ANN MARY THOMAS

Data Analyst | Sustainability Researcher | AI & Machine Learning Specialist

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PROFESSIONAL SUMMARY

Data analyst and sustainability researcher with expertise in energy analytics, carbon forecasting, and AI-driven predictive modeling. Proven track record in developing deep learning models for electricity demand and CO_2 emissions forecasting. Skilled in translating complex data into actionable strategies for decarbonization and operational efficiency. Strong foundation in mechanical engineering combined with advanced data analytics capabilities.

PROFESSIONAL EXPERIENCE

Energy Consumption and Sustainability Analyst

3T Additive Manufacturing | Feb 2025 – Present

- Developing comprehensive roadmap for energy consumption reduction, cost optimization, and CO_2 emission minimization across manufacturing operations
- Analyzing operational and energy data from additive manufacturing processes to identify inefficiencies and sustainability improvement opportunities
- Designing evidence-based policies and strategies to reduce environmental impact while maintaining operational efficiency
- Building analytical frameworks and dashboards to monitor energy consumption patterns, cost metrics, and carbon footprint
- Conducting scenario analysis to forecast financial and environmental benefits of proposed energy reduction strategies

Research Assistant

Genesis Lab, London Metropolitan University | Feb 2025 – Present (Part-time)

- Spearheading research on deep learning-based forecasting of electricity demand and CO_2 emissions addressing critical sustainability challenges
- Independently designed and implemented novel Hybrid LSTM+Attention architecture, achieving superior accuracy over traditional RNN and RBM+MLP approaches
- Conducting rigorous scenario-based analysis simulating 10-50% renewable energy penetration to quantify CO_2 reduction potential
- Performing regional benchmarking across California and Texas energy grids, providing actionable insights for policymakers
- Preparing research findings for academic publication in peer-reviewed journals

Junior Data Analyst

Navalt Solar and Electric Boats | Aug 2022 – Jan 2024

- Led analysis of operational data for 600+ ships from Mediterranean Shipping Company, processing 100,000+ records
- Developed Python automation scripts reducing data preparation time by 75% and improving accuracy
- Built predictive models to evaluate fuel efficiency and estimate CO_2 emissions using sea state and engine performance variables
- Researched Carbon Intensity Indicator metrics using IMO guidelines, expanding domain knowledge in maritime sustainability

EDUCATION

MSc in Data Analytics

London Metropolitan University | 2024 – 2025

B.Tech in Mechanical Automobile Engineering

SCT College of Engineering | 2017 – 2021

TECHNICAL SKILLS

Data Science & AI: LSTM, RNN, Attention Mechanisms, Hybrid Deep Learning Models, Time-Series Forecasting, Predictive Modeling, Regression Analysis, Classification

Programming & Tools: Python (Pandas, NumPy, Matplotlib, scikit-learn, TensorFlow), Power BI, SQL, Excel (Advanced), Git, Jupyter Notebook

Energy & Sustainability: Electricity Demand Modeling, CO_2 Emissions Forecasting, Decarbonization Strategies, Renewable Energy Integration, Carbon Intensity Metrics

Professional Skills: Analytical Thinking, Data Storytelling, Stakeholder Engagement, Research & Documentation, Problem Solving, Team Collaboration

KEY PROJECTS

Energy Forecasting with Deep Learning

- Implemented LSTM, RNN, and RBM+NN models to forecast electricity demand and CO_2 emissions in U.S. power sector
- Achieved 5% improvement in forecast accuracy with optimized LSTM model; findings prepared for academic publication

Vehicle Emissions Dashboard

- Developed Power BI dashboard analyzing CO_2 emissions across vehicle types using EU environmental dataset, demonstrating engine size drives 70% of emission variance

Marketing Campaign Analysis

- Built logistic regression model predicting customer affinity toward promotional offers, identifying key features that increased campaign response by 20%

Graduate Outcomes in Education

- Applied Random Forest and K-means clustering to UK higher education data, achieving 45% classification accuracy and identifying four distinct graduate profiles

CERTIFICATIONS

- Excel for Data Analytics – Simplilearn
- Statistics for Data Science – Simplilearn

ACHIEVEMENTS

- Research on energy demand and decarbonization selected for publication under Genesis Lab
- Independently designed LSTM+Attention hybrid model architecture for critical infrastructure forecasting
- Student volunteer for Frontiers of Intelligent Computing: Theory and Applications (FICTA'25) conference
- Reduced data processing time by 75% through Python automation at Navalt Solar and Electric Boats