PAVAN BODANKI

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Education

University of Georgia (3.82/4)　　　　　　　　　　　　　　　　AUG 2022 - JULY 2024
Masters, Computer Science.

Sagi Rama Krishnam Raju Engineering College(9.02/10)　　　　JUL 2016 - MAY 2020
Bachelor of Technology,Electronics and Communication

Skills and Interests

Programming Languages: Java, Python, C, R, Rust, HTML, CSS, JavaScript, TypeScript, PL/SQL

Frameworks/Libraries: Spring, React.js, AngularJs, Node.js

Tools & Platforms: Git, Docker, Kubernetes, AWS (EC2, ECR, Sagemaker, Lambda, S3), GCP, Azure, Snowflake, Tableau, Power BI, Visual Studio, Postman,SSMS,SSIS

Databases: PostgreSQL, Oracle, SQL Server, MySQL

Data Analysis & ML: Pandas, NumPy, Matplotlib, Seaborn,Tensorflow,Tidyverse

Experiences

UGA Department of Ecology - Graduate Research Assistant　　　　　　OCT 2022 - Present

- **Web Development and Performance Optimization:**
  - Engineered and optimized the UGA Department of Ecology's websites, implementing data-driven visualizations that effectively illustrate disease impacts globally, achieving a 40% reduction in page-load times.
  - Designed responsive web interfaces that dynamically adjust content layout and visibility across various devices, enhancing user engagement and accessibility.
- **Advanced Data Analysis and Visualization:**
  - Conducted deep-dive analyses on a comprehensive dataset covering global infectious diseases from 1940 to 2023, providing pivotal insights into disease origins and transmission patterns.
  - Developed and deployed interactive data visualizations that have been instrumental in guiding public health responses and research orientations for the Global Infectious Diseases Intelligence Consortium.
- **Predictive Modeling and Machine Learning Infrastructure:**
  - Leading the development of a sophisticated deep neural network (DNN) model to forecast global disease spread, utilizing data from over 114 countries.
  - Architecting a scalable machine learning pipeline using Apache Arrow and AWS SageMaker, designed to enhance computational efficiency and facilitate seamless model updates and deployments.
- **Strategic Web Solutions for Pandemic Prediction:**
  - Directed the full-cycle development and launch of multiple web platforms focused on pandemic prediction and monitoring emerging diseases, ensuring robust functionality and real-time data processing.
- **Innovative Geospatial Data Handling:**
  - Innovated a custom API to accurately geocode vast datasets, integrating precise location data into epidemiological models which enhanced the granularity and accuracy of health forecasts.
  - Pioneered advanced geospatial visualizations that overlay density plots on interactive world maps, significantly enhancing the interpretability of complex epidemiological data.
- **Database Enhancement and API Integration:**
  - Overhauled the Emerging Infectious Disease (EID) database, introducing strategic data enhancements that bolstered data fidelity and analytical relevance.
  - Developed and maintained robust APIs to streamline data retrieval and updates, ensuring high data integrity and operational efficiency.
- **Infrastructure Development:**
  - Spearheaded the integration of cutting-edge R-based analytics into AWS cloud environments, overcoming significant technical challenges to enable advanced data processing and visualization in the cloud.

TATA CONSULTANCY SERVICES - Software Developer   NOV 2020 -JUL 2022
- **Agile Software Development:** Spearheaded the agile development of a robust full-stack system for Thomson Reuters, enhancing client interaction and operational efficiency.
- **Security and Compliance**: Rapidly addressed a critical security vulnerability associated with log4j, implementing essential patches within 48 hours and receiving the 'Best Employee' award for crisis management and technical proficiency.
- **Database Management and Migration:** Led the migration of two major platform databases (LearnLive and Checkpoint Learning) to Amazon Web Services (AWS), optimizing data storage and accessibility while ensuring seamless service continuity.
- **Full-Stack Enhancements:** Overhauled client-facing websites, introducing dynamic transition pages and modernizing the backend codebase, including comprehensive updates to legacy JAR files to bolster system performance and security.
- **Automation and Systems Integration:** Developed an automated certificate generation system that encapsulates all layers from database interactions to front-end display, incorporating end-to-end encryption to safeguard data integrity.
- **Continuous Improvement:** Diligently managed and resolved a backlog of technical issues, consistently addressing at least 10 significant bugs per production release to enhance system reliability and user satisfaction.
- **Database Development:** Gained in-depth knowledge of SQL Server Management Studio (SSMS), optimizing complex database schemas and executing data-driven solutions that supported enterprise-level applications.
- **UI/UX Enhancements:** Initiated and implemented several front-end modifications, including new dropdowns and form inputs, ensuring data consistency and user-friendly interfaces across various web applications.
- **Advanced Scripting and Automation:** Authored and refined numerous stored procedures for dynamic data retrieval and management, significantly reducing manual data handling and enhancing operational efficiency.
- **Legacy System Upgrades:** Conducted extensive legacy system upgrades, ensuring compatibility and security by replacing outdated components and employing modern development practices.
- **Operational Excellence:** Oversaw the development and deployment cycles for multiple project builds, maintaining separate environments for development and production to ensure robust testing and quality assurance.
- **Cross-Functional Collaboration:** Collaborated with senior management and cross-functional teams to address critical security issues, demonstrating effective communication skills and a strong ability to work under pressure.

