data iku

To Fraud Detection and Beyond

WITH MACHINE LEARNING

For most modern businesses, talking about data science, machine learning, and - increasingly - AI is exciting. It's the future, and it means cutting-edge development and change. For financial services, these terms tend to evoke less enthusiasm and more fear (especially when the term "black box" comes up).

And rightfully so - to be sure, the industry's relative hesitation in embracing these technologies is thanks in part to a generally stricter and higher-stakes regulatory environment. There's no denying that it requires financial service companies to be prudent. Yet despite these challenges, there are some institutions rising above the rest, working on the cutting-edge of the data science world in creative applications that improve business results and make the customer experience better.

IT'S THE FUTURE, AND IT MEANS CUTTING-EDGE DEVELOPMENT AND CHANGE

best egg.

MARLETTE ⊖ FUNDING

420,000
Customers and more than $7 billion funded

160
US-based with employees

SIX-PERSON DATA TEAM

IMPROVED THEIR FRAUD DETECTION CAPACITY BY 10 PERCENT BY SWITCHING TO A MACHINE LEARNING-BASED MODEL.

Sami Bouguezzi

Data Scientist
Marlette Funding, Best Egg
Loan Platform

Primarily responsible for building machine learning algorithms for the company

MAIN GOAL: Getting models he builds out of the sandbox and into production

Evgeny Pogorelov

Director of Decision Science
Marlette Funding, Best Egg
Loan Platform

Subject matter expert about the business and industry as well as the data engineering side

MAIN GOAL: Enable the data scientists to do their jobs

Tool & Tech Stack

AWS CloudFormation · dataiku · Power BI · R · python

How Marlette Funding, Best Egg Loans Uses Dataiku

- Deployment to production (one-click deployment)
- Data blending, manipulation, & feature engineering
- Machine learning model creation

We spoke with Evgeny Pogorelov and Sami Bouguezzi of Marlette Funding, which uses the Best Egg Personal Loan Platform to assist Cross River Bank, a New Jersey state chartered bank, in identifying eligible customers for personal loans. They talked to us about how they're using machine learning (ML) to transform business processes across the organization in revolutionary ways.

Instead of focusing on underwriting, the data team at Marlette Funding turned their attention toward the many other parts of the business that could benefit from ML.

One of the biggest challenges lenders face is detecting fraudsters - that means specifically those who have no intention of paying back loans by identifying them at the time of application prior to ever issuing a loan. The team had developed and deployed a simple statistical model two or three years prior, but thought ML could help them do even better.

"
UNFORTUNATELY, MACHINE LEARNING IS NOT REALLY AN ACCEPTED OR MAINSTREAM PRACTICE IN THE FINANCIAL SERVICE INDUSTRY FOR COMPLIANCE REASONS. THAT'S PARTLY BECAUSE WHENEVER SOMEONE TALKS ABOUT ML, EVERYONE'S MIND GOES TO UNDERWRITING - BUT NOT US. WE FOUND SEVERAL OTHER OPPORTUNITIES TO BE MUCH MORE ATTRACTIVE.
"

Evgeny Pogorelov
Director of Decision Science at Marlette Funding

"
THE WAY WE SEE IT, WE'VE ALREADY DONE ALL THE TRADITIONAL MODELING AND LOOKED AT THE TRADITIONAL DATA. IF WE WANT TO BE THE BEST IN CLASS (THE BEST IN MARKETING, THE BEST IN FRAUD DETECTION, THE BEST IN CUSTOMER SERVICE, THE BEST IN PRICING ETC.), WE NEED TO GO BEYOND THE TRADITIONAL TOOLS.
"

Evgeny Pogorelov
Director of Decision Science at Marlette Funding

To make sure they produced a best-in-class fraud detection model for their first foray into ML (and best-in-class data projects in general when working with other parts of the business), the team at Marlette Funding:

1

Considers return on investment (ROI)

Before taking on a data project, the team at Marlette Funding considers first and foremost the potential business impact of the project. In the case of fraud detection, they calculated that if the model were to catch even one instance of fraud, they could save a personal loan lender an average of $15,000. But they also considered indirect benefits, like the fact that a more sophisticated model would speed the process of getting a loan for customers by minimizing the number of cases that are not fraud.

> ULTIMATELY, THE OBJECTIVE OF THE MODEL IS TO GENERATE COST SAVINGS AND A BETTER EXPERIENCE FOR OUR CUSTOMERS. IF A FRAUDSTER RECEIVES A LOAN, THE LENDER CANNOT GET ITS MONEY BACK - THOSE COSTS ARE TOTALLY ABSORBED.

Sami Bouguezzi
Data Scientist at Marlette Funding

2

Gathers all available data

This may seem simple, but in fact, the key to an innovative data science project is to put as much data in to create the model - it's not always obvious which features end up making the difference. For their fraud detection project, that meant creating a massive dataset to work with using not only internal data, but externally available datasets from credit bureaus, fraud detection vendors, and more.

3

Tests / benchmarks against current strategy

A fundamental requirement for data projects at Marlette Funding is taking a close look at developed models to see how they perform against the current solution. Putting a complex model in place that doesn't actually perform better than the existing system will cause more unnecessary work in monitoring and upkeep.

> FOR THE FRAUD DETECTION PROJECT, WE BENCHMARKED THE MODEL AGAINST OUR CURRENT STRATEGY TO CONFIRM THAT IT HAD POTENTIAL. WE WERE ALREADY DOING WELL IN FRAUD DETECTION BEFORE, BUT THE NEW MODEL WAS DEFINITELY PERFORMING EVEN BETTER THAN THE CURRENT STRATEGY.

