

Enrique AREYAN VIQUEIRA

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EXPERIENCE

- **Petco** Remote, USA
Senior Data Scientist and Machine Learning Engineer *Nov. 2022 - Present*
 - Developed a groundbreaking multi-armed bandit pricing model with a novel multi-objective reward function, optimizing multiple metrics simultaneously. Implemented the model in production, utilizing the Upper Confidence Bound (UCB) algorithm for effective candidate price selection. Collaborated with product managers and stakeholders to define objectives and constraints. Designed and executed extensive simulations for fine-tuning, resulting in a x% increase in revenue compared to the previous static pricing strategy while maintaining high customer satisfaction and profitability.
 - Developed an XGBoost-based SKU promotion forecast model, using historical data on promotion duration, discount levels, and sales patterns. Deployed it as a scheduled GCP service for real-time predictions and shared insights through a Looker dashboard. Resulted in an x% boost in promotional sales and streamlined planning processes.
 - Led the development of a geo-pricing service that incorporated clustering and elasticity models to achieve optimized regional pricing strategies. Developed clustering algorithms to group regions with similar purchasing behaviors, enabling targeted price differentiations. Enhanced elasticity model to estimate price sensitivities for different geographical regions, allowing for dynamic price adjustments based on market conditions. The geo-pricing strategy resulted in an x% increase in revenue, improved market penetration, and a deeper understanding of regional customer preferences.
 - In my role as a technical leader, I provided mentorship to the pricing team, guiding them in adopting MLOps best practices. Through this initiative, we optimized model development, deployment, and monitoring processes, resulting in streamlined workflows and improved collaboration. Additionally, we successfully reduced development-to-production times, enhancing our overall efficiency and responsiveness.
- **Convoy Inc.** Seattle, WA, USA
Research Scientist II *Oct. 2021 - Nov. 2022*
 - Overhauled the company's carrier-facing matching mechanism. Developed large-scale simulations and proof-of-concept models in AWS' Elastic Container Service (ECS), demonstrating an opportunity to increase margins by 8%.
 - Developed a Dynamic Programming based load Machine Learning pricing model. Coded the model in Python as a microservice with Flask. Implemented model using continuous deployment and integration tools (Github+CircleCI). Initial A/B tests showed 12% margin increase with a decrease of 5% on quality related costs.
 - Prepared and validated models' input data stored in Snowflake. Develop online input data monitoring tools using Datadog and integrated them with PagerDuty, avoiding stale models reaching production.
 - Developed a Bayesian framework for continuous assessment of carrier quality. Launched an A/B test that showed final economic improvement on each match using Bayesian framework. Developed Metabase dashboard to track success metrics. Improved matching cost by \$10 per match.
 - Developed a data-driven disaster response simulator that measured changes in supply freight capacity in response to a natural disaster. Presented results to stakeholders in Jupyter Notebooks thus paving the way for future integration of FEMA loads to the marketplace.
 - Interviewed and hired (20+ candidates) at the junior and mid-senior levels, directly supporting a thriving community of Research and Data Scientists.
 - Contributed to the creation of a framework to translate the app at scale.

- **Pinterest.com** Remote, USA
Marketplace Design Intern *Summer 2021*
 - Developed Reinforcement Learning algorithms to maximize pinners' long-term ad engagement.
 - Implemented and validated Airflow PySpark data pipelines to train Reinforcement Learning agent.
- **National Institute of Advanced Industrial Science and Technology (AIST)** Tokyo, Japan
Automated Negotiation Researcher *Oct. 2018 - May 2019*
 - Developed an Artificial Intelligence bot that placed 2nd in the International Automated Negotiating Agents Competition (ANAC/SCML), an International competition to advance research on automated agent negotiation.
 - Published 2 papers on top-tier Artificial Intelligence venues on Automated Negotiation, Empirical Game-Theoretical Analysis, and Machine Learning-powered Mechanism Design.
- **Amazon.com** Seattle, WA, USA
Applied Research Scientist Intern *Summer 2017, 2018, and 2019*
 - (2019) Developed Mechanism Design solutions to optimize Sponsored Products' budgeted-constraint ad campaigns, ensuring optimal allocation of advertisers' budget to achieve desired advertising outcomes.
 - (2018) Pushed to production a Deep Neural Network to detect ad relevance based on shoppers' queries.
 - (2017) Developed a Machine Learning adaptive buying strategy for products with little or no historical information, enabling efficient stock management and improved inventory decisions.
- **Brown University** Providence, RI, USA
Researcher, Computer Science Department. *Aug. 2015 - May 2021*
 - Conducted Research on Empirical Game-Theoretic Analysis and Empirical Mechanism Design. Published papers on top-tier Artificial Intelligence venues. Won multiple Artificial Intelligence bot competitions.
 - Taught a core undergraduate class in Artificial Intelligence (60+ students), and an introductory class in Computation for the Social Sciences and Humanities (25+ students). Managed a team of TAs for both classes.

EDUCATION

- **Brown University** Providence, RI, USA
PhD in Computer Science (specialization: Machine Learning-powered Mechanism Design) *2021*
- **Indiana University** Bloomington, IN, USA
Master of Arts for Teachers in Mathematics (2015), Master of Science in Computer Science (2013)
- **Universidad Central de Venezuela** Caracas, Venezuela
Bachelor of Science in Computer Science (specialization: Artificial Intelligence) *2010*