TATA CONSULTANCY SERVICES - Intern   JAN 2020 - MAR 2020
- **Data Integration and System Optimization:** Led the integration of data across various departments at Nielsen Holdings to streamline and standardize data collection processes. Enhanced data accuracy and availability, facilitating complex analyses and reporting across retail market sectors in the USA.
- **Advanced Statistical Analysis:** Utilized regression analysis, clustering, and time series forecasting to analyze historical report generation patterns (2018-2019). Identified critical trends and usage patterns, providing actionable insights that directly influenced strategic planning and operational adjustments.
- **Predictive Modeling for Performance Enhancement:** Developed and deployed a machine learning model to predict user demand for reports, which improved cache hit ratios by 40%. This advance significantly reduced data retrieval times and enhanced user experience across digital platforms.
- **Proactive Data Management Strategy:** Implemented a pre-caching system based on predictive insights, ensuring that high-demand reports were available instantaneously. This strategy reduced load times by over 50%, directly improving system responsiveness and customer satisfaction.
- **SQL Query Optimization and Infrastructure Enhancement:** Revolutionized backend processes by optimizing SQL queries and upgrading infrastructure, which slashed data processing times from days to hours. These improvements supported quicker decision-making and increased data processing efficiency, highlighting the importance of high-performance code and robust infrastructure in large-scale data environments.

Projects

- **Smart India Hackathons (SIH)**
  - **2018 E-Governance Android Application:** Developed an Android application focused on enhancing e-governance accessibility. Implemented offline capabilities and end-to-end encryption using Firebase and Android Studio, ensuring robust data security and app usability in low-connectivity environments.

- **2019 Cisco Meraki Router Enhancement:** Customized a Cisco Meraki router to include splash page integrations and video calling features. Developed an NLTK-powered chatbot for dynamic user interaction, integrated within the router's admin interface. Addressed challenges related to video calling latency, securing a runner-up position at the hackathon.
- **RUST Crate -Graph Algorithm Library:** Authored a high-performance Rust library for graph algorithm processing, focusing on security and computational efficiency. Published the library on the Rust Crates repository, making it accessible to the broader Rust development community.
- **Movie Booking System -Full-Stack Development:** Engineered a comprehensive booking system using React.js for the frontend and Spring for the backend, with MySQL handling data management. Integrated a data mining-based recommendation system to enhance user experience by suggesting movies based on user preferences and booking history.
- **Tennis Match Predictor-Data-Driven Web Application:** Created a web application that pulls real-time player statistics from Wikipedia to forecast tennis match outcomes. Utilized complex SQL queries for data analysis, improving prediction accuracy for sports enthusiasts and betting agencies.
- **Video Detection and Counting-Vehicle Recognition Model:** Developed a Region-based Convolutional Neural Network (RCNN) model to identify and count vehicles crossing a designated area. Initially tested the system using YOLO for rapid vehicle detection, enhancing traffic management systems.
- **Knee Cartilage Segmentation-Medical Imaging Analysis:** In the process of developing a Convolutional Neural Network (CNN) model to analyze MRI scans of knee cartilage. The project aims to determine the optimal timing for arthroscopic surgery in arthritis patients, potentially improving surgical outcomes through precise timing predictions.
- **ECG Signal Domain Analysis-Signal Processing Innovation:** Optimized ECG signal analysis using advanced machine learning techniques, including a modified Inception Block and Long Short-Term Memory (LSTM) networks. Focused on adaptively compressing signals and applying sophisticated classification algorithms to boost diagnostic accuracy and efficiency.

Certifications

- Attained IBM data scientist specialization from Coursera.
- Gained cloud knowledge on GCP and AWS through certifications.
- Machine learning specialist certification through Coursera and Udemy.

Leadership & Activities

Spardha hackathon - Student Organizer   OCT 2019 - DEC 2019
- Organized a 24 hour hackathon at college while analyzing the feasibility of the projects to be done in a specific time span.

Workshop - Student Coordinator   JAN 2019 - FEB 2019
- Curated workshop topics and partnered with Robokart for event coordination.

Poster Presentations   OCT 2023 & MAR 2024
- Presented posters on my masters project in Computer science research day and AI research day.