

Alvin Alias

Data Science Graduate Student | 12 Years of Professional Engineering Experience

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EDUCATION

University of Washington

Seattle, Washington | Expected Mar 2027

Master of Science in Data Science

GPA: 3.85/4.00

Government Engineering College, Thrissur

Thrissur, India | 2008 – 2012

Bachelor of Technology in Mechanical Engineering, First-Class Honors

TECHNICAL SKILLS

Programming & Data Python, SQL, pandas, NumPy, DuckDB

ML & Statistics scikit-learn, XGBoost, SHAP, anomaly detection, time-series forecasting, causal inference

Visualization Matplotlib, Seaborn, Tableau

NLP & Retrieval DistilBERT, LoRA/PEFT, LangChain, ChromaDB

Deployment FastAPI, Git, GitHub Actions (CI/CD), Hugging Face Spaces

PROJECTS

CMAPSS Turbofan Remaining Useful Life

[Live](#) | [Code](#)

- Built a NASA CMAPSS turbofan RUL predictor; XGBoost with rolling sensor features reached RMSE 15.85 versus a 17.47 Ridge baseline, with SHAP explanations and FastAPI deployment.

Energy Demand Forecasting

[Live](#) | [Code](#)

- Backtested SARIMA, Prophet, and a seasonal naive baseline across 84 rolling windows on 14 years of PJM load; SARIMA achieved 7.9% WAPE versus 8.6% naive and 10.4% Prophet.

RAG Engineering Assistant

[Live](#) | [Code](#)

- Built and deployed an intent-routed RAG assistant with LangChain and ChromaDB over a 778-page corpus of engineering documents; achieved 0.92 Recall@3 and 50/50 factual exact matches with citation and numeric validation.

Supply Chain Cost Intelligence

[Live](#) | [Code](#)

- Built a SQL/DuckDB screening system over a capped 100K-record, \$42.5B federal-awards slice; CTEs and window functions produced 1,456 statistical review flags.

PROFESSIONAL EXPERIENCE

Rheem Manufacturing | Senior Project Engineer

Fort Smith, Arkansas | 2021 – 2024

- Led the cross-functional redesign and release of Residential Packaged HVAC products at Fort Smith and Mexico plants for the January 2023 Department of Energy efficiency deadline; later managed upgrades for 2025 refrigerant regulations.
- Ran in-house HVAC simulation tools to evaluate designs; created repeatable graphs from lab-test data for engineering analysis and advocated using historical data to improve simulation tools with machine learning.

Daikin North America | Design Engineer I-III

Waller, Texas | 2017 – 2021

- Analyzed BOM and supplier data and implemented changes that delivered \$2M+ in annual savings; qualified a procurement-sourced alternate vendor that entered production and delivered another \$3M in annual savings.
- Improved HVAC products already in production in response to field issues and changing requirements; gathered input from manufacturing, procurement, and suppliers to evaluate and release design changes.
- Promoted from Design Engineer I to III as responsibilities expanded from sustaining engineering to designing and releasing new HVAC products.

Centurion Subsea Services | Design Engineer

Katy, Texas | 2014 – 2017

- Translated client requirements into custom subsea tool designs, supported manufacturing and testing, and used finite element analysis to validate designs under combined pressure and mechanical loads.

Baker Hughes (via KH Consulting) | Mechanical Engineer

Houston, Texas | 2012 – 2014

- Collected field measurements and updated P&IDs, electrical schematics, fire-protection layouts, and plot plans with discipline experts for an overseas plant-replication project.