

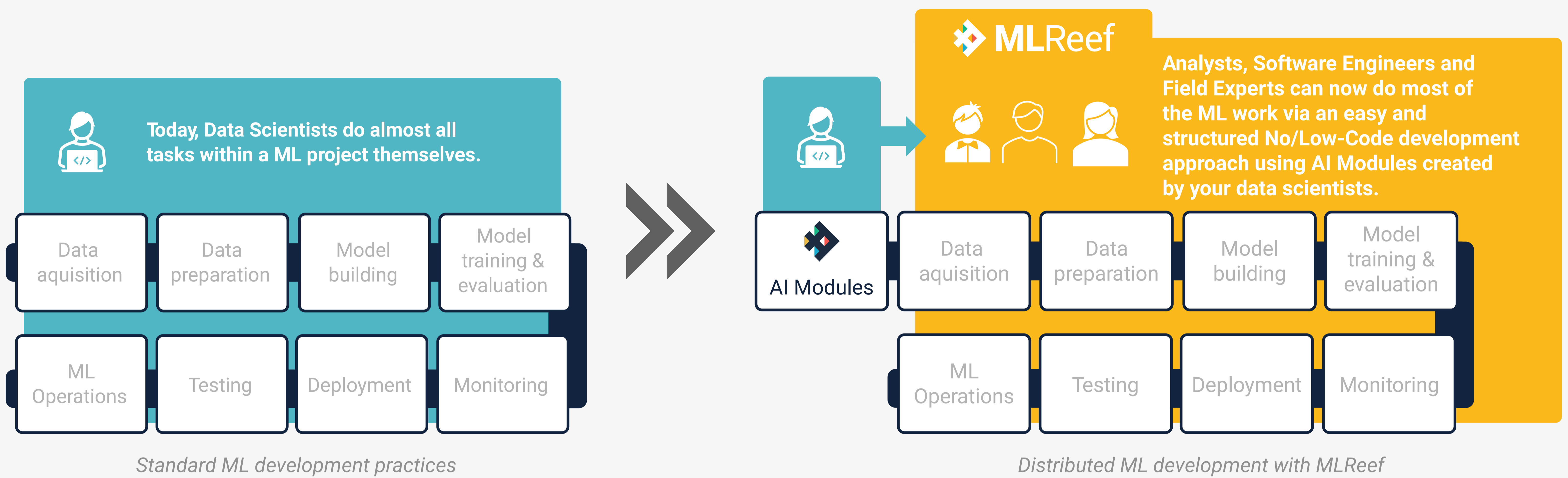
The collaboration platform for Machine Learning

MLReef is a Machine Learning development platform (ML Ops) that solves the **data science bottleneck** within data-driven organizations by leveraging the work of **data scientists towards non-experts** via a hybrid of **pro-code & no-code** development approach.

Distribute your ML Innovation across the entire organization

MLReef opens the domain of Data Science to non-experts and enables them to relieve the data scientists from major parts of the ML development process.

This removes up to 85% of a data scientists workload which drastically widens your organizations ML Innovation capabilities.



5x

in ML development throughput

-85%

less dependency on AI talent capacity and expertise

Distributed

workload on complex data tasks with seamless participation of field experts

Higher

acceptance of deployed models as development was a joint task

What can MLReef do?

