DataRobot

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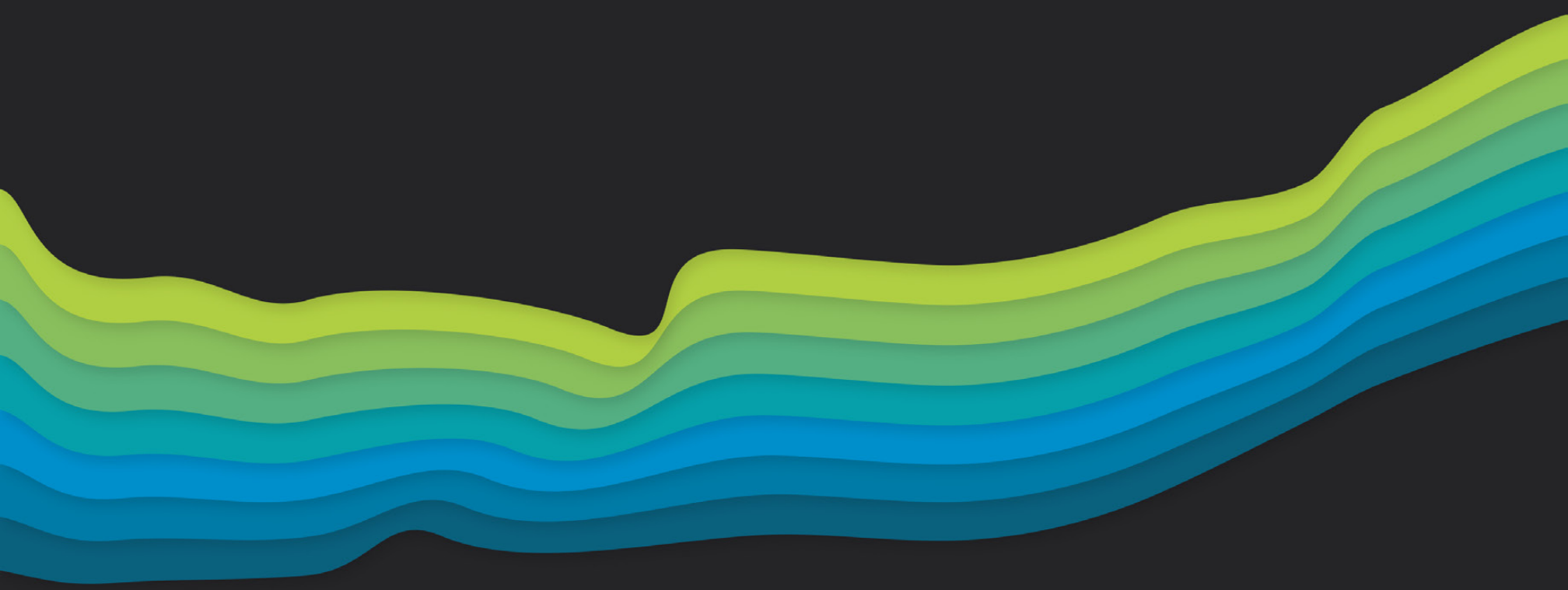
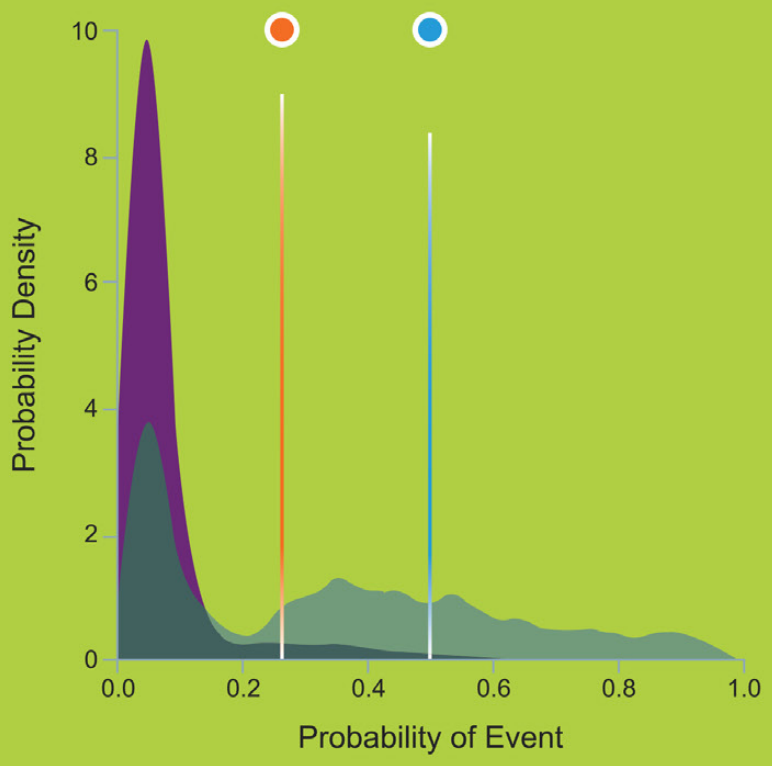
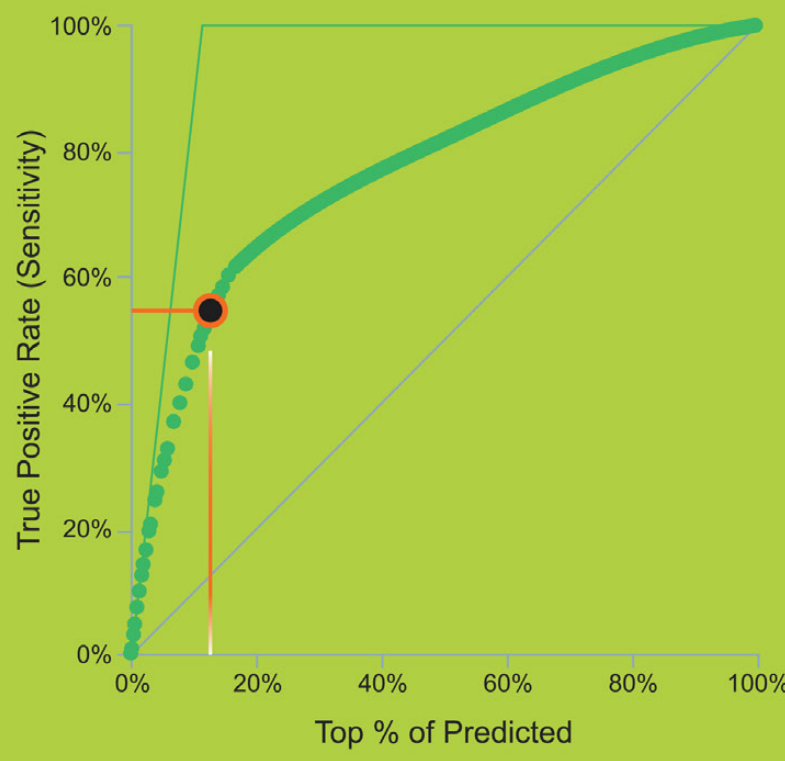
Introduction to AI Storytelling

