github.com/debisree

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LinkedIn | Kaggle | Medium | Google Scholar

SUMMARY

Data Scientist with a Ph.D. in Computational Physics, driving data-informed solutions across diverse industries. Expertise in developing, deploying, and maintaining Machine Learning models and LLM-powered RAG applications, translating complex data into actionable insights. Proven ability to collaborate with cross-functional teams to solve business problems using AI/ML and statistical modeling in Agile environments.

TECHNICAL SKILLS

Languages & Tools: Python, SQL, HTML, Fortran, MATLAB, Git, VS Code, Jupyter/Anaconda, LaTeX
ML / DL: Regression, Classification, Random Forest, XGBoost, sklearn, TensorFlow, Keras, feature engineering, model interpretability, LLMs (RAG)
Analytics: Data cleaning, data pre-processing, data storytelling, data visualization, EDA, statistical hypothesis testing, A/B testing
Apps & Viz: Azure App Service, Databricks App, Pandas, NumPy, Plotly, Matplotlib, Seaborn, Dash, Gradio, Flask, Power BI
Cloud & MLOps: Azure ML, Databricks, MLflow, CI/CD (Azure DevOps)
Scientific Computing: HPC, numerical methods, parallel jobs on high-performance clusters
Business Acumen: Data-driven decision making, Business Strategy, Actionable insights
Problem Solving: Statistical Modeling, Algorithm Design, Predictive Models

CERTIFICATIONS SIX SIGMA YELLOW BELT; DATA SCIENCE DOJO; SPRINGBOARD DS CAREER TRACK; GENAI CAPSTONE (GOOGLE/KAGGLE)

EXPERIENCE

Data Scientist — Big River Steel / U.S. Steel (acquired by Nippon Steel); 2021–Present

- Spearheaded the design and deployment of an SPC analytics dashboard using Python/Flask with CI/CD on Azure DevOps, resulting in adoption for daily use and audits.
- Developed and productionized XGBoost regression models predicting magnetic properties (R2= 0.92–0.96) for multiple product types, leading to reduced rework/scrap, with comprehensive model tracking using MLflow.
- Conducted root cause analysis, statistical analysis, and data visualization to drive yield improvements and enhanced product understanding.
- Engineered an LLM-backed customer feedback dashboard for the Sales team to summarize and extract sentiment from customer documents.
- Delivered executive-level data narratives and visualizations to support informed decision-making in operations, quality, and maintenance.

Data Analyst Intern — PreScouter; 2019–2020

- Produced analytic reports from global livestock shipping data through close collaboration with cross-functional stakeholders.
- Executed data wrangling, EDA, and generated impactful visualizations in Python using Pandas and Plotly.
- Delivered a Jupyter notebook and presentation that was highly valued by the client.

Postdoctoral Associate — Institute for Systems Engineering Research (ISER) / Mississippi State University; 2017–2019
Immersive Virtual Training Environment for Teaching Single- and Multi-Queuing Theory

- Contributed to the Unity 3D simulation programming.
- Co-led pilot data collection and performed statistical analysis and visualization.
- Contributed to the manuscript writing.

Graduate Research & Teaching Assistant — Dept. of Physics & Astronomy, Mississippi State University; 2011–2017

- Studied nuclear structure with Covariant Density Functional Theory (CDFT) using HPC.
- Developed Fortran utilities for automated post-processing of research outputs.
- Visualized data in MATLAB, XMGrace, GNUplot and prepared manuscripts/dissertation in LaTeX.
- Led/assisted in labs, mentoring, grading, tutoring, and conference presentations.

Part-Time & Guest College Lecturer / Instructor — Undergraduate Colleges, University of Calcutta; 2010–2011

- Taught physics (all levels), created assignments/exams, graded, and mentored students.
- Conducted lab courses and supported departmental services (e.g., proctoring, grading).

Visiting Students' Research Program — Harish-Chandra Research Institute (HRI), India; 2011

- Curated a dataset of millisecond pulsars (Linux/Ubuntu) and created GNUplot visualizations.

EDUCATION

Springboard — Mar 2019–Nov 2019
–Bootcamp Certification: Data Science Career Track
–Capstone Project I: “Predicting Cab Booking Cancellation”
–Capstone Project II: “Building a Book Recommendation Engine with Simple and Collaborative Filtering”
Mississippi State University , Dept. of Physics & Astronomy — Fall 2011–Spring 2017
–Ph.D. in Engineering (Computational Nuclear Structure Physics)
–Dissertation: “Covariant Density Functional Theory: Global Performance and Rotating Nuclei”
University of Calcutta , Dept. of Physics (Rajabazar Science College) — 2008–2010
–M.Sc. in Physics
University of Calcutta — 2004–2008
–B.Sc. in Physics (Major)
–Minors: Mathematics & Electronics
PROFESSIONAL MEMBERSHIP, LEADERSHIP & SERVICE / VOLUNTEERING
Editor, Real World Data Science (a collaborative initiative by the Royal Statistical Society (RSS) in partnership with the American Statistical Association (ASA)). (2025 -)
American Statistical Association (ASA) — Member, 2023–Present
Events Manager, WiMLDS (Women in ML and Data Science) NYC (2025–)
Peer Reviewer: ACM Computing Surveys, APS (American Physical Society), MDPI Journals (2019–)
Co-chair, NextGen Steel, Employee Resource Group, U.S. Steel (2022–2024)
Volunteer: Statistics Without Borders — Data Science consultant, New Client Acquisition (2022–2024)
VP, Treasurer, Journal Club Coordinator: Physics GSA, Mississippi State University (2013–2016)
VP: Indian Student Association, Mississippi State University (2013–2014)

AWARDS

- Scholarship from Linux Foundation to attend JupyterCon (2025)
- ASEE Annual Conference & Exposition — Industrial Engineering Division Best Paper Award (2018)
- Best Talk, Physics GSA, MSU (2015)
- APS Travel Award (2014); Bagley College of Engineering Travel Award (2015)