

ALVARO AGUADO, PhD

Applied AI & Machine Learning Leader • Production LLM & Agentic Systems • Frontier-Model Expert Evaluator

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SUMMARY

AI/ML leader and PhD researcher with 12+ years building production machine learning and, most recently, LLM-based agentic systems deployed globally at Fortune-500 scale. Architected an agentic AI platform (Claude API, LangGraph, Transformers, explainable AI) that drives forecasting and go-to-market decisions across a multi-billion-dollar consumer-health portfolio; lead a 12-person global analytics and ML function with a €1.5M budget and direct visibility to the CEO and CFO. Serve concurrently as a domain expert for leading frontier AI laboratories, producing expert preference data and critiques that train models in data science, statistics, and ML reasoning. PhD in multimodal deep learning (GPA 4.0), peer-reviewed publications, and graduate-level teaching in text mining, optimization, and advanced analytics.

PROFESSIONAL EXPERIENCE

Global Head, Advanced Analytics, ML & Innovation — Opella, Morristown, NJ **Jun 2021 – Present**

Opella (formerly Sanofi Consumer Healthcare) — Global Head, Advanced Analytics, ML & Innovation **Aug 2024 – Present**

Sanofi — Global Lead, Advanced Analytics & Forecasting **Dec 2023 – Aug 2024**

Sanofi — CHC Global Analytics Senior Lead **Jun 2022 – Dec 2023**

Sanofi — CHC Global Analytics Lead **Jun 2021 – May 2022**

- **Architected and shipped a production agentic AI platform** combining LLM agents (Claude API, LangGraph) for signal extraction from unstructured social and e-commerce data with Transformer and LSTM forecasters and explainable AI (SHAP); deployed globally across the brand portfolio (Icy Hot, Qunol, Doliprane, Enterogermina) and used in B2B planning with Walmart, Target, and Amazon.
- **Lead a 12-person global function** (5 internal data scientists, 7 external partners) and a **€1.5M budget** — tripled from €500K — reporting outcomes directly to the CEO and CFO; hire, mentor, and set technical standards for the team.
- Engineered **hybrid forecasting experiments** fusing structured demand signals with LLM-processed unstructured data, improving forecast reliability through volatile post-pandemic demand cycles via counterfactual scenario analysis and model ensembling.
- Led the **Marketing Mix Modeling transformation** on Bayesian frameworks (Google Meridian, LightweightMMM) with portfolio simulation and spend optimization, delivering **+5% YoY media ROI** across the global portfolio and informing media and GTM decisions.
- Built the **measurement layer for executive decision-making**: leadership dashboards, AI-generated analytics narratives and headlines, and the analytics backbone of the Global Monthly Business Review.
- Own **production MLOps**: model monitoring, performance tracking, and continuous retraining pipelines on Snowflake and GCP with GitHub Actions CI/CD; apply quasi-experimental and A/B-test methods to quantify initiative impact for brand, finance, and operations partners.

Tools: Python, PyTorch, Claude API, LangGraph, Transformers, Google Meridian, LightweightMMM, PyMC, Snowflake, GCP, GitHub Actions, React, Power BI

Domain Expert — Data Science, Statistics & Machine Learning (part-time) — Mercor, Remote **Mar 2026 – Present**

Contracted through Mercor to leading frontier AI laboratories on model training and evaluation programs.

- **Expert preference labeling for model post-training**: evaluate paired model responses to graduate-level data science, statistics, and ML problems; rate and write rigorous critiques identifying subtle failures (gaps in derivations, theorems applied beyond scope, unsupported assumptions, ignored edge cases) that form expert preference datasets used to align model reasoning.
- **Domain advisory on model capabilities**: advise on how frontier models should produce industry-standard analytical outputs (analytics reports, executive presentations, artifacts, leadership dashboards) and where multimodal capabilities create the most value for enterprise analytics workflows.

Online Part-Time Faculty, Business Analytics (Graduate) — American Public University System, Remote **Jun 2026 – Present**

- Teach graduate courses in **Text Mining (ANLY610)**, **Optimization & Simulation (ANLY630)**, **Enterprise Analytics (ANLY645)**, **Advanced Analytics II (BUSN661)**, and **Applied Advanced Analytics (BUSN662)** for American Public University and American Military University; bilingual English/Spanish faculty.

