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Mohana Nyamanahalli Venkatesha

Senior Machine Learning Engineer

SUMMARY

Senior Machine Learning Engineer with an MSc in Data Analytics and 4+ years of specialized experience in secure, decentralized MLOps systems, backed by 2+ years in ML experience architecting **production-ready** AI solutions for the **energy sector**. Transforms complex IoT and Big Data into measurable outcomes, including 25% energy efficiency gains and 92% faster deployment cycles. Collaborative leader thriving in agile and cross functional teams to deliver GDPR-compliant innovations

KEY SKILLS

AI, ML-Frameworks & Statistical Modeling: Python (Expert), PyTorch, TensorFlow (Lite), Scikit-learn, NumPy, Pandas
Time Series & Optimization: Time Series Forecasting (LSTM/RNN), Mathematical Optimization (MILP, Linear Programming), Operations Research, PCA, SMOTE.
Privacy & Decentralized AI: Federated Learning (Flower), Privacy-by-Design (GDPR), Differential Privacy, PySyft.
Big Data & Cloud Architecture: Azure (Data Factory, Databricks, Synapse), OTC, Snowflake, MQTT, InfluxDB
MLOps, DevOps & IoT: Terraform (IaC), Docker, Kubernetes, Apache Airflow, MLFlow, Jenkins (CI/CD), Git, Agile, Flask, Jinja2, Home Assistant.
Monitoring & Visualization: Prometheus, Grafana, Tableau

PROFESSIONAL EXPERIENCE

Senior Machine Learning Engineer
Jan 2024 - Present

GreenAutarky GmbH (Energy Sector)
Hildesheim, Germany

- **Architected and deployed a production Federated Learning system** using the **Flower and Pytorch framework** across 20+ distributed **Home Assistant** edge devices, enabling privacy preserving heating optimization models without centralizing sensitive customer data.
- **Built production-ready end-to-end MLOps pipelines for time series heating prediction** using **TensorFlow Lite**, achieving a **25% improvement in energy efficiency** through predictive schedule optimization on resource constrained IoT devices.
- **Established a Docker containerization strategy** for Home Assistant addons, ensuring consistent deployment across heterogeneous customer environments while managing strict resource constraints.
- **Designed scalable cloud infrastructure on Open Telekom Cloud (OTC)** using **Terraform (IaC)**, orchestrating **PostgreSQL, InfluxDB, and Redis** to support 100+ concurrent device connections and high volume data ingestion.
- **Developed an automated configuration system** using **Jinja2 templates**, accelerating device deployment speed by **92% (reducing setup time from 4 hours to 20 minutes)** per customer installation.
- **Reduced system downtime by 40%** by implementing a comprehensive monitoring infrastructure with **CI**, **Prometheus and Grafana**, enabling alerting and automated malfunction detection for villa heating systems

Machine Learning Engineer
Jan 2023 - Sep 2023

Hays Professional Solutions GmbH (Fixed Contract with Client Clarios Manufacturer)
Hannover, Germany

- **Developed and deployed a many-to-one LSTM architecture** to predict the **Remaining Useful Life (RUL)** of batteries, utilizing time series sensor data (voltage, temperature, current) to reduce prediction errors by **13%**.
- **Engineered a Flask based Machine Learning API** to automate data labeling for "nonlinear aging" stages, significantly accelerating the training pipeline for battery degradation models.
- **Orchestrated Big Data workflows on Azure and Databricks**, integrating unstructured battery sensor data from **Snowflake** to achieve a **40% increase** in analytics application performance and scalability.
- Performed extensive feature design and experiments with **PCA and SMOTE** on noisy battery sensor data, improving **time series** models accuracy by 13%
- **Leveraged Azure Data Lake and IoT Hub** to process "curves data," enabling real time detection of battery drains and reducing maintenance downtime by **20%**.
- **Collaborated within an Agile framework** using Git and Azure Cloud to deliver actionable insights that enhanced infrastructure capabilities and overall project success

Data Scientist
Jun 2022 - Aug 2022

Tennispoint (Fixed Project Contract)
Herzebrock, Germany

- Spearheaded a comprehensive data architecture using **Airflow, Spark, and Kafka** on Azure, reducing data latency by 15% and improving accessibility by 20%. Automated ETL via SQL stored procedures to boost efficiency by 25% and data analysis through Tableau KPI dashboards to empower decision making

Software Engineer
Sep 2014 - Dec 2016

Riseon Technologies Pvt Ltd
Bengaluru, India

- Engineered full stack ETL pipelines using **Python and Oracle SQL**, automating data transformations for millions of transactions and saving 8 hours of manual reporting per week . Created advanced Tableau visualizations that boosted customer engagement by 20% through data-driven marketing insights

EDUCATION

Masters in Data Analytics, University Of Hildesheim, Germany
Apr 2017 - Oct 2023

Bachelor of Engineering in Computer Science, Malnad College of Engineering, India
May 2010 - Jun 2013

INTERNSHIPS

Working Student, apherisAI, Hildesheim
Jan 2021 - Jun 2021

- Achieved 91% accuracy in pain recognition using **PyTorch** and established secure Federated Learning pipelines, reducing processing time by 20% . Championed MLOps optimization on **Azure Databricks**, boosting model accuracy by 20%

Working Student, Mazda Motors, Leverkusen
Sep 2020 - Oct 2020

- Analyzed sales and financial data using **Python and SQL**, improving ETL performance by 2% and creating interactive Power BI dashboards for cross departmental KPIs

Data Scientist & AI Intern, CamelotIT Lab, Mannheim
Apr 2019 - Jul 2019

- Developed time series forecasting models in Python, achieving a 15% reduction in prediction error and improving inventory accuracy by 5%

Machine Learning Engineer Intern, Jooma GmbH, Hannover
Oct 2018 - Feb 2019

- Pioneered an Anomaly Detection Tool for Jenkins, reducing pipeline failures by **60%** and saving developers 30% in root-cause analysis time

PROJECTS

Predictive UX Analytics (Privacy-First) | Independent Open-Source Project
Nov 2025 - Present

- **Problem:** Traditional UX analytics rely on invasive tracking (cookies, IPs) that create significant GDPR compliance burdens.
- **Goal:** Engineer a "Privacy-by-Design" platform that identifies UX friction using on-device ML and FL, ensuring raw user data never leaves the local device.
- **Outcome:** Successfully implemented a **FedAvg** architecture that eliminated the need for cookie banners by removing unique identifiers from the data flow while maintaining high-performance backend aggregation via **FastAPI**

LANGUAGES AND ACTIVITIES

- English(Professional) | German(A1-A2) | Kannada(Native)
- Engaged in extensive traveling to broaden cultural awareness and gain global perspective

PERSONAL SKILLS

- Communication Skills • Agile Methodologies • Cross functional Collaboration • End-to-end Project Lifecycle

ACHIEVEMENTS

- **Lead Organizer, Google Dev Group Hildesheim**: Spearheaded Google Dev Group Hildesheim, leading the organization of 4-5 Google events (Study Jams, DevFests,
- **OpenMined Community Navigator**: Mentored junior data scientists, resulting in improvement in their productivity/skill level
- **Google Community Board AI/ML Moderator**: Implemented new moderation strategies that reduced community disputes by 20%