- Wrote RESTful COVID-19 Aggregator API, automated data collection, data processing, and storage of COVID-19 forecast data with Python, Pandas, Flask, MongoDB and Github API. Researched loss functions, created scheme for evaluating forecast models.
- Managed and delegated tasks to team of 5 volunteers from the Coronavirus Visualization Team (CVT).

PROJECTS

Musks Musings - Machine Learning Class Project

- Created models that predict whether to buy, sell, or do nothing with a Tesla stock (TSLA) given an Elon Musk tweet.
- Built neural network, Naive Bayes, and gradient boosting models, achieving up to 85% accuracy with Scikit-learn, Keras, and Pandas. Retrieved TSLA and QQQ data through Yahoo Finance API, processed tweets using TFIDF, reduced features with PCA, and created clusters with KMeans.

COVID-19 Tracker

- Developed responsive website that tracks & visualizes various COVID-19 data using Python, JavaScript, Bootstrap, jQuery, Pandas, Plotly.
- Provides features such as nearby testing centers scraped with BeautifulSoup and a risk calculator built with machine learning (Scikit-learn).

ACCOMPLISHMENTS

- **10 Teens to Watch:** Selected by Westport Magazine as 1 of 10 standout teens in Fairfield County (CT) for achievements in technology.
- **Westport Maker Faire Planning Committee** - Hosted about 13,500 attendees and 20 makers at the Westport Maker Faire.
- **1st place overall at BrainHack Atlanta** (neuroscience hackathon) - used machine learning to identify poorly preprocessed MRI scans.
- **Data Visualization Award at Hacklytics** (Georgia Tech datathon) - visualized unemployment around the world and within the US on website.
- **Research Awards:** Won 3 national special, 3 state awards for research projects on using AI to diagnose breast cancer with ~90% accuracy.
- **ARML:** One of 50 students selected to represent CT at national ARML competition, chosen as captain. Team placed 11th in nation in division.

SKILLS

Languages: Python, Java, HTML, CSS, JavaScript, Slang, SQL, C, R, Swift

Frameworks/Libraries: Flask, Bootstrap, React.js, jQuery, Pandas, Scikit-learn, Plotly, Node.js, Numpy, Matplotlib, Pytorch, Keras, D3.js, Rasa, GraphQL

Databases: MongoDB, Firebase, MySQL, DynamoDB

Tools: Github, Docker, AWS, Google Cloud, Jupyter Notebook, LaTeX, Figma, Visual Studio Code, Xcode, Heroku, Android Studio, MS Excel