

Ann Mary Thomas

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Profile

Data Analyst and Researcher with hands-on expertise in energy analysis, sustainability, decarbonisation strategies, and applying AI for energy forecasting. Skilled in predictive modelling, deep learning, time-series forecasting, and insightful data visualisation to drive actionable recommendations.

Skills & Competencies

Energy & Sustainability Analytics: Electricity demand modelling, CO₂ emissions forecasting, decarbonisation strategies, renewable integration analysis.

Data Science & ML/AI: LSTM, RNN, Hybrid LSTM+Attention, RBM+NN, regression models, scenario-based forecasting.

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

Data Handling & Visualization: Data cleaning, ETL pipelines, dashboards, statistical and operational data interpretation.

Soft Skills: Stakeholder engagement, communicating insights to non-technical audiences, project leadership, problem-solving.

Education

MSc Data Analytics, London Metropolitan University, London Jan 2024 – Jun 2025

- Thesis: Hybrid AI Model (LSTM+Attention) for forecasting U.S. electricity demand and CO₂ emissions — selected for journal publication under supervision of Dr. Maitreyee Dey.
- Co-organised *Frontiers of Intelligent Computing: Theory and Applications (FICTA'25)*.

B-Tech Mechanical Automobile Engineering, SCT College of Engineering Aug 2017 – Jun 2021

Experience

Research Assistant, Genesis Lab, London Metropolitan University Feb 2025 – Present

- Spearheaded a research project on deep learning-based forecasting of electricity demand and CO₂ emissions, focusing on sustainability and decarbonisation.
- Personally designed and customised the architecture and pipeline of a novel Hybrid AI model (LSTM+Attention) in collaboration with supervisor Dr. Maitreyee Dey, significantly improving forecast accuracy and interpretability.
- Applied scenario-based analysis to evaluate the impact of renewable energy penetration (solar contribution 10%–50%) on emissions, demonstrating measurable environmental benefits. rigorous regional comparisons (California Texas), benchmarking models against RNN, RBM+MLP, and hybrid frameworks, showcasing the superiority of attention-based recurrent networks. actionable insights and prepared a manuscript currently under academic journal review.

Data Analyst Intern, Archaiesth, London May 2024 – Sep 2024

- Analysed customer behaviour and operational metrics to support marketing strategies and business decisions.
- Developed Power BI dashboards to visualise KPIs and identify sales drivers, improving targeting efficiency.
- Collaborated with cross-functional teams to communicate data-driven insights effectively.

Junior Data Analyst, Navalt Solar and Electric Boats Pvt Ltd, Kerala Aug 2022 – Jan 2024

- Developed predictive models for CO₂ emissions estimation in marine operations, promoting sustainable shipping practices.
- Automated data-cleaning processes and built interactive Power BI dashboards, enhancing operational transparency and efficiency.
- Worked on emissions mitigation strategies by integrating environmental parameters with operational data.

Projects

Hybrid AI Forecasting Model for Energy Systems

Jan 2025 – May 2025

- Built and benchmarked multiple models (LSTM, RNN, RBM+NN, Hybrid LSTM+Attention) on large-scale U.S. datasets.
- Integrated scenario-based renewable penetration modelling, demonstrating a 3.89% reduction in forecasted emissions at 50% solar contribution.

Vehicle Emissions Dashboard

Oct 2024 – Dec 2024

- Designed a Power BI dashboard to visualise CO_2 emissions by fuel type, manufacturer, and region, enabling informed decision-making.

Certifications

Statistics Essentials for Data Science (Simplilearn)

Advanced Business Excel (Simplilearn)

Attended Tableau & Alteryx Cohort Training (Talencia Global, May 2021)

Co-organised *Frontiers of Intelligent Computing: Theory and Applications (FICTA'25)*

Achievements

- Research work on energy demand forecasting decarbonisation selected for publication under Genesis Lab.
- Independently customised the LSTM+Attention hybrid model architecture for superior performance in critical infrastructure forecasting.

Interests

- Sustainable development climate analytics.
- Solving logic-based challenges and contributing to environmental awareness initiatives.