Build trust throughout the AI project life-cycle



Keys to AI Success: Translation, Transparency and Trust





Bridge the gap between machine learning and humans

In today's era of AI and machine-assisted analytics, accurately interpreting and effectively communicating findings is becoming a crucial skill to bridge the growing data literacy gap. To get the most value from AI projects to drive better outcomes, you need to help decision stakeholders understand the process and make sense of results.

Machine learning use cases, metrics and charts can be difficult to comprehend and explain. Describing the AI problem to solve, machine learning models, and the relationships among variables is often subtle, surprising and complex. Successful analytical communicators don't wait until the end of an AI project. Instead they use the entire process to educate stakeholders. In this book, we will introduce you to the art of AI storytelling.

Become an AI-Driven Enterprise

The Human Factor

Technology is easy. People are complex.

Organizations around the world are rapidly adopting AI. Innovation and automation vastly simplify and expedite machine learning implementation. Humans on the other hand may resist change – especially if they do not understand AI technology. As you navigate the political landscape in AI projects, prepare to defuse skepticism, apprehension and fear of the unknown by relating AI to the processes and tools people already use.

Without a compelling reason to change, people get trapped in status quo. To deny a company's shareholders the opportunity for growth from AI would be a dereliction of duty. Estimate potential project gains and expose costs of doing nothing to make your case for AI.

Brainstorm and prioritize a list of potential projects executives will highly value. Then carefully select the right first AI project for a quick win. To influence stakeholder action, develop a quantifiable, visual story that evokes emotion.