Senior Data Science & Analytics Lead — Pfizer, Madison, NJ

Oct 2016 – May 2021

- Built and owned the **end-to-end ML pipeline** for demand and consumption forecasting across a **\$1B+ consumer-healthcare portfolio**, from feature engineering to production deployment, sustaining **>97% forecast accuracy** with SARIMAX and LSTM ensembles.
- Managed the data science team building **Bayesian hierarchical Marketing Mix Models** and digital attribution for U.S. and international markets; probabilistic spend optimization informed **\$100M+ media budgets**.
- Shipped full-stack analytics products (Python back end, R/Shiny front end) including **NLP text analytics on e-commerce reviews**, portfolio optimization, and product assortment tools.
- Pioneered **social-listening trend detection with NLP** on unstructured data; results fed brand strategy and the innovation pipeline. Defined KPIs and measurement frameworks and applied causal methods to assess campaign effectiveness for marketing and finance leadership.

Tools: Python, R (Shiny), SQL, PyMC3, Stan, Power BI

Data Scientist — Verisk Analytics (Argus), White Plains, NY Dec 2014 – Oct 2016

- Built and deployed a production **SVM merchant-classification system using word embeddings on 30B+ monthly credit-card transactions**; adopted by Google (360), Yahoo Finance, Viant, and Pandora for media analytics.
- Architected a production **RESTful data product** delivering near-real-time transactional insights to external clients, cutting data latency from multi-day to one day; modeled 50–100 TB structured and unstructured data on Hadoop Hive and SQL Server.

Tools: R, Java, Hadoop Hive, Microsoft SQL Server, Tableau

RESEARCH & PUBLICATIONS

PhD Dissertation, NJIT (Aug 2025) — Multimodal deep learning model integrating textual and visual information to predict online review helpfulness. GPA 4.0; unanimous committee approval.

- Aguado Marin, A. J., Fresneda, J. E., & Hill, C. (2025). That’s Extremely Helpful! Comparing drivers of extremely helpful vs. high- and low-helpfulness reviews in hospitality. *Journal of Business Research* (accepted).
- Aguado Marin, A. J., Fresneda, J. E., & Hill, C. (2026). Synergizing text and images: A multimodal framework for textual and visual inputs in online reviews. (In preparation.)
- Villar Hernandez, A. R., Molero Alonso, F., Aguado Marin, A. J., & Posada De la Paz, M. (2022). Transcultural validation of a Spanish version of the Quality of Life in Epidermolysis Bullosa questionnaire. *IJERPH*, 19(12), 7059.

TECHNICAL SKILLS

LLMs & Agentic AI: Claude API, LangGraph, agent orchestration, RAG, prompt and evaluation design, preference-data / RLHF-style labeling, LLM-based signal extraction, model critique and red-teaming

Deep Learning & NLP: PyTorch, TensorFlow/Keras, BERT and Transformer architectures, multimodal (text + vision) models, CNNs, OpenCV/YOLO, text mining

Forecasting & Statistics: Transformer time-series (Informer, Pyraformer), Chronos, TimesFM, LSTM, SARIMAX, Bayesian hierarchical models (PyMC, Stan), conformal prediction, causal inference and quasi-experimental methods, A/B testing

MLOps & Platforms: Python, SQL, R; Snowflake, GCP, AWS, Docker, MLflow, GitHub Actions CI/CD, Spark, Hadoop Hive; Power BI, Tableau, React

Explainability & Decision Science: SHAP / XAI, Marketing Mix Modeling (Google Meridian, LightweightMMM), attribution, optimization and simulation

EDUCATION

PhD, Business Data Science — New Jersey Institute of Technology (NJIT) GPA 4.0 (Honor Roll) · Focus: multimodal deep learning for consumer behavior	2019 – 2025
MSc, Business Intelligence & Data Mining — Universidad Complutense de Madrid GPA 4.0 (Honor Roll) · Best Master Thesis Award	2013 – 2014
BSc, Market Research — University of Seville Minor in Computer Science · E-commerce specialization	2006 – 2011

AWARDS & LANGUAGES

Kaggle Prediction Forecast Medalist · Pfizer Research Award · Sanofi Innovation Forecast Gold Award
English (fluent) · Spanish (native) · German (basic) · French (basic)