Sami Bouguezzi
Data Scientist at Marlette Funding

4

Deploys to production

Of course, once models are tested and benchmarked, they are put in production, where they can actually have a real (as opposed to just theoretical) impact on the business. The fraud detection model at Marlette Funding is currently deployed and generating cost savings for the lenders.

ORGANIZATIONAL STRUCTURE

Most of the business units at Marlette Funding have their own analysts who look at data and for opportunities for more advanced analytics. From there, they can approach the central data team to collaborate on projects together. This allows the technical skills of the data team to be enhanced by the business knowledge of the analysts and other experts in business units for more optimal project results.

"WE HAVE A CENTRAL DATA SCIENCE TEAM WITH A CHIEF DECISION SCIENCE OFFICER WHO IS THE MANAGER. BUT THE DATA SCIENCE TEAM DOESN'T HAVE A BUSINESS FUNCTION ON ITS OWN - IT SERVES THE ENTIRE BUSINESS. SO THE DATA TEAM WORKED WITH THE FRAUD OPERATIONS TEAM, FOR EXAMPLE, WHO CAN PROVIDE THE RELEVANT DATA AND KNOWS THE OVERALL FRAUD STRATEGY."

Evgeny Pogorelov
Director of Decision Science at Marlette Funding

In addition, the central data team itself has different skill sets that allow them to divvy workload and allow specialists to handle certain responsibilities. For example, Sami is largely in charge of developing the ML algorithms and is very concerned with getting those models in production. Ev is an expert in the financial services industry and has more connection with the business side, as well as being an enabler and catalyst for the data scientists, unblocking them and allowing them to do their work as unencumbered as possible day-to-day.
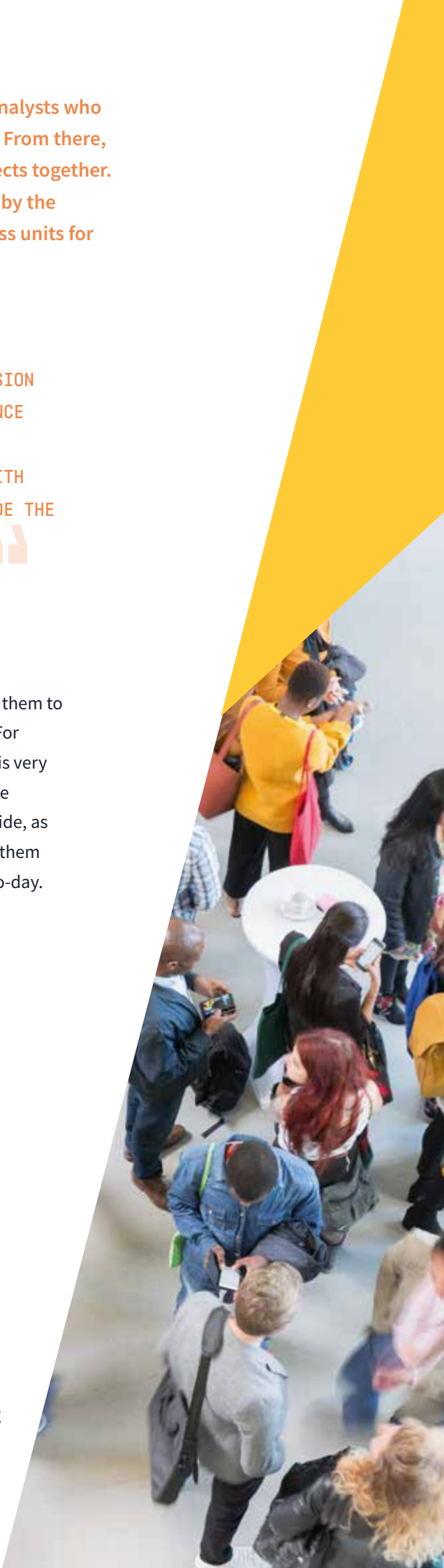
PROS

Extremely tight correlation between data projects and business value

Different skill sets on the data team allows them to work on a wide range of projects

Small, agile team means they can move quickly on projects

CONS

Small data teams, if they lack an easy way to deploy and manage models in production, can have trouble scaling
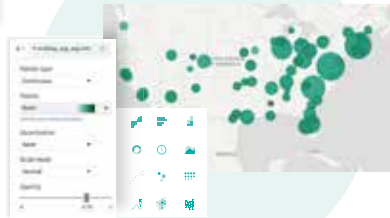
data iku

Your Path to
Enterprise AI

1. Clean & Wrangle

5. Monitor & Adjust

**2. Build + Apply
Machine Learning**

**4. Deploy
to production**

Image Recognizer v1
DeploymentId

StaticTest (static)
Updated 3 days ago

tag:normal   tag:normal   tag:normal
tag:normal

**3. Mining
& Visualization**
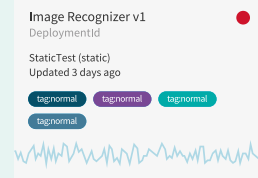
200+
CUSTOMERS

20,000+
ACTIVE USERS
*data scientists, analysts, engineers, & more

GE   Santander   paloalto NETWORKS   PREMERA BLUE CROSS   FOX NETWORKS GROUP   Unilever   NXP   SEPHORA   KUKA   BNP PARIBAS