Sharanya Manohar

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Website | Github | LinkedIn

EDUCATION

Master of Science in Computer Science, University of Illinois at Chicago, *Chicago, IL* , Cumulative GPA: 3.6/4.0 **August 2021 – May 2023**
Relevant Coursework: Data science, Machine Learning, Database systems, Statistical NLP, Advanced Data Mining and Text mining, Information Retrieval, Big Data visualization and Visual Analytics, Computer Algorithms
Bachelor of Engineering in Electronics and Communications, Visvesvaraya Technological University, *Karnataka, India* **August 2015 - June 2019**

EXPERIENCE

Data Science and Machine learning - Research Specialist, University of Illinois at Chicago, *Chicago, IL* **August 2023 - Present**

- Utilized Python to implement multivariate unsupervised machine learning techniques on 5TB of spatiotemporal data, using Hadoop to reduce data processing time by 30%.
- Applied Bayesian methods and time series analysis to visualize large datasets, identifying 50 key patterns from both structured and unstructured data.
- Created GenAI solutions including LLM and GPT-4 vision models hosted on Azure Cloud to enhance natural language processing capabilities, enabling real-time text analysis and improving response accuracy by 30%.
- Employed SQL and Jupyter notebooks for data mining and exploratory data analysis on 8TB of geographic and commuting data, improving urban planning efficiency by 25%.
- Enabled ETL based data-driven decisions for urban development projects, reducing commuting time for residents by 15 minutes per trip and enhancing overall urban mobility. Tableau dashboards were used to visualize and retrieve critical data insights.

Data Scientist - Graduate student worker, Discovery Partners Institute - UIC, *Chicago, IL* **May 2022 - August 2022**

- Developed a predictive algorithm to optimize EV charger placement in urban areas, estimating the long-term impact of placement strategies and predicting a 20% increase in the adoption rate of electric vehicles over four years.
- Leveraged unsupervised ML techniques and time series analysis on 5TB of unstructured data using Hadoop, cutting data processing time by 10 hours.
- Employed data wrangling and visualization techniques using Python and multivariate analysis, identifying 30 key usage patterns from large datasets.
- Improved charger placement prediction efficiency using statistical analysis and data mining on traffic patterns, increasing the number of efficiently placed chargers by 50 units.

Data Science Research Associate, Center for Research in Space Science and Technology, *Bengaluru, India* **August 2019 – July 2021**

- Created an interactive dashboard using Tableau and ETL pipeline for satellite telemetry data analysis using Python, which supported mission control operations by reducing data retrieval times from 30 minutes to 5 minutes.
- Cleaned, analyzed, and preprocessed 5TB of structured telemetry data, integrating Bayesian methods for anomaly detection and A/B testing, leading to a 20% reduction in false alarms.
- Conducted exploratory data analysis to improve the detection of critical anomaly causes, enabling timely interventions and 2x times increase in response time to anomalies
- Provided early warnings of potential issues through predictive maintenance, reducing maintenance costs by 10% and increasing lifespan by 2 years.
- Employed Hadoop to manage and analyze large volumes of telemetry data, using multivariate statistical analysis techniques to identify patterns and predict satellite component failures, decreasing unexpected failures by 15 incidents per year.
- Implemented NLP techniques like BERT transformer models for text classification and extraction of high-end research papers on satellite telemetry to derive meaningful insights for improving satellite communication protocols and reducing data transmission errors by 25%.

SKILLS

- **Certification:** AWS Certified Developer Associate, Microsoft Certified: Azure Data Scientist Associate (in progress)
- **Programming Languages & Frameworks:** Python, R, SQL, JavaScript, HTML, CSS, ReactJS, REST API, Django, Flask
- **Big Data & Others:** Spark, Hadoop, MongoDB, Tableau, PowerBI, Python (scikit-learn, numpy, pandas, matplotlib), API
- **Data Science and Machine Learning:** A/B testing, ETL, Causal analysis, Data science pipeline (cleansing, wrangling, visualization, modeling, interpretation), Statistics, Time series, Bayesian, Experimental design, Hypothesis testing, TensorFlow, PyTorch, WordNet, NLTK, OpenCV

LEADERSHIP, PROJECTS & RESEARCH

Graduate Teaching Assistant, Business and its External Environment (University of Illinois at Chicago) **August 2022 – May 2023**

- Supported faculty in teaching a class of over 250 students by developing performance monitoring plans, suggesting enhancements, implementing evaluation strategies, and creating detailed documentation to continuously improve the learning experience.

Operations & Project Manager, Illinois Ventures, Chicago, IL **May 2022 – May 2023**

- Integrated and visualized financial data from multiple sources using Tableau, creating dashboards to track key performance indicators and investment metrics, and streamlined financial reporting, reducing due diligence time by 20 hours per project.

Language Translation, E-commerce Revenue Prediction & Forager

- **Real-time Multilingual Support**: Deployed a translation service leveraging NLP, using Transformer models through HuggingFace, bolstering multilingual capabilities, ensuring seamless translations across major European languages.
- **Personalized Shopping Experience**: Employed Scala, PostgreSQL in DataBricks to craft a system that analyzes customer behaviors, predicting and optimizing e-commerce revenue streams.
- **Tackling Food Wastage with Technology**: Developed a Django-backed platform, storing data in MySQL, connecting food donors and beneficiaries using a REST API, effectively reducing food wastage and nurturing community relationships

Mining Sequential Patterns in frequent item sets - Based on MS-Generalized Sequential Patterns and Apriori algorithm
Capital BikeShare Analysis and Visualization – City of Washington D.C
Paper critique & presentation - HiTailor: Interactive Transformation and Visualization for Hierarchical Tabular Data; Infusing Finetuning with Semantic Dependencies; Infusing Finetuning with Semantic Dependencies; Detecting Arbitrary Order Beneficial Feature Interactions for Recommender Systems