Avik Biswas
Principal Data Scientist

Bengaluru, India | ☎ +91-8095706732 | ✉ aviksagi@gmail.com | 🔗 linkedin.com/in/avik-biswas-stats

Profile Summary

- Over 15 years of experience in **AI/ML, Data Science, and Advanced Analytics** across automotive, manufacturing, and retail.
- Specialized in **IoT/Telematics, Predictive Modeling, Machine Learning, Deep Learning and Statistical Analysis**.
- Expertise in deriving actionable insights from high-volume structured and unstructured data.
- Experience in leading and mentoring data scientists to deliver high performance results.
- Work alongside data engineering and product teams to implement end-to-end analytics solutions within enterprise platforms.

Professional Experience

DARBY TELEMATICS | PRINCIPAL DATA SCIENTIST | APRIL 2024 – PRESENT

Developed analytics modules for **C6 Insights,** a climate tech and fleet optimization platform, that helps customers reduce fuel spend, measure and report carbon emissions, and evaluate ROI on clean technologies to support net-zero goals.

- **Enhanced platform's core vehicle replacement optimization engine**, enabling fleets to build priority-based replacement roadmaps that maximize cost savings **(~$4M annually)** and reduce emissions, while ensuring smooth operational continuity.
- **Developed a predictive model for fuel consumption** incorporating driver behaviour (idling, acceleration, braking) and telematics signals, improving customer fuel-efficiency insights and driving measurable savings across fleet.
- **Built a regression model for ICE vehicle fuel economy** using speed, behaviour, and terrain data; introduced a fleet-level scoring system that allowed customers to benchmark performance and take targeted improvement actions.
- **Designed a nonlinear depreciation model (sigmoid-based)** to estimate vehicle resale value, supporting **data-driven decisions** for value optimization and replacement planning.
- **Created a financial scenario modelling tool** (fuel switching, technology upgrades, vehicle replacements) using **ROI** and **Payback Period** analysis; integrated directly into the platform so customers could evaluate strategies in one place.
- **Implemented anomaly detection algorithms** to identify irregularities in telematics-reported data, improving the reliability of platform's (improved data accuracy by **~30%**) analytics and strengthening customer confidence in platform outputs.
- **Built a utilization-based vehicle rating system** to benchmark fleets, helping customers identify under- and over-used assets.

DANLAW INC. | PRINCIPAL DATA SCIENTIST | OCTOBER 2018 – MARCH 2024

Developed analytics modules for **DeepView Analytics,** a telematics platform, that processes high-frequency OBD-II data from vehicles to deliver insights into vehicle health (ICE and EV), driver behaviour, road conditions and fleet performance.

- **Built a CNN-based model** using accelerometer and speed data, enabling the platform to detect rough terrain and improve road condition assessments for fleet operators.
- **Developed regression-based EV range prediction models** incorporating battery capacity, speed, terrain, and temperature, empowering customers to plan trips and reduce range-anxiety for electric fleets.
- **Designed algorithms leveraging State of Charge (SOC) data** to classify charging and discharging events, providing customers with actionable EV charging behavior insights within the platform.
- **Created an EV battery health prediction model**, enabling proactive maintenance and minimizing downtime, which improved fleet reliability and reduced costs.
- **Implemented a Mahalanobis Distance-based anomaly detection model** for Vehicle Health Monitoring, identifying potential sub-component failures early in the platform's predictive maintenance capabilities.
- **Developed Python algorithms to detect fuel pilferage in ICE vehicles**, reducing theft-related losses and providing a key differentiator for DeepView Analytics in cost-sensitive markets.
- **Built interactive dashboards with R-Shiny and Python Dash** that visualized fleet health, driver behavior, and utilization metrics, enhancing customer decision-making and engagement.

TATA CONSULTANCY SERVICES | SENIOR DATA SCIENTIST | MAY 2010 – OCTOBER 2018

- **Text Analytics on Net Promoter Score (Recommend & Improve) Comments by Customers:**
  - Developed a text classification model to analyse customer comments from Net Promoter Score (NPS) feedback, categorizing them into **"Recommend"** and **"Improve"** themes. Enabled efficient identification of customer sentiments and actionable insights. Built a dynamic dashboard in Excel, enabling stakeholders to interact with the data & view key trends.
- **Detecting Anomalous Machine Units Manufacturing Electrical Equipment:**
  - Developed a distribution-based solution using the Multivariate Normal Distribution to detect anomalies by analysing patterns between two selected device measures, identifying deviations in the production process.
- **Warranty Claims Prediction and Cost Prediction of Engines**
  - Developed a warranty predictor tool using the Generalized Renewal Process to estimate the expected number of warranty claims and associated costs for engines over their warranty period, simplifying the complexity and improving prediction accuracy.
- **Root Cause Analysis of Accounts Receivables Disputes Data Using Text Mining Approach:**
  - Developed a text analytics model using **Regular Expressions**, **SVM**, and **Random Forest** to classify customer dispute notes into root cause categories such as invoice discrepancies and quantity mismatches.
- **GKPI Automation (Lean Six Sigma Green Belt Certification):**
  - Created an Excel Based automation template using Excel VBA.
  - **TAT Reduction: 92%** & **Accuracy Improvement: ~85%** (saved ~**$57,000,** implemented across all MEAP countries).

Educational Qualification

- **M.Sc. Statistics** | 2008-2010 | University of Madras, Chennai
- **B.Sc. Statistics (Hons.)** | 2003-2006 | Calcutta University, Kolkata

Analytical Skills

- **Predictive Modelling**
- **Gen AI/LLM**
- **Time series/Forecasting**
- **Principal Component Analysis**
- **Anomaly/Outlier Detection**
- **Deep Learning: CNN, LSTM**
- **Random Forest/ SVM/ XGBoost**
- **Clustering: K-Means, GMM, DBSCAN**
- **Linear Programming/Optimization**

Technical Skills

- **Python**
- **Multiprocessing**
- **MongoDB**
- **R/R-Shiny**
- **Python Dash**
- **Advanced MS Excel**
- **Pandas/Numpy/Scipy**
- **Scikit-learn/Statsmodels**
- **Tensorflow/Keras**

Key Strengths

- **Stakeholder Management:** Consistently engage with leadership, engineering, and product teams to align on goals.
- **Team Mentorship:** Mentored junior data scientists and facilitated internal knowledge-sharing sessions to boost skills.
- **Cross-Functional Collaboration:** Led end-to-end solution delivery working closely with product and engineering teams.

Peer-Reviewed Publication

- Sabapathy, A., **Biswas, A.** 2023. **Road surface classification using accelerometer and speed data: evaluation of a convolutional neural network model**. Neural Computing and Applications 35 (19): 14183–14194.