

TruEra for AI in Retail and Brands

Drive business results and trust with AI Quality evaluation, testing, monitoring, and debugging.

Retailers and Brands face challenges building high quality AI and delivering consistent ROI on AI initiatives

Artificial Intelligence and Machine Learning (AI/ML) have the potential for far-reaching impact on retail and brands. High quality ML systems have been proven to deliver real ROI in use cases such as marketing propensity, search, recommendations, forecasting, customer experience, supply chain management, fraud, and more. But managing ML model performance to deliver on this ROI promise is hard. It requires iterative and systematic management of ML model quality.

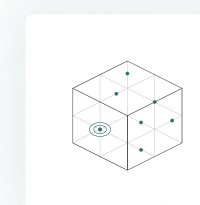
However, today's ML Teams have limited access to the technology necessary to achieve AI quality management due to

- **Limited tools to monitor, alert, and report on models** resulting in quality surprises, performance issues, and alert fatigue.
- **Ad-hoc debugging methods** leading to time-consuming analytical rabbit holes, often without any resolution.
- **Inadequate testing and validation** resulting in regressions and quality issues (e.g., segment underperformance, bias).
- **Limited insights to inform retraining strategies** leading to insufficient retraining and reduced performance; or to blind automated retraining, higher costs, and uneven performance.

TruEra solves this by helping retailers and brands systematically and iteratively manage performance of production ML models.



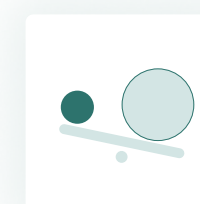
TruEra Key Benefits



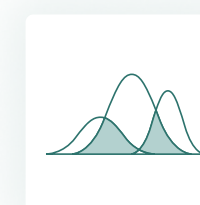
Monitor models comprehensively
Provide alerts, metrics, and reports for high quality models



Automatically test and evaluate models with robust analytics
Analyze for performance, fairness, segments, drift, feature importance, and more



Utilize fast, accurate and flexible AI explainability
Achieve a comprehensive understanding of model predictions and behavior



Gain new insights; save time and money on model debugging
Perform root cause analysis of drift, errors, false positives and negatives, bias, and more



Improve performance and minimize cost with directed retraining
Retrain models at the right time, informed by root cause analysis

TruEra AI Quality Management Overview

TruEra fills a critical gap in your AI stack by enabling Systematic & Iterative AI Quality Management. TruEra's solutions provide unique capabilities to scalably test, evaluate, explain, monitor, and debug models enabling ML teams to systematically manage and improve their quality and performance. Backed by years of pioneering research, TruEra's AI quality management software provides a more effective, complete and differentiated solution than ML monitoring and observability systems. TruEra adds value across the model lifecycle, works seamlessly with most model development platforms, and embeds easily into your existing AI ecosystem.

Explainability

- **Global explainability**
Understand model behavior overall and by segment and how features influence model output over range of feature values
- **Local explainability**
Generate importance metrics for features to explain and debug individual predictions and group features to provide intuitive explanations for stakeholders
- **Best-in-class AI explainability technology**
Utilize feature importances generated by SHAP or TruEra's faster and more accurate explainability technology

Testing and Evaluation

- **Automated Test Harness**
Provide systematic testing of single models or one model relative to another across a broad set of metrics including performance, drift, bias/fairness, feature importance and more
- **Segment Analytics**
Understand model accuracy and errors overall and by segment. Automatically generate high error segments to inform model understanding and debugging.
- **Model Summary and Model Leaderboard**
Summarize model metrics and tests to quickly understand the quality of the model and aid in model selection

Monitoring

- **Self-Service Monitoring Dashboards**
Monitor models across performance, score, bias, and drift metrics overall and by segments
- **Multi-Model Support**
Support monitoring of multiple models simultaneously during benchmark and A/B tests and over time as models are retrained
- **Data Quality**
Monitor quality of model inputs
- **Alert Configuration**
Set triggers, evaluation frequency, messaging, and tags

TruEra AI Quality Management Overview, continued

Root Cause Analysis and Directed Retraining

■ Root cause analysis

Measure feature contribution to model performance and score drift, bias, false positives, false negatives, segment performance and more

■ Feedback loops and directed retraining

Use root cause to inform model improvement and direct retraining strategies

Scalability and Integration

■ Provide scalable SaaS and Cloud Hosted Deployment

Deploy as Software-as-a-Service or within an enterprise cloud environment. Scales to petabytes of data

■ Easy integration with models and data sources

Seamlessly integrate with common AI tech stacks and models developed in multiple training systems, such as AWS Sagemaker, Microsoft Azure, Vertex.ai, and open source such as scikit learn, xgboost, tensorflow and more

■ Easily export data via APIs

Integrates to applications or business intelligence solutions, such as Tableau and Looker.

Supported Retail and Brands Use Cases

Marketing Propensity

Search

Recommendations

Forecasting

Customer Experience
and Churn

Supply Chain
Management

Fraud

NLP

Financial



Product Forecasting Example

- 1. Monitor:** Track MAPE, model bias metrics over multiple promotional campaigns identifying changes in performance across time, product categories, brands and markets
- 2. Debug:** Identify features driving drops in MAPE for models or segments
- 3. Iterate:** Identify potential training fixes (e.g., oversampling, changing time windows of training data, rules to use in addition to ML output)
- 4. Evaluate and Test:** Test and evaluate new models that are retrained prior to production release at start of every campaign identifying potential performance and quality issues. Explain forecasts to demand forecasting stakeholders (e.g., category managers and planners).