Develop an AI Roadmap

● High ◔ Low

Use case	Potential $ M	Feasibility: Data / Technical	Feasibility: Adoption	Group	Current status	
Product SKU mix forecasting	20	◕	◕	Operations	Modeling	Top priorities
Promotions: sales lift prediction	8	◑	◑	Operations	Data prep	
Warranty claim and defect rate forecast	4	◕	◕	Operations	Data prep	
Product replacement lifecycle prediction	TBD	◔	◑	Sales	In queue	
Deal propensity to close and deal size	15	◑	◔	Sales	In queue	
Attribution of deal outcome to pricing discounts	10	◑	◔	Sales	In queue	
Sentiment analysis of customer reviews	0.5	◔	◑	Marketing	In queue	
New product popularity	3	◑	◑	Marketing	In queue	
Competitor sales / product popularity	10	◔	◑	Marketing	In queue	
Retailer sales mix forecasting	TBD	◑	◑	Marketing	In queue	
Total rebate forecast	0.4	◔	◑	Marketing	In queue	
Rebate fraud detection	TBD	◔	◑	Marketing	In queue	

Operations planning

Sales strategy

External data / market analysis

Incentives

Select AI Use Cases

Solve the right measurable problems

Executives make investment decisions with the bottom line in mind. Your business case for AI projects should be both business need and cost-justified supported by an estimated return on investment (ROI), payback period and risk assessment.

Sponsorship for AI projects is primarily driven by profit impact or fear rather than business need alone. Clearly define the benefits of expediting time between insight to action, solving complex business problems, uncovering new opportunities or exploiting new ways to maximize revenues, reduce costs or diminish risks. To garner support, share relevant industry case studies and present how this initiative aligns to overall organizational strategy.

Motivate sponsors with metrics they are measured on. Communicate AI project business value in clearly understood terms, resource usage and time savings. Diagram before and after business process flows to illustrate current pains, proposed changes and expected future gains. Quantify number of predictions along with current and estimated values after AI is applied to calculate project potential ROI. Lastly evaluate project costs, dependencies and difficulty level.

Define AI Use Cases

PRODUCT MIX FORECASTING

DESCRIPTION

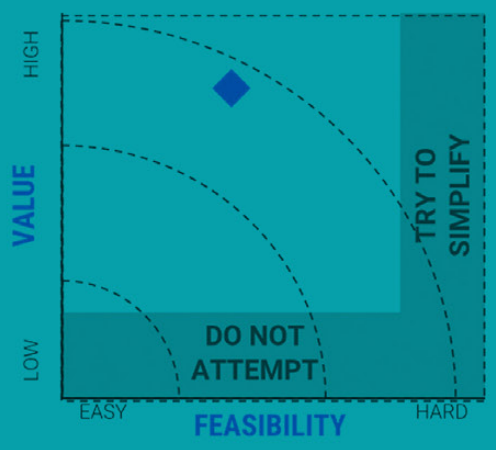
- Manufacturing lead times are growing while working capital and inventory requirements are becoming more restrictive
- Existing approaches to forecasting product SKU mix often miss actual demand by +/-30%
- Inaccuracy drives oversupply in some SKUs (scrap + inventory) and out of stock events in others (missed revenue opportunities)

WHY IT'S VALUABLE

More accurate product mix forecasts will improve operations planning / manufacturing choices and increase the likelihood that the right product SKUs are produced at the right time, thus minimizing both excess inventory and stock-outs

PREDICTION TARGET

Sales for each product SKU



RISKS

Adoption by the operations team; sufficient signal in the data

VALUE CALCULATION

($5B in addressable annual revenue *

10% lost rev. opportunities from unmet demand *

20% operating margin +

$100M in annual scrap costs) *

10% improvement in forecast accuracy

ESTIMATED POTENTIAL

$20M

Sell the Vision

Make the case for AI

As the pace of innovation continues to exponentially accelerate, there is no time to waste when it comes to adding AI as a core competency into your line of business. Economic and business value achieved through AI represents a truly transformational opportunity. Getting new ideas and technology swiftly past organizational gatekeepers requires empathy, political prowess and sales skills.

Accomplished leaders know it is far easier to explain abstract concepts such as AI use cases with imagery. As the adage goes, “A picture is worth a thousand words”. Despite the prevalence of AI in our daily life, many people don’t recognize it and can’t imagine how they might use it. This fundamental gap in AI knowledge will stall projects and limit your potential.

