ANTHONY FAUSTINE

AI & Digital Transformation Leader — Strategic Innovator in AI/ML & Industry 4.0

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PROFESSIONAL SUMMARY

Accomplished leader in artificial intelligence and machine learning with over eight years of experience delivering AI and data analytics solutions in the energy and manufacturing sectors. Expert in building scalable AI solution and pipelines using MLOps, model governance, and Agile methodologies, with a focus on production readiness and strategic alignment with business goals. Proven track record of leading cross-functional teams of data scientists, engineers, and designers to execute high-impact projects. Skilled in aligning AI strategies with organizational objectives, driving innovation, and leveraging data to create sustained competitive advantage.

EXPERIENCE

Lead Data Scientist

Eaton

Sept 2022 – Present Dublin, Ireland

- Engineered a scalable load forecasting pipeline for autonomous grid systems by unifying time series models for PV, load, and EV forecasting using machine learning (XGBoost, LightGBM, CatBoost) and deep neural networks (LSTM and NHITS), reducing prediction errors by 25%. Leveraged Docker, GitHub Actions CI/CD, and Airflow-driven retraining and hyperparameter optimization (Optuna) to automate MLOps workflows, cutting feature rollout timelines by 30%.
- Spearheaded the end-to-end development of an AI-driven substation analytics platform, implementing anomaly detection techniques (Isolation Forest and Mahalanobis distance), predictive ranking systems, and KNN-based clustering to identify equipment failures, prioritize maintenance, and enhance grid performance.
- Collaborated with UI/UX designers and business stakeholders to transform the analytics platform into a standalone SaaS product, ensuring usability, scalability, and alignment with customer needs
- Led the design and development of a predictive Battery State of Health (SoH) monitoring system for Eatons Battery Management System (BMS), integrating machine learning models to accurately estimate Remaining Useful Life (RUL).
- Led the end-to-end design, development, and deployment of a scalable commercial building energy management system. Applied machine learning forecasting models to predict energy consumption patterns and integrated optimization algorithms to automate efficiency improvements.
- Architected a machine learning observability platform featuring real-time drift detection (Evidently), performance monitoring dashboards (WandB), and automated retraining triggers (Airflow).
- Delivered AI technical briefings and solution demos to executives and non-technical stakeholders, and represented Eaton at 3 international conferences (Italy, France and Norway).
- Awarded 2024 Eaton-STAR Leadership in Data Science Award for 25% improvement in forecasting accuracy and demonstrating excellence in innovation and data science leadership.

Senior Industrial Analytics Researcher

Irish Manufacturing Research

Apr 2021 – Aug 2022 Dublin, Ireland

- Led the Data-Driven Maintenance Service (DDMS) project using Agile methodologies, reducing unplanned downtime by 30% and increasing overall equipment effectiveness (OEE) by 25% through IoT-driven predictive maintenance, mentoring 1 junior analysts to ensure stakeholder-aligned delivery.
- Engineered a predictive maintenance analytics platform for CNC machines by leveraging unsupervised machine learning (kernel density estimation) and hidden Markov models (HMMs) to monitor spindle health (SoH), reducing unplanned downtime by 30% and increasing overall equipment effectiveness (OEE) by 25%.
- Developed and deployed AI-driven analytics and computer vision inspection systems for Industry 4.0, using image processing techniques and deep learning computer vision models for anomaly detection to reduce defect detection time by 40% and improve operational efficiency by 20
- Established MLOps best practices with model versioning and automated monitoring, accelerating development efficiency by 25% and enabling scalable, production-grade analytics deployments.
- Developed and executed AI-based analytics solutions, empowering Irish manufacturers to lead the Industry 4.0 revolution as early adopters, driving operational excellence, maximizing ROI, and minimizing risks through strategic guidance.

Data Scientist & ML Researcher

CeADAR

Feb 2020 – Mar 2021 | Dublin, Ireland

- Led AI innovation advocacy by designing and presenting industry-specific demo projects, fostering partnerships with Enterprise Ireland to scale AI adoption nationally.
- Developed a scalable load-profiling system using deep neural variational autoencoders and K-means clustering to segment 10000+ building load profiles into behavioral clusters. Implemented cluster-specific demand forecasting with Bayesian state space models (SSMs), improving prediction accuracy by 22% and reducing peak-load planning errors by 18%.
- Led the development of an automated satellite imagery labeling pipeline by integrating OpenStreetMap geospatial data with Sentinel-2 multispectral imagery to train object detection models (UNET) for landmark identification. Deployed a scalable workflow (Python, GDAL, Docker) to generate 1K+ labeled training samples with 95% annotation accuracy, reducing manual labeling efforts by 70% and accelerating model development cycles for downstream applications in urban planning and environmental monitoring.

Machine Learning Researcher

IDLab, imec, Ghent University

Oct 2017 – Oct 2019 | Ghent, Belgium

- Developed a novel computer vision framework to identify active electrical loads from aggregate power signals using V-I trajectory and convolutional neural networks (CNNs), improving detection accuracy by 35% and enabling non-intrusive load monitoring (NILM).
- Designed and deployed a machine learning pipeline for smart-home event detection, leveraging multimodal sensor data (motion, temperature, power) with LSTM networks and Random Forest classifiers to achieve 92% detection accuracy.

CORE COMPETENCIES

- Proficient in end-to-end AI/ML pipelines, including model design, deployment, and governance (versioning, drift detection, compliance), using Python (pandas, numpy, scikit-learn, xgboost, lgbm and catboost), PyTorch, TensorFlow.
- Skilled in MLOps with Docker, MLflow, CI/CD pipelines, and cloud platforms (AWS, Data-bricks), ensuring production-grade scalability.
- Strong stakeholder communication, delivering executive briefings and international conference presentations (IEEE, CIRED).
- Leadership in AI-driven innovation, digital transformation, and strategic decision-making.
- Skilled in Agile methodologies and Kanban, leading sprints to deliver high-impact AI projects on time
- Expertise in developing AI and machine learning solutions that drive business growth and operational efficiency.
- Skilled in designing, deploying, and scaling machine learning models for real-world applications.
- Strong ability to align technology with business strategy, identifying new revenue opportunities and designing customer-centric solutions.
- Proven experience in strategic roadmap development, innovation management, and cross-functional team leadership.

EDUCATION

PhD in Computer Science & Engineering

Tecnico Lisboa

2021–2025 | Portugal

- Researched and Developed **probabilistic forecasting models** and **AI-driven energy analytics** to optimize power grid efficiency and support energy transition.

MSc in Leadership, Technology & Innovation

Technological University Dublin

2022–2023 | Ireland

- Created the **AI Business Innovation** and **Strategic AI Roadmapping Frameworks**, enabling organizations to integrate AI and maximize ROI (First-Class Honours).

M.S. in Telecommunications Engineering

The University of Dodoma

2010–2012 | Tanzania

- Built **wireless sensor systems** to monitor water quality at Lake Victoria, laying groundwork for data-driven solutions.