

SEAN LUKA GIRGIS

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Enterprise ML Engineer & Time-Series Specialist with 20+ years of technical leadership. Specialist in deploying high-performance **Predictive Capacity Pipelines** that manage 10,000+ server environments. Expert at bypassing the Python GIL via multiprocessing to achieve **10x forecasting throughput** for mission-critical infrastructure.

CORE ML ENGINEERING PILLARS

Predictive Engineering

- **Advanced Forecasting:** Prophet, LSTM, and XGBoost implementation for non-linear resource trends.
- **High-Performance Data:** Feature extraction from Parquet/Spark at petabyte scale.
- **Visualization:** Interactive **Streamlit** dashboards for real-time forecast insights.

MLOps & Strategy

- **Model Competition:** Automated champion/challenger selection based on regional RMSE/MAPE metrics.
- **Confidence Modeling:** "High Trust" window logic for 90-day utilization confidence.
- **Domain Expertise:** Synthesizing AppDynamics and BMC TrueSight metrics into predictive features.

FLAGSHIP PROJECT: HORIZONSCALE AI

Predictive Utilization Pipeline (Scalable Design Validated on 2,000+ Nodes)

- **Turbo Prophet Engine:** Developed a parallelized execution framework that reduced 6-month forecasting cycles from hours to minutes (**90% performance gain**).
- **High-Fidelity Training:** Developed a 3-year historical synthetic data foundation with **95%+ confidence metrics** for the initial 90-day window.
- **Interactive Streamlit Dashboard:** Visualized 6-month outlooks vs. historical baselines for CPU, Memory, and Storage.

PROFESSIONAL EXPERIENCE

CITI 2017 – Dec 2025

Capacity and Performance Consultant (ML & Infrastructure Strategy)

- Architected big-data forecasting foundations by managing resource partitions for 10,000+ global servers.
- Automated regional forecasting across global regions, reducing manual analysis by **85%**.
- Utilized **BMC TrueSight** and **AppDynamics** to identify "Risk-Break" exceptions before outages occurred.
- Developed Python-based data sanitization and outlier detection logic to ensure model input integrity.

EXPERIENCE HISTORY

TIAA / CA Technologies | Senior Performance & APM Lead 2012 – 2017

Senior Software Engineer | C++, Java, and Backend Architecture 2008 – 2012

Software Engineer | Full-Stack & Backend Development 2000 – 2008

TECHNICAL STACK

ML & Analysis: Python (Expert), Scikit-learn, Pandas, NumPy, Prophet, XGBoost, LSTM, Streamlit.

Data & Engineering: Spark, Hadoop, Hive, HDFS, Parquet, SQL, PL/SQL.

Core Languages: C, C++, Java, Python.

Performance/Ops: AppDynamics, BMC TrueSight, CA APM (Introscope), Git.

EDUCATION & CERTIFICATIONS

Humber College | Post-Graduate Diploma, Computer Science

Zagazig University | Bachelor of Science, Engineering

Professional Certifications: Brainbench Certified Developer (C, C++, Java)