To connect the unknown concept of AI to your audience, start by showing stakeholders the end state picture of AI being used in an application mock-up, dashboard, or white board illustration. Simple linked images in presentation slides may be all it takes to sway a sponsor from skeptic to champion. Then delve into your story to provoke reactions with facts and charts to make the case for change.

From Idea to Reality

Analyze Machine Learning Findings

Communicate every step of the way

Don't wait until the end of your AI project to share results. Check training data quality, sample and bias issues at the start. Successful AI translators use the entire machine learning project life-cycle to communicate. From accurately defining projects to visualizing findings, you can deliver more value by including subject matter experts along the way.

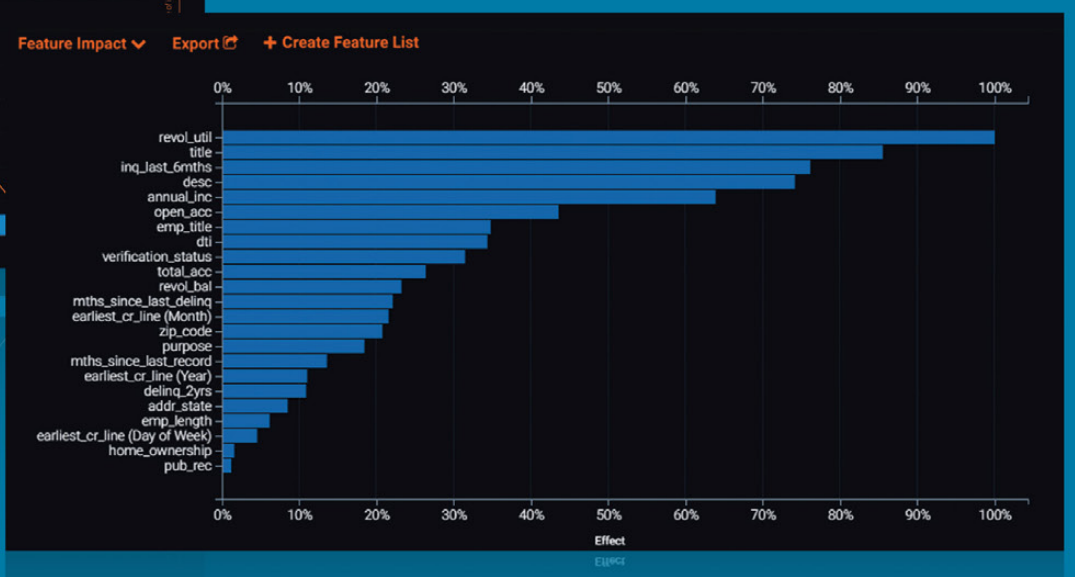
To trust AI and to comply with regulations, humans need to know what influences machine decisions. Unlike risky black box models, DataRobot provides unprecedented levels of model transparency. Another innovation, automated model documentation is also vital for AI regulatory requirements.

Despite advances in model transparency, human interpretation is needed to decipher machine learning terms and charts. Common metrics and unfamiliar graphs such as Log Loss, AUC, Gini Norm, RMSE, partial dependence plots, feature effects, lift charts and ROC curves will confuse most audiences.

Use storyboards to plan how you will translate DataRobot results to the business. Feature impact can illustrate global variable influence. Prediction explanations, feature effects and rules fit classifiers charts can explain the why and what-if questions for each individual prediction. To jump start decoding data science lingo into business context, we've highlighted our most popular visualizations in the next section of this book.

Explore Machine Learning Models

Variable Distribution with Summary Statistics



Ranking of Features by Importance

Interpret and Explain Results

Tell a story with visualizations

Visualizations reveal how variables influence model decisions. Million-dollar insights have been discovered in specialized DataRobot machine learning plots. Since these unique charts are not found in mainstream applications, help prevent mistakes and provide immense value, plan to walk your stakeholders through those findings.

