Ajay Sarjoo

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EDUCATION

Stony Brook University — Stony Brook, NY
Master of Science in Computer Science, GPA: 3.5 — *Expected May 2022*
- Relevant Courses: Analysis of Algorithms, Visualization, Data Science Fundamentals (in progress), Foundations of Human-Computer Interaction (in progress), Fundamentals of Computer Networks (in progress)

Stony Brook University — Stony Brook, NY
Bachelor of Science in Computer Science and Applied Math and Statistics, GPA: 3.54 — *August 2017 - May 2021*
- Honors: Accelerated BS/MS Program in Computer Science, Cum Laude, Dean's List
- Relevant Courses: Data Structures, Analysis of Algorithms, Systematic Program Design, Coding, and Testing, Software Engineering, Machine Learning, Natural Language Processing, Principles of Programming Languages, Computational Geometry, User Interface Development

EXPERIENCE

Machine Learning Researcher — December 2019 - Present
Ethos Lab — *Stony Brook, NY*
- Explored the performance of deep learning models on mobile devices by constructing and training several convolutional neural network classifiers on multiple image datasets, achieved an average baseline testing accuracy of 88%
- Improved testing accuracy by 10% through mastering and applying machine learning concepts such as data augmentation, image normalization, learning rate optimization, and mixture of experts
- Examined the strength of open-source video compression models, such as Facebook's SlowFast, by writing several adversarial attack scripts based on concepts such as Fast Gradient Sign Attacks and Frame Saliency Attacks
- Leveraged knowledge in Python libraries such as TensorFlow, GluonCV, OpenCV, PyTorch, and NumPy

Software Engineer Intern — May 2021 - August 2021
Blackstone - BXTI Data Engineering — *New York, NY*
- Led a firm-wide initiative to detect and report personally identifiable information (PII) across Blackstone's internal datasets
- Identified the best PII detection service to integrate into the final data pipeline architecture by evaluating several AWS and Microsoft services through proof-of-concept development for accuracy and scalability
- Discovered over one million instances of PII across the datasets by architecting, building, and deploying a robust PII detection and reporting data pipeline that runs on a daily basis
- Highlighted the firm-wide impact of the project by delivering a final presentation to an audience that included the CTO and several Managing Directors of the firm
- Leveraged knowledge in Python, Apache Airflow, AWS Macie, AWS S3, AWS EC2, Terraform, Snowflake, SQL, and Tableau

Machine Learning Intern — June 2020 - August 2020
Bloomberg LP - Business Intelligence & Process Automation — *New York, NY*
- Researched and developed a system to detect critical alarms in company servers up to several hours in advance by training and testing an anomaly detection model on over 200,000 system logs
- Assessed the employee experience on over 28,000 hardware replacement tickets by creating a sentiment analysis API to determine user feedback, scaled the API to different problem types
- Assisted in the return to office initiative for over 300 employees at Bloomberg's NYC headquarters by building and deploying an internal web application to visualize the results of an employee desk assignment algorithm
- Leveraged knowledge in Python libraries such as Flask, TensorFlow, Streamlit, and Plotly, and JavaScript frameworks such as React.js

Teaching Assistant for Fundamentals of Software Development — August 2019 - May 2020
Stony Brook University - Department of Computer Science — *Stony Brook, NY*
- Supported over 220 students in a course that covers fundamentals in full-stack programming and information management
- Helped students with techniques in software design, event-driven and web programming, databases, and code maintainability
- Facilitated student learning through weekly office hours and resolved additional concerns through discussion boards and emails
- Leveraged knowledge in React, Node.js, Express.js, MongoDB, and Google Firebase

Software Engineering Research Assistant — January 2019 - December 2019
PoliTech — *Stony Brook, NY*
- Established several security protocols to the PoliTech API by creating a role-based permissioning system
- Architected the database schema to store over 10 GB of state demographics and state boundary data
- Exposed over 20 routing endpoints for API calls to PoliTech's MySQL database
- Leveraged the Django Framework in Python for the API and MySQL for the database

Machine Learning Intern   May 2019 - August 2019
Bloomberg LP - Electronic Trading Operations (ETO)   *New York, NY*

- Developed a natural language processing heuristic that applies topic modeling on over six million tickets to determine commonly asked questions by clients, created an API to provide business insight made possible by the topic modeling
- Streamlined the team workflow for executing over 100 backend cleanup scripts by designing and deploying a web application that creates and executes these scripts based on user-specified parameters
- Decreased logout suppression errors by 20% after creating a scalable recommendation system that analyzes client activity and suggests a weekly schedule for monitoring sessions
- Leveraged knowledge in Python frameworks such as Flask and Django, web development languages such as HTML, CSS, and JavaScript, and machine learning libraries such as NLTK, Sci Kit-Learn, and pyLDAvis

Data Management Intern   July 2018 - August 2018
PENCIL, Inc.   *New York, NY*

- Verified over 2,000 commercial and residential addresses from old databases by creating a web-scraping algorithm
- Identified over 1200 public schools with missing identification credentials by scraping NYC Department of Education websites to autofill this information
- Updated company databases with missing details for over 800 schools by utilizing NYC datasets to correct this information
- Leveraged knowledge in Python libraries such as Scrapy, BeautifulSoup, Pandas, and NumPy

