

SHRUTI MALLAVOLU

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Education

University of Massachusetts Amherst

Master of Science in Computer Science, GPA: 3.88/4.0

Expected Graduation : Dec 2023

Amherst, MA

Coursework: ML, Information Retrieval, Reinforcement Learning, Data Science Algorithms, Distributed & Operating Systems

SRM Institute of Science and Technology

Bachelor of Technology in Computer Science, GPA: 8.67/10.0

Jun 2015 – May 2019

Chennai, India

Technical Skills

Programming languages: Python, C++, SQL, PostgreSQL, Java, R, Apex, HTML/CSS

Tools and Frameworks: VS Code, Eclipse, Google Colab, Jupyter Notebooks, Tableau, Docker, Kubernetes, AWS, Spark

ML/AI: Scikit-learn, TensorFlow, Numpy, Pandas, Matplotlib, Pytorch, EconML, Descriptive Statistics, Statistical Analysis

Professional Experience

Microsoft (ALICE team)

Feb 2023 – May 2023

Graduate Student Researcher | *Python, Scikit-learn, JupyterHub, EconML*

Amherst, MA

- Automated the selection of first-stage models and hyperparameters for CATE (Conditional Average Treatment Effects) estimators.
- Conducted research on hyperparameter transferability, testing on different semi-synthetic and synthetic datasets. Improved the R^2 score by 6% of the estimators.
- Utilized expertise in statistical analysis and Scikit-learn, and improved the performance of model selection in terms of runtime by 8 times and the MSE by 7 times, contributing to the success of the project.
- Analyzed Grid Search vs Bayesian method for hyperparameter optimization with the latter giving a 62% improvement in Runtime and a 90% improvement in Tao Risk.
- Communicated findings and progress effectively to team members and mentors through comprehensive reports and presentations.

Salesforce

Aug 2021 – Nov 2021

Support Engineer | *Salesforce Marketing Cloud, SQL*

Hyderabad, India

- Engaged in analyzing and debugging over 7% of incidental data generated from all customer reports to promptly resolve cases.
- Provided support in Email Studios and integrations between Salesforce CRM and Marketing Cloud.

Bank of America

Jun 2019 – Jul 2021

Software Engineer | *Salesforce CRM, Sales Cloud, Apex, OOPs, REST API, Bitbucket, Agile, JIRA*

Chennai, India

- Spearheaded project to enhance the ARM portal; an internal banking application. Developed core logic enabling Financial Advisors to request for new roles or functions.
- Increased Financial Advisors' relevant job role requests through application optimization, resulting in a 50% increase in efficiency. Strategized a 2-phase plan for code changes and reviews over a 3-month time-frame.
- Developed a texting interface for effective communication between Financial Advisors and Customers. Integrated to Mulesoft and Twilio through REST APIs, resulting in a 25% reduction in response time.
- Refactored application components, reducing the codebase by over 1000 lines and improving overall system performance by 30%.
- Engaged in regular Scrum and PI meetings throughout the Agile SDLC to discuss relevant feedback and project goals. Participated in code reviews and used Bitbucket to keep track of production ready changes.

Projects

Review of Machine Learning algorithms on various datasets | *Python, Google Colab*

Feb 2022

- Selected challenging datasets and executed supervised learning models - Neural Networks, Random Forests, Decision Trees and K-Nearest Neighbours from scratch in python with an accuracy rate of over 90%.
- Evaluated performance metrics - Accuracy, Precision, Recall, Confusion matrix and F1 score to find optimal algorithm for five datasets (Datasets - Parkinsons, Digits, Titanic, Loan, Telecom).

World Development Indicators Dashboard | *Python, Streamlit*

Mar 2022

- Designed an interactive dashboard, representing effect of certain indicators on any particular country in the World Map.
- Enhanced the visualizations by scatter plot and bar graph showcasing the effect of each indicator by allowing a dynamic selection of years and indicators. Incorporated a video feature in scatter plot and bar graph showing evolution of trends over the years.

Predictive Analysis on Stroke Dataset | *R, Statistical Analysis, Kaggle*

Jul 2022

- Analyzed Stroke Prediction Dataset available on Kaggle to predict Body Mass Index using patients' average glucose level and age.
- Data analysis drawn on linear regression model revealed significant correlation among dependent and independent variables with R^2 of 0.2839. Results drawn from chi-square test depict a weak correlation between gender vs stroke, and residence type vs stroke.

Data Analysis and Reporting of College Donations | *Tableau, Excel*

May 2023

- Conducted a comprehensive analysis of college gifts, leveraging Tableau and Excel, to provide insights into donation patterns.
- Visualized and identified the Top Academic Donors, the Top College Types with most donations, historical patterns and the years with the highest donation amounts.

Build a Toy Store using Microservices | *Python, Docker, Kubernetes, AWS*

Apr 2022

- Deployed 3 distributed microservices - Front-end Service accepts client request, Order Service stores order details and Catalog Service stores toy details. Programmed system to accept concurrent requests, built multi-threading, caching, and fault tolerance.

Achievements

- Published paper on object detection and face recognition in "Journal of Advanced Research in Dynamical and Control Systems".
- Received *Silver award* in Bank of America for contributions towards Technology Focus Group.
- Certificate of Merit in Techknow-2016 for project titled 'Ultrasonic Radar', held by Department of Physics and Nanotech.