TruEra Monitoring

Comprehensive, Real-Time ML Monitoring with Root Cause Analysis

TruEra Monitoring makes it easy to track and debug the performance of your machine learning models. With real-time, comprehensive analytics, metrics, and alerts, TruEra Monitoring goes beyond basic observability and ad-hoc solutions, enabling full transparency across the entire ML model lifecycle and faster root cause analysis. This saves the time of data scientists and ML engineers, and provides a more effective feedback loop to optimize both model and business outcomes.

Key benefits

- **Real-time monitoring with relevant alerts**
  Track models and set the right alerts for performance, data quality, bias, drift, and feature importance metrics across time intervals and segments

- **Root cause analysis and debugging**
  Quickly identify negative trends, anomalies, and error-prone segments; rapidly debug problems within a single workflow

- **Easy tech stack integration**
  Easily integrate with different ML stacks and create dashboards within minutes

- **Multi-model support: NLP, tabular, computer vision**
  Track any number of competing models in production for faster experiment management, A/B testing, champion/challenger, and shadow mode

- **High data and model scalability**
  Support 1,000s of models simultaneously with petabyte scale
Key capabilities

Real-Time Performance and Quality Monitoring

Intuitive Monitoring Dashboard
Comprehensive dashboard of key analytics that is easy to set up, so that you can quickly see how your models are performing:

- Quick dashboard setup time - Takes just 5 minutes to set up
- Model and performance statistics across regression and classification:
  - Performance, label and score drift, score statistics, decision frequencies, score distributions, and more
  - Segment performance and custom metric tracking (coming soon)
- Global filters - Filter all models across metrics, time window, and segments
- Universal support for regression and classification models

Multi-Model Support

- Real-time model observability for 100s of dashboards supporting 100s of models each on batch or streaming basis at petabyte scale
- Provide easy A/B, champion/challenger, shadow mode, or canary testing in production

NLP/Computer Vision

- Track NLP and Computer Vision models for regression and classification
- Track drift on NLP Embeddings (coming soon)

Out-of-the-box metrics
Track models across a broad range of metrics like model performance, drift, fairness, and data quality:

- Model performance - Track classification and regression performance with industry-standard measures like AUC, RMSE, WMAPE, NDCG
- Data quality - Identify and track common data issues like invalid numerics, missing values, schema mismatches, out of range and unrecognized categorical values
- Segment performance - Define specific segments of your business and track performance over time
- Fairness/Bias - Analyze protected groups and utilize disparate impact ratios over time to look into segments and data sets showing possible unfair bias
- Drift - Track score and label drift; identify features that are most influential for drift
- Custom metrics - Track business KPIs and custom model or prediction impact metrics

The TruEra Monitoring Dashboard provides multi-model support in a single UI, where users can analyze across models and filter for error-prone segments simultaneously.
TruEra Monitoring Key capabilities

Alerts and Notifications
- **Real-time alerts**
  Set alerts to warn of risky situations based on any AI quality metric that TruEra monitors, including model performance, drift, data quality, business KPIs, and segment performance.

- **Notifications**
  Automatically notify on-call teams via email when critical conditions occur.

Annotations
Track issue drivers and common resolutions for alerts, anomalies, and outcomes.

Root Cause Analysis Workflow
All-in-one workflow of TruEra Monitoring and TruEra Diagnostics provides easy debugging:
- **Identify negative trends and anomalies** through dashboards and alert history.
- **Select time periods with error-prone segments** through early warning detection.
- **Perform root cause analysis to debug and retrain** as needed in a single workflow.

“We see TruEra as an essential partner... in how we build and operationalize higher-quality, trusted AI models faster and more efficiently.”
- Vishu Ramachandran, Global Head, Retail Banking, Standard Chartered

Deployment and Configuration
- Delivered as a multi-tenant SaaS offering.
- Option to deploy within a customer’s private cloud environment of choice.
- Deployment time of 1 day to 2 weeks, depending on hosting location.
- SOC2 type 2 compliant (Summer 2023).

Integration
- Data ingestion via Python SDK, CLI, and REST APIs.
- Optimize and automate data ingestion into TruEra Monitoring services:
  - JDBC connectors, BigQuery Tables, Storage Blobs, AWS Sagemaker.
  - Petabyte (PB) scale production model monitoring.
  - Ability to push data and perform automated pulls with TruEra.

Users can perform root cause analysis to understand which features are driving score drift, via tight coupling with TruEra Diagnostics.