Lab Consultant   January 2018 - Present
Stony Brook University - Office of Campus Residences   *New York, NY*

- Managed a computing lab used by more than 300 residents on a weekly basis
- Maintained hardware and software requirements for all computers
- Assisted residents with technical issues and troubleshot software failures

PROJECTS

Muse - *MongoDB, Express.js, React.js, Node.js, Spotify API, Bootstrap*   August 2020 - December 2020

- Collaborated with two other members to build and deploy a mixtape sharing service
- Powered key features, such as search, song playback, and content sharing for over 50 million songs by leveraging the Spotify API
- Modernized the user interface by creating material-like components for over 9 views using React.js

PressPlay - *MongoDB, Express.js, React.js, Node.js, Ant Design, JWT*   May 2020 - August 2020

- Created a full-stack web application that emulates a video-streaming service
- Contrived core functionality, such as the login system, drag-and-drop video uploads, comments, and likes/dislikes, using Express.js
- Stored information for thousands of users and video metadata by developing several database schemas using MongoDB
- Stylized the look and feel of over 15 user interface components using React.js and Ant Design

Easy-Tex Resume Generator - *Python, LaTeX*   April 2020 - May 2020

- Conceptualized and designed a simple LaTeX resume generator geared toward computer science undergraduates
- Added support for customizing resume sections and managing content using Python
- Utilized command line arguments to specify the user's relevant information

SAK's Trading Post - *Java, MySQL, HTML, CSS, JavaScript*   January 2019 - May 2019

- Facilitated the development of a full-stack online stock-trading app for a course project
- Engineered backend operations that support over 40 stock and order transactions using Java
- Designed the schema and relevant tables to store customer and stock data using MySQL
- Customized user interface for different types of users using HTML, CSS, and JavaScript

Chef Wolfie - *Python, Flask, Vue.js, MongoDB, HTML, CSS*   February 2019 - March 2019

- Contributed toward a webapp that shows students and staff of Stony Brook University customized dining options for over 12 locations on campus
- Scraped food data for over 300 campus menu options using Python and created API endpoints to access filtered data with Flask
- Assisted with the compilation of a user's guide in HTML and CSS that showcases how to use the app

Course Site Generator - *Java, JavaFX, HTML, CSS, JavaScript*   August 2018 - December 2018

- Developed a course project that allows instructors to dynamically generate webpages for their courses
- Customized user interface functionality in JavaFX to include course events, office hours, and teaching assistant information
- Integrated JSON and XML to save, load, and export information and HTML, CSS, and JavaScript to generate the webpages
- Wrote over 10,000 lines of code and adopted industry-standard design practices when implementing this application

Opus Financial Manager - *Python, Vue.js, Node.js*   September 2018 - October 2018

- Trained a linear regression model to predict stock trends based on closing stock prices and Google Trends scores using Pandas, NumPy, and Sci-Kit Learn
- Optimized the model to consider predicted stock prices based on daily positive and negative company news in the past five years
- Generated smart recommendations based on the trend-line of a stock's prediction model

NutriBuddy - *Python, SQLite3, Flask* February 2018 - March 2018

- Created a Facebook Messenger bot that tracks nutritional goals for Stony Brook University students and faculty
- Utilized the Facebook Graph API to interact with the user while logging fitness data in a conversational manner
- Won Best Nutrition Hack at SBU HackHealth 2018

Jack's aMAzin' Textbook Rentals - *Java, Android Studio* January 2018 - February 2018

- Conceptualized, designed, and developed an Android app to complement an online library system for a data structures assignment
- Shaped user interface and functionality in custom XML layouts and Android Studio GUIs
- Created custom data structures which increased the efficiency of interactions between stored books

Cookies and Creme Milkshake Robot - *C++, Arduino* October 2017 - November 2017

- Led a team of seven members to create and develop the robot for a robotics competition
- Programmed the robot operation of a colored-block collection mechanism
- Integrated code to read in data values from an Xbox controller and output to the Arduino robot

EXTRACURRICULARS

CEAS Peer Mentor August 2018 - May 2020
College of Engineering and Applied Sciences at Stony Brook University *Stony Brook, NY*

- Conducted weekly meetings with a group of 3 freshmen to help them acclimate to Stony Brook University
- Provided mentees with the resources they need to succeed in their academics and extracurriculars
- Organized events for over 75 mentees in the program to build upon their personal and professional success

Community Leader August 2017 - May 2019
Stony Brook Computing Society *Stony Brook, NY*

- Attended social events to strengthen existing relationships with current members and formulate connections with new members
- Assisted the executive board with decisions pertaining to general body meetings and club events
- Participated in club meetings and attended various workshops to gain industry skills and mentorship knowledge

Communications Subteam Member August 2017 - May 2018
Stony Brook Robotics Team *Stony Brook, NY*

- Formulated robot communication methods and distributed vital information to other sub-teams in a Linux environment
- Implemented testing methods to ensure quick and efficient transmissions between modules
- Collaborated with three other sub-team members on a weekly basis to advance subteam progress

SKILLS

Languages: Java, Python, MySQL, MongoDB, C
Data: TensorFlow, NLTK, Sci-Kit Learn, Pandas, NumPy
Web Development: HTML/CSS, JavaScript (ES6), React.js, Node.js
Tools and Technologies: Git, Docker, Linux, AWS, Apache Airflow