

Ajay Rama Raju Datla

datlaajayramaraju@outlook.com | +1 (779) 276-2375 | [Github](#) | [Linkedin](#)

Professional Experience

Northern Illinois University Graduate Research Assistant (Data Science) - Collaborated with Professor Kyu Taek Cho and supported by Argonne National Laboratory (Director Dr. Venkata Srinivasan) on a pioneering project to develop models that generate battery electrode microstructure images from textual descriptions. - Developed CNN-based classification and regression models to analyze battery microstructure characteristics, such as porosity and surface area, achieving R^2 score of approximately 71%. Github Project-link: CNN-based Regression Model - Overcame challenges in data collection by creating synthetic data using MATLAB to train the models effectively with preferred datasets. Github Project-link: Generating Synthetic Data_MatLab Multiclass Segmentation Using U-Net:(Deeplearning, Python, Keras, Tensorflow, Neural Network, Data Sourcing) - Developed a deep learning model using the U-Net architecture to perform semantic segmentation of four distinct materials within microstructure images of a battery electrode. The model was trained on a dataset of approximately 6,000 microstructure images and achieved an IoU score of 80% Github Project-link: Predictive and Generative Models Generating Images Using VAE:(Deeplearning, Python, Keras, Tensorflow, Neural Network, Generative Models) - Progressed to advanced unsupervised models, including Autoencoders (AEs) and Variational Autoencoders (VAEs), for data analysis and image generation without labeled data. Github Project-link: Predictive and Generative Models Generating Images Using and Conditional Generative Adversarial Network (GAN): (Python, Keras, Tensorflow, Generative Model) Currently developing Generative Adversarial Networks (GANs) and Conditional GANs to generate high-quality microstructure images from textual input. Aiming to finalize and publish research findings by year-end. Github Project-link: Generative Models GAN	Dekalb, IL, United States 08/2023 - Present
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Tulasi Fabricators Data Analyst - Led ETL operations using Python, Snowflake and DBT, optimizing data workflows and improving processing efficiency by 30%. Enhanced data accuracy by 25%, ensuring high-quality data for construction project analysis. - Developed and maintained data models for construction project metrics, including timelines, budgets, and resource allocation. Improved reporting capabilities by 40% and reduced project delays by 20%, supporting effective business intelligence. - Partnered with project managers, engineers, and stakeholders to integrate data across various departments. Boosted data accessibility and operational efficiency by 35% through collaborative data solutions. - Created and managed interactive dashboards and data visualizations using Tableau, Power BI, R programming and Excel. Reduced report generation time by 50% and provided actionable insights that enhanced project management effectiveness by 25%. - Introduced innovative data analysis techniques through advanced statistical methods and machine learning algorithms, improving reporting efficiency by 20% and increasing overall project efficiency by 15%. Recommended and executed process improvements to enhance data analysis. - Delivered customized data insights and reports to stakeholders, achieving a 98% satisfaction rate. Focused on addressing specific needs and expectations through clear and actionable data presentations. - Ensured adherence to data privacy and governance standards, achieving 100% compliance with internal policies and industry regulations. Implemented best practices for responsible data handling. - Utilized relational database management systems (RDBMS) to organize, SQL query, and manage project data. Ensured efficient data storage and retrieval, contributing to a 35% increase in data accessibility and operational efficiency.	Hyderabad, India 06/2020 - 12/2022
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Education

Northern Illinois University Masters in Management Information Systems (Specialization: Statistical Data Analysis) Courses: Business Analytics, Predictive Data Analytics with R, Statistics with SAS, Data Visualization with Tableau, Python.	01/2023 - 01/2025
Jawaharlal Nehru Technological University Hyderabad (JNTUH): Bachelors of Technology	08/2016 - 11/2020

Projects:

Business Data Analysis using R Programming Language: (Data visualization, Supervised and Unsupervised Predictive modeling, Tidyverse): - Leveraged R programming and tidyverse package to build analytical model that can analyze and visualize historical data, building both supervised and unsupervised models to predict future outcomes. Applied these techniques to datasets like Ames Housing, Diamonds, Cars, and Flights, uncovering key insights and trends. Github Project-link: R Programming Airline Efficiency Analysis:(Tableau, Microsoft Excel, Data Visualisation, Data Cleaning, Data sourcing): - Utilized Tableau to analyze and visualize airline and airport data, focusing on operational efficiency and passenger satisfaction. Developed an interactive dashboard for users to assess airline performance and delay patterns. These insights helped airlines identify factors causing delays and implement optimization strategies and meet business needs. Github Project-link: Airline Efficiency Analysis project Github link Statistical analysis Using SAS:(Statistical Analysis, Data Cleaning, Data Processing, Data Sourcing) - Used SAS software to perform ANOVA, correlation analysis, linear regression, logistic regression, and moderation analysis to investigate societal dynamics and poverty factors. The findings offered insights into the key drivers of poverty and identified strategies for its eradication. Github Project-link: Statistical-Analysis-Using-SAS Player statistics using Relational Database management systems: (RDBMS, SQL, ERD, Normalisation, Database diagram): - Data sourcing and design the database by identifying entities, creating an ERD, normalizing the data, and establishing database links. The resulting system provides comprehensive player statistics and ensures accurate data management and retrieval. Github Project-link: Relational_DBMS
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Technical Skills

Languages: Java, Python, SQL, R Programming
Front-end Frameworks: Angular, React, HTML, CSS
Cloud-Technologies: AWS, Azure, Kubernetes, Apache Kafka, Docker, Spark, Apache Airflow
Databases: Oracle, MySQL, MongoDB, PostgreSQL
Data Visualisation: Tableau, SAS, PowerBI, R, Python, Microsoft Excel
ETL (Extract, Transform, Load) Processes: Python, Data Integration, Data Transformation, Snowflake, DBT
Data Visualization: PowerBI, Tableau, Interactive Dashboards, Data Models
Data Analysis: Statistical Analysis, Trend Identification, Performance Metrics, Analytical Frameworks

