Amrita Ballurkar

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Education

Virginia Tech August 2021 – May 2023

Bachelor of Science in Computer Science, Minor in Mathematics GPA: 3.8/4.0 *Blacksburg, VA*

- Going to the **Grace Hopper Celebration (GHC)** as an Association of Women in Computing member
- Dean's List, Pratt Engineering and Brumback Scholarships, Honors College member
- Courses: Data Structures & Algorithms, Computer Organization, Data Visualization, Machine Learning

Work Experience

Machine Learning/Artificial Intelligence Intern May 2022 – August 2022

Allstate *Ashburn, VA*

- Built a TF-IDF model that uses sentence similarity to identify disruptive language in chat messages
- Reduced time to create weekly reports by 96% by using Python to process data from SQL server
- Built data visualizations for Power BI dashboard to provide a real-time view for important KPIs, the dashboard is viewed by 15 senior managers daily to aid in making data driven decisions

Research Assistant September 2021 – May 2022

Hume Center for National Security *Blacksburg, VA*

- Developed a web scraping program in Python to automatically download 100s of government documents
- Analyzed documents using NLP topic modeling (Latent Dirichlet Allocation) to identify trends
- Visualized topic modeling results through intertopic distance mapping using pyLDAVis
- Presented results with team to 100+ people at 2022 National Security Education Program Colloquium

Projects

Data Privacy Legislation Topic Modeling | *Python, gensim* June 2022 – July 2022

- Extracted themes of data privacy legislation with natural language processing to better info accessibility
- Implemented a Hierarchical Dirichlet Processing algorithm to condense thousands of lines of legislation into comprehensive topics, improving the UMass coherence score of topics from the baseline by 15.8%

Locust Swarming Prediction Model | *Python, scikit-learn* September 2020 – April 2021

- Used vegetation density, precipitation, and soil moisture data and a Random Forest Regression Algorithm in Python to predict locations with the highest probability of harboring an undetected locust swarm
- Selected to present at the Regional Science and Engineering Fair, abstract published in fair magazine

Blood Cell Image Identification Model | *Python, ImageAI* December 2019 – January 2020

- Used a Convolutional Neural Network in Python to classify abnormal blood cell images
- Automated CBC blood test procedure by segmenting and classifying images of blood cells

Myoelectric Prosthetic Hand Construction | *Arduino, Inventor* December 2019 – February 2020

- Designed a prosthetic hand in Inventor, optimizing for 3D printing speed and material reduction
- Used Arduino to program a microcontroller which collected data from a myoelectric sensor which sensed electrical activity from muscles in the forearm, and controlled servos, making the prosthetic hand move

Technical Skills

Languages: Python (numpy, pandas, pyodbc, scikit-learn, matplotlib, gensim) SQL, R, Matlab, Java, C
Frameworks & Developer Tools: Git, JUnit, VS Code, Spyder, RStudio, PyCharm, Eclipse
Techniques: Machine Learning, Predictive Modeling, Natural Language Processing, Web Scraping, Data Mining, Data Cleansing, Data Analysis, Data Visualization, Neural Networks, Reporting Techniques