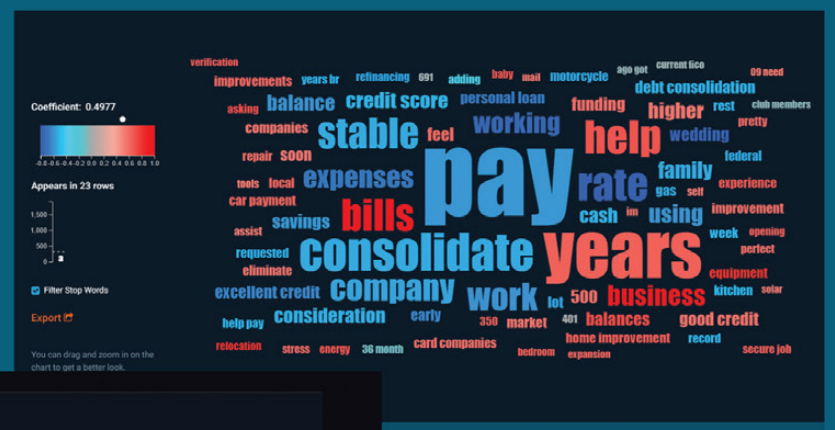
To explain machine learning models, minimally provide context on accuracy and bottom line impact. Show when a model is most and least accurate. Share variables and values that are most important. Describe patterns. Discuss reasons why individual outcomes are predicted. Estimate model payoff by assigning dollar values to true positives, false positives, true negatives, and false negatives.

To describe model accuracy, you can use DataRobot leaderboard, model comparison, feature fit, accuracy over time, distribution plots and lift charts. To learn what variables influence outcomes, view DataRobot feature impact, feature effects, and variable effects charts. To find business rules from text fields, use hotspots and word clouds. To get a model formula, see Eurequa, model coefficients and GA2M rating tables. To see exceptions, check the anomaly detection table. To explain the why and what if for individual predictions, use DataRobot prediction explanations.

Don't forget to emphasize AI results are probabilities – not exact numbers. For a deeper dive on interpreting machine learning model visualizations, please refer to the DataRobot Model Explanation Map series and Art of AI Storytelling webinar.

Share Actionable Insights

See relationships between variables and outcome



Explore text relationships to outcomes

Understand reasons for individual predictions

Democratize AI to Maximize ROI

Infuse AI into existing processes and tools

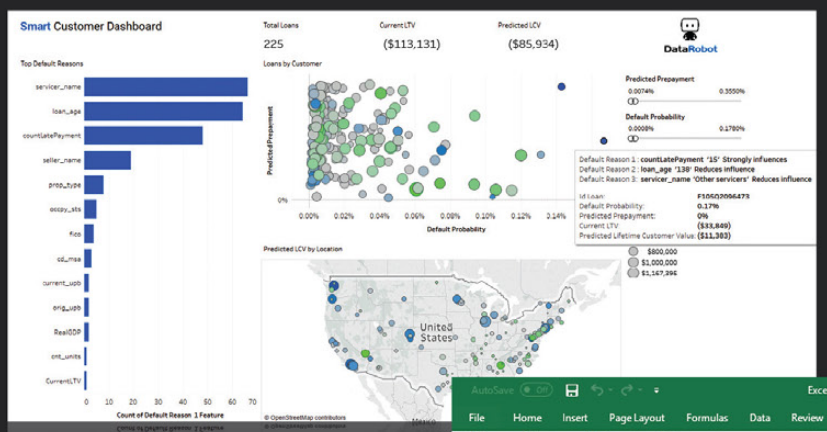
AI is everywhere. From consumer gadgets, intelligent things and business applications to the expanding algorithm economy, AI has been ubiquitously embedded into all areas of our lives. In an era fueled with data and automation, AI has evolved from wait and see to a necessity. Organizations no longer have the luxury to use data science in a silo. To survive and thrive, intelligence needs to be pervasively integrated into the entire customer journey, operations, products and services.

What can you do to motivate your organization to embrace AI? Selling change is a challenge. Don't force people to change. Bring AI to them. To fully exploit AI potential across the entire enterprise and break down adoption barriers, democratize machine learning models in existing tools and processes.

