Fortune 500 Financial Services on the AI Layer

Background

Five Fortune 500 banks and financial institutions use the AI Layer to operationalize their machine learning life cycle. Due to the confidential nature of their R&D projects, we've developed a hybrid case study aggregating our work across the industry.

Challenges & Opportunities

Heterogeneous environments

Each organization is working with a wide range of tools. For example, one organization is using Scikit-learn to train Python and R models to analyze documents, then pipelining the results into a TensorFlow-trained Python model to assign risk scores. In each case, the customers have discovered new use cases or integrations to widen the range of tools they expect to support.

Unsurfaced ML assets

Sharing resources is a significant challenge, with data science teams operating in different regions, and business units often embedded in unconnected functional groups such as consumer fraud or customer service. In several cases, this isolation has been exacerbated by acquisitions and mergers, or regulations requiring regional subsidiaries. As a result, the companies had no registry of their ML assets, and multiple ML projects stalled due to the time and cost of building model pipelines manually.

Security & privacy

Use cases can involve Personally Identifiable Information, such as tax documents, credit card or banking information, and passport numbers. Adding to the challenge are regional regulations, which often require a different set of encryption, privacy, reporting, and data stewardship practices. As a result, each organization is using a mix of on-premise and cloud-based data sources, with three of the five utilizing two or more cloud providers.

Reproducibility

FINRA Rule 2090 (Know Your Customer) requires financial institutions "to know (and retain) the essential facts concerning every customer." To meet these and other standards, it is essential that financial institutions be able to repeatedly reproduce consistent results while maintaining full auditability while they generate predictions.

Explainability

Many use cases result in decisions about granting access to a financial product, such as a loan or insurance policy. The firms must therefore be able to document the process through which the models reached their conclusions.

Solution

With Algorithmia's deployment engineers, the financial services customers deployed the AI Layer in a variety of different environments, across multiple cloud providers, connecting many data sources. In several cases, the resulting system had to pass through a detailed security review.

Results

Using the AI Layer, the organizations have all been able to increase operational efficiency, getting more models into production at higher volume, despite substantial regulatory oversight.

Model portfolio management

Using the AI Layer's enterprise model portfolio, the financial services companies have gained greater visibility into their model assets. Data scientists gain productivity when empowered to discover and evaluate models for their pipelines and build new models only when necessary. The model portfolio allows the companies to standardize on models for common use cases, speeding training, and onboarding.

Security, Auditability, & Governance

With the AI Layer as their ML operations hub, organizations have a single point of integration for their reporting systems, providing information on who called which models with which data sets at what time, allowing a variety of different internal and regulatory compliance standards. They are also able to appropriately ascribe model usage to their own internal and external customers for chargebacks and fees.