MAHITHA PENMETSA

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Education

Cornell University, College of Engineering   **Expected May 2026**
Bachelor of Science in Computer Science and Operations Research, GPA: 3.8   *Ithaca, NY*
<u>Relevant Coursework:</u> OOP and Data Structures, Machine Learning*, Discrete Structures, Engineering Probability and Statistics, Data
Structures and Functional Programming*, Teams and Technology*, Linear Algebra, Optimization 1*   *denotes in progress

Technical Skills

Languages: Java, Python, JavaScript/AngularJS, HTML/CSS, SQL, Ruby, Swift
Tools and Frameworks: Pytorch, Tridion, AWS, Tensor Flow, Snowflake, Splunk, XCode, Jasmine, Excel, Git
Honors: Uber Engineering Fellow, SIG Discovery Day, National Merit Finalist, Salutatorian (Class Rank 2/550)

Experience

American Express   **August 2023 - Present**
Student Researcher   *Ithaca, NY*
- Evaluate prompt generating models and decide best prompting form for response for LLMs (ChatGPT, Llama2, Flan).
- Develop hierarchical clustering algorithm (HDBScan) for improving multi-class chatbot intent request classification.
- Extract themes and subthemes in dialogues to optimize prompting and explore ways to evaluate accuracy of predictions.

Fidelity Investments   **Jun 2023 – August 2023**
Full-Stack Software Engineering Intern   *Merrimack, NH*
- Developed business-wide styling pipeline integrating Fidelity design standards for 1300+ employees and 400+ partners.
- Excelled in Agile environment working with enterprise software, organizing Retros, and presenting to product owners.
- Setup starter code to move to headless content management system Tridion and integrate with existing web services.
- Migrated data transformation file search to AWS Athena to simplify backend monitoring for Integration Solutions team.

Activities

Cornell Data Science   **October 2022 – Present**
Machine Learning, Data Science Developer and INFO 1998: Intro to ML Teaching Assistant   *Ithaca, NY*
- Develop a camera using Neural Networks and YOLO object detection to understand ASL signs and transcribe to users.
- Employ K Nearest Neighbors to develop algorithm that predicts user's movie preferences with scikit-learn and Pytorch.
- Lecture on topics like Visualization and Imputation for 70+ students. Grade work and provide individualized feedback.

Cornell Business Analytics   **September 2022 – Present**
Project Manager, New Member Education Director, Analyst   *Ithaca, NY*
- Lead and develop migration pipeline of Mar-Tech company's clients' data from Excel to interactive PowerBI dashboard.
- Develop a 10-week curriculum to teach over 30 new members SQL, Python, Tableau, and problem solving frameworks.
- Advise auto insurance company on customer retention strategy and analyzing distribution of recent customer base.

Girlplex Coding Nonprofit   **November 2018 – Present**
Cofounder, Director   *Downingtown, PA*
- Teach 1000+ students in 40+ 2 week summer camps code in Web Development, Python, Java, Ruby & career panels.
- Supported a 36% increase in female participation at Downingtown East High School's CS program as of May 2022.

Projects

HoopTracker | *Python, AWS S3 Buckets, FastAPIs, Docker*   **November 2023**
- Automatically analyze basketball game videos implementing YoloV7 and BotSORT algorithm with posse estimation.
- Format Game Statistics and display results and videos through JSON file from Fast API calls and Dockerize project.
- Upgrade detection algorithm to YoloV7 and train on annotated dataset to increase processing speed by 8.4 times

Formula 1 Machine Learning | *TensorFlow, Python, Scikit-Learn, Beautiful Soup*   **May 2023**
- Create XGBoost Classifier with Bayesian Optimization to predict top 3 unordered racers with a 65% accuracy.
- Frequently webscrape F1 website and modify the ERGAST API dataset with features on current race tracks and races
- Develop Monte Carlo simulations to understand the value of the system's predictions and the baseline accuracy.

Machine Learning in Breast Cancer Diagnosis | *R, ANOVA-One Way, Microsoft Excel*   **January 2022**
- Compare Artificial Neural Networks, Decision Trees, and Naive Bayes diagnosis accuracy on mammogram images.
- Use NOVA-One-Way Tukey Post-HOC tests with Microsoft Excel Analysis Toolpak software and GRADE quality of evidence test.