Super-fast Prototyping

In-depth Collaboration

Effortless Sharing

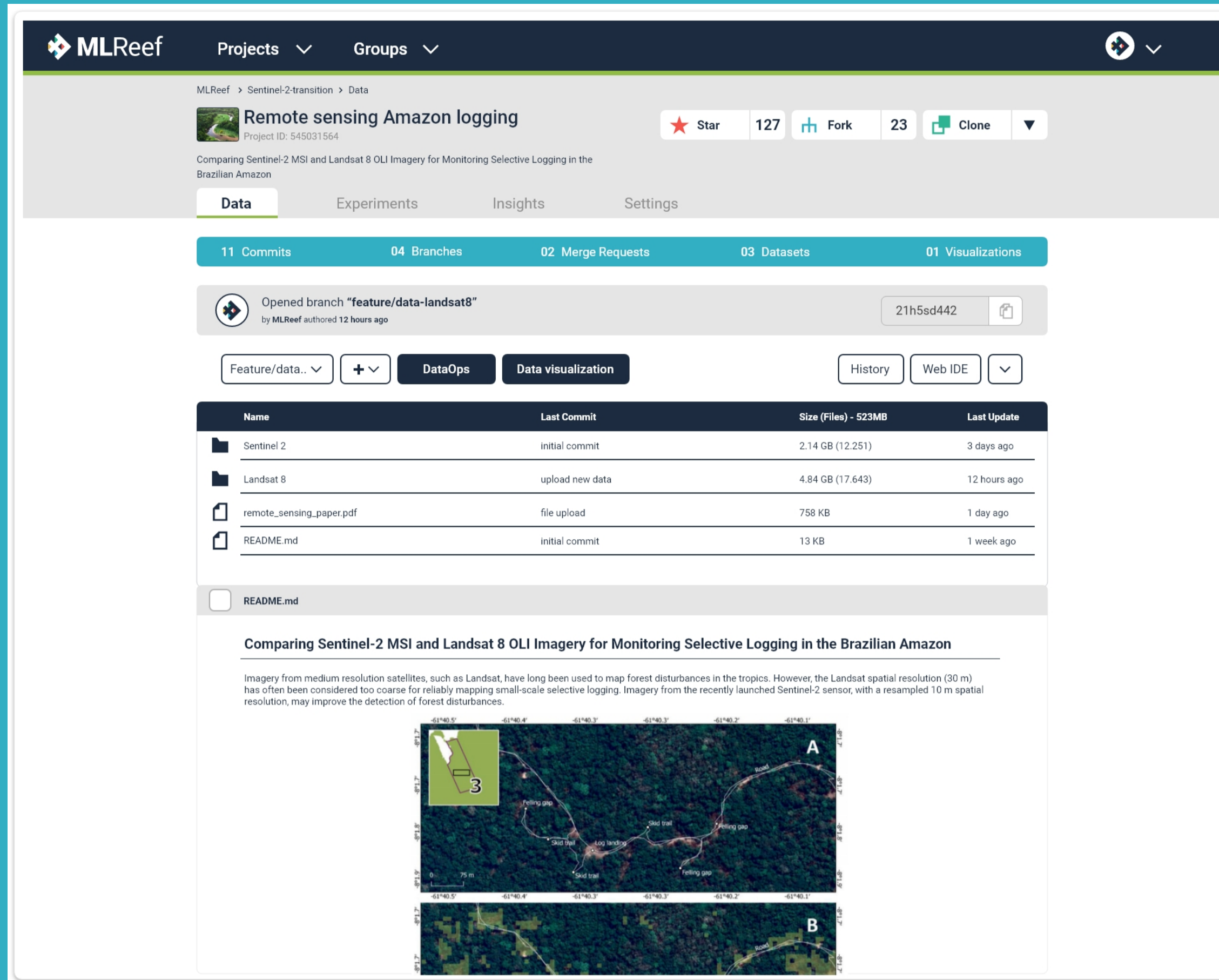
Granular Reproducibility

Complete Ownership

Immutable Progress

Used & supported by leading data-driven organizations

Create custom AI Modules



AI MODULES

Create easy operable AI Modules from fully flexible Git repositories

Your data scientists can use well known and established git repositories to create explorable, interoperable and versioned AI Modules.

- ✓ Immutable, reusable and sharable
- ✓ Full version control
- ✓ Enable concurrent workflows

AI Modules come in different shapes

Examples:

Model

Predict customer churn

Data Ops

Add noise to images

Visualization

World cloud visualization

all frameworks, non special libraries, no lock-in



