



## MACHINE LEARNING FOR UNDERWRITING THAT WORKS



**Most machine learning models used for underwriting get stuck in the lab. Our models get results.**

ZestFinance helps leading financial institutions harness the power of machine learning. Our software, called ZAML, provides access to the most comprehensive suite of machine learning tools built specifically for underwriting. We make compliance easy and enable you to get your model into production fast - so that you can achieve a:



**3-MONTH**

model development and deployment process



**15%**

average increase in approval rates



**30%**

average decrease in charge-off rates

*"I feel the most important decision that we have made to affect the future growth of the company is partnering with ZestFinance. Zest helps lenders like us build better models of predictability that will help us win."*

**Bryant Henrie**  
President, Prestige & Total Care Auto

## GET YOUR MODEL OUT OF THE LAB AND INTO PRODUCTION

You have built a great underwriting business, but you can always do better. Higher approval rates. Fewer bad loans. A sharper view of your credit risk. The answer lies in machine learning, but too many models never get deployed because of concerns that they can be operated safely. If they do get released, the models must be simplified so much that it substantially weakens their power and performance.

ZAML tools help you avoid making such a sacrifice. You will be able to take advantage of the full power of machine learning to turbo-charge your results with the assurance that every underwriting decision – on every loan – can be easily explained to the members of your risk committee, board, or regulators.

ZAML tools help you:



**Take better advantage of the data you already have.**

ZAML tools allow your model to combine thousands of variables for deeper insights. They are platform-agnostic and work on-premise or in the cloud.



**Find more good customers and fewer bad ones.**

ZAML tools allow you to add more creditworthy borrowers while maintaining your risk profile. That helps you more sustainably and profitably grow your loan book.



**Run your model safely – and with confidence.**

ZAML tools make compliance easy. They automate risk management reports, fair lending and economic impact analysis, adverse action notices, and help you implement comprehensive model safety monitors – so you can focus on great modeling.

## TRANSFORMING CREDIT UNDERWRITING AT EVERY STAGE

For novice and experienced machine learning organizations alike, ZAML tools make sure that your model gets out of the research lab and into the real-world quickly. At every step along the way, we can help you advance your business goals while satisfying all legal and compliance requirements.



## NAVIGATING THE MODEL LIFECYCLE WITH ZAML



### BUILD

**Tools tailored for your environment.** ZAML tools give you the freedom and flexibility to build powerful models in your own environment. Our tools are built in R and Python so they work in all conventional modeling environments. Or our team can also provide a build environment for you.

**Leverage more of your data.** ZAML tools help boost predictive power by harnessing more of your existing internal product and customer information, and then synthesizing from thousands of variables into a single credit model. No alternative or third-party data is ever required.



### TEST

**Evaluate model performance.** ZAML tools help you quantify model risk and performance, and determine the safety constraints for your ML models.

**Detect bias before it impacts your results.** ZAML tools clearly identify bias in your model so you can make the necessary adjustments to comply with the Equal Credit Opportunity Act (ECOA). You can also compare newly approved applicants with prior applicants to understand the risks of adopting new models.



### REFINE

**Fine-tune your model faster.** ZAML tools allow you to rapidly iterate between the build and test stages so your model can comply with all legal and regulatory requirements. That lets you make adjustments to your model faster – so you can get out of the lab in just a few months.

**Maximize your business impact.** ZAML tools allow you to conveniently conduct champion-challenger analysis so you can more accurately project the potential improvement in approval rates, loan volume, and charge-off rates.



### DEPLOY

**Your platform, your choice.** You can run the compliant model where you'd like - platforms like Microsoft Azure, open source environments, or any other environment that your IT team prefers.

**Stay agile.** ZAML tools accelerate your deployment time by allowing the business teams to directly operate their own models with no recoding. You can refit and deploy new models as markets change easily. No proprietary run-time engine is required.



### MONITOR

**Respond proactively to early warnings.** ZAML tools continuously evaluate model results and alert you when the applied population is inconsistent with the expectations and assumptions built into your model. This allows you to identify and mitigate potential risks before they happen.

**Recalibrate your model as market conditions change.** ZAML tools continuously monitor your applicant pools to identify statistically relevant applicant pool changes. That empowers you to determine whether you need to refit your data to the model if the underlying borrower applicant shift.



### MANAGE

**Get real-time explanations.** ZAML tools open the black box so you can explain your machine learning model's credit decisions for the entire loan portfolio – and every single applicant, including denied borrowers as required by the Fair Credit Reporting Act (FCRA).

**Automate model risk management:** ZAML tools automatically produce any documentation you need for model development and deployment, saving you time and eliminating errors. ZAML can produce model risk management reports, fair lending and economic impact analysis, and adverse action safety alerts to make sure you are satisfying all regulatory requirements.

## BEST-IN-CLASS TOOLS BUILT FOR UNDERWRITING

Even as the business case for machine learning in underwriting becomes increasingly clear, the inability to validate, interpret, and document the reasoning behind their model's credit decisions makes it too risky for most financial institutions to deploy it. ZAML tools help you easily overcome that barrier – and make fair and transparent credit available to everyone. That's because of ZAML's unparalleled ability to provide:



**REGULATORY DOCUMENTATION:** ZAML tools automate the model risk management documentation expected of your internal legal and risk management teams and needed to comply with rules put in place by such regulators as the Federal Reserve, Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation. This includes US regulations like ECOA and FCRA and the EU's GDPR.



**OPERATIONAL SAFETY:** ZAML tools track the applicant population and detect changes that signal it's time to perform a model refit. ZAML allows lenders to monitor the output scores to determine if the model's performance is changing. That allows you to predict changes to your bottom-line before they occur and proactively adjust your strategy.



**COMPATIBILITY AND SPEED:** ZAML tools are built in R and python and can run on any infrastructure: cloud or on-premises. No new platforms or proprietary run times are required. That allows most financial institutions to build and deploy a model in just 3 months.



**END-TO-END EXPLAINABILITY:** ZAML tools can clearly ascertain which features are driving decisions for a broad range of powerful machine learning models. It leads to better models being built and ensures model-based credit decisions can be fully understood. Every major factor, for every loan applicant, can be explained accurately and in real-time.



Curious to know more about how ZAML can help transform your underwriting?

CONTACT US AT [PARTNER@ZESTFINANCE.COM](mailto:PARTNER@ZESTFINANCE.COM)