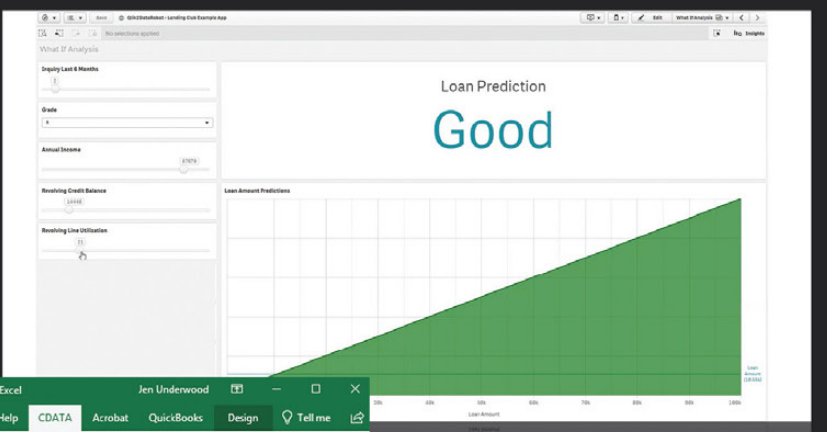
Historically, deploying machine learning models was complex. Disconnected teams, tools and programming environments were needed to blend data from disparate sources, build predictive models and then seamlessly deploy them to drive real business value. Today simple DataRobot ODBC, JDBC, REST, and other machine learning model APIs, connectors, and extensions are available for popular business analytics tools. It has never been easier to put the power of AI to work.

To achieve your AI potential, teach existing analytics talent how to use DataRobot connectors and extensions in Excel, Power BI, Tableau, Qlik and other tools they already use. This talent has a good understanding of your business and data. They can easily learn how to tell persuasive AI stories.

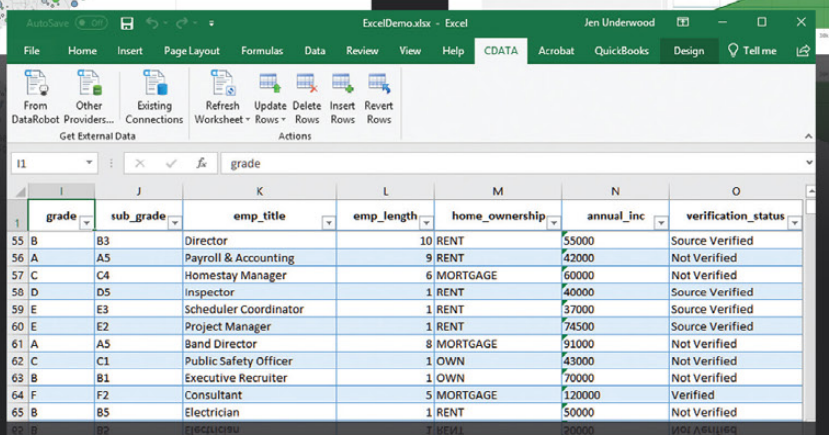
Bring AI to Everyone



Prediction explanations in Tableau



What-If analysis in Qlik Sense



	I	J	K	L	M	N	O
1	grade	sub_grade	emp_title	emp_length	home_ownership	annual_inc	verification_status
55	B	B3	Director	10	RENT	55000	Source Verified
56	A	A5	Payroll & Accounting	9	RENT	42000	Not Verified
57	C	C4	Homestay Manager	6	MORTGAGE	60000	Not Verified
58	D	D5	Inspector	1	RENT	40000	Source Verified
59	E	E3	Scheduler Coordinator	1	RENT	37000	Source Verified
60	E	E2	Project Manager	1	RENT	74500	Source Verified
61	A	A5	Band Director	8	MORTGAGE	91000	Not Verified
62	C	C1	Public Safety Officer	1	OWN	43000	Not Verified
63	B	B1	Executive Recruiter	1	OWN	70000	Not Verified
64	F	F2	Consultant	5	MORTGAGE	120000	Verified
65	B	B5	Electrician	1	RENT	50000	Not Verified

Predictions from CData Excel add-in

Monitor and Improve AI Performance

Identify model changes over time

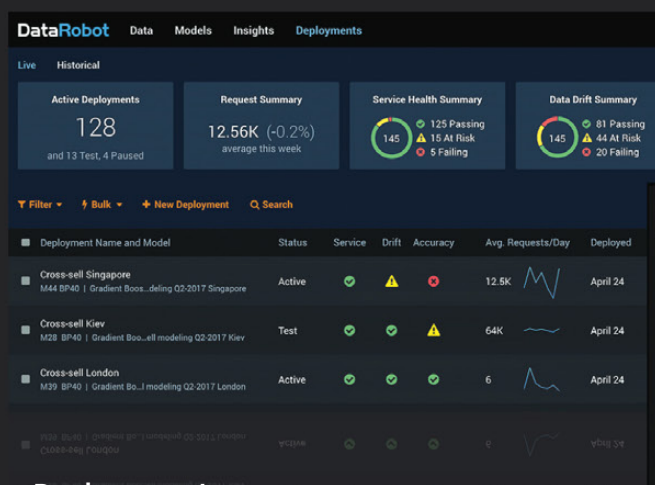
Effectively managing model performance is critical as more business processes rely on AI for decision making. In a constantly changing world, your AI applications must keep up with the latest trends. If left unchecked, the consequences can be severe. Fortunately, DataRobot automated machine learning provides an effective solution to ensure robust enterprise-wide model monitoring and risk management.

To monitor deployed model performance, understand where errors are occurring and proactively identify when a change may be required, you can use DataRobot's deployment inventory. Deployment inventory is a central hub for model management activity and serves as a coordination point for all stakeholders involved in operationalizing machine learning models. From here you can monitor model performance and act from a single unified view of all your projects.

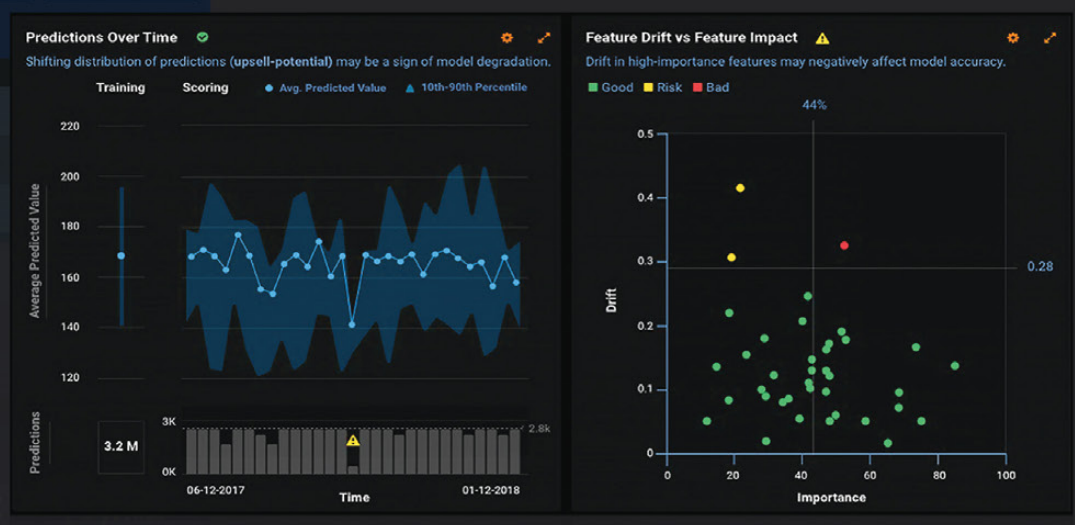
Deployment inventory summarizes active deployments with color-coded health indicators. Summary charts show the presence or absence of errors, data drift, accuracy changes over time and usage activity at-a-glance. Detailed change information is available by viewing a model in the inventory list. Data Drift charts help you see how predictions changed over time. You can also monitor the top ten most important features with the Feature Drift chart. These charts are essential for explaining performance changes to business stakeholders and recommending actions.

If you do need to change a deployed model, DataRobot provides an easy way to switchover without disrupting downstream AI consumers. This helps model validators and data science teams keep track of model history. It also provides your stakeholders continued confidence and success.

Model Management for the Enterprise



Deployment Inventory



Prediction Performance Summary

Just add data and hit Start

About DataRobot

The world's most advanced automated machine learning platform

DataRobot is the category creator and leading provider of automated machine learning. Organizations worldwide use DataRobot to empower the teams they already have in place to rapidly build and deploy machine learning models to create advanced AI applications. With a library of hundreds of the most powerful open source machine learning algorithms, the DataRobot platform encapsulates best practices and safeguards to accelerate and scale data science capabilities while maximizing transparency, accuracy and collaboration.

By making data scientists more productive and enabling the democratization of data science, DataRobot helps organizations transform into AI-driven enterprises. With offices around the globe, DataRobot is backed by $225 million in funding from top-tier firms, including New Enterprise Associates, Sapphire Ventures, Meritech and DFJ. For more information, visit datarobot.com, and join the conversation on Twitter and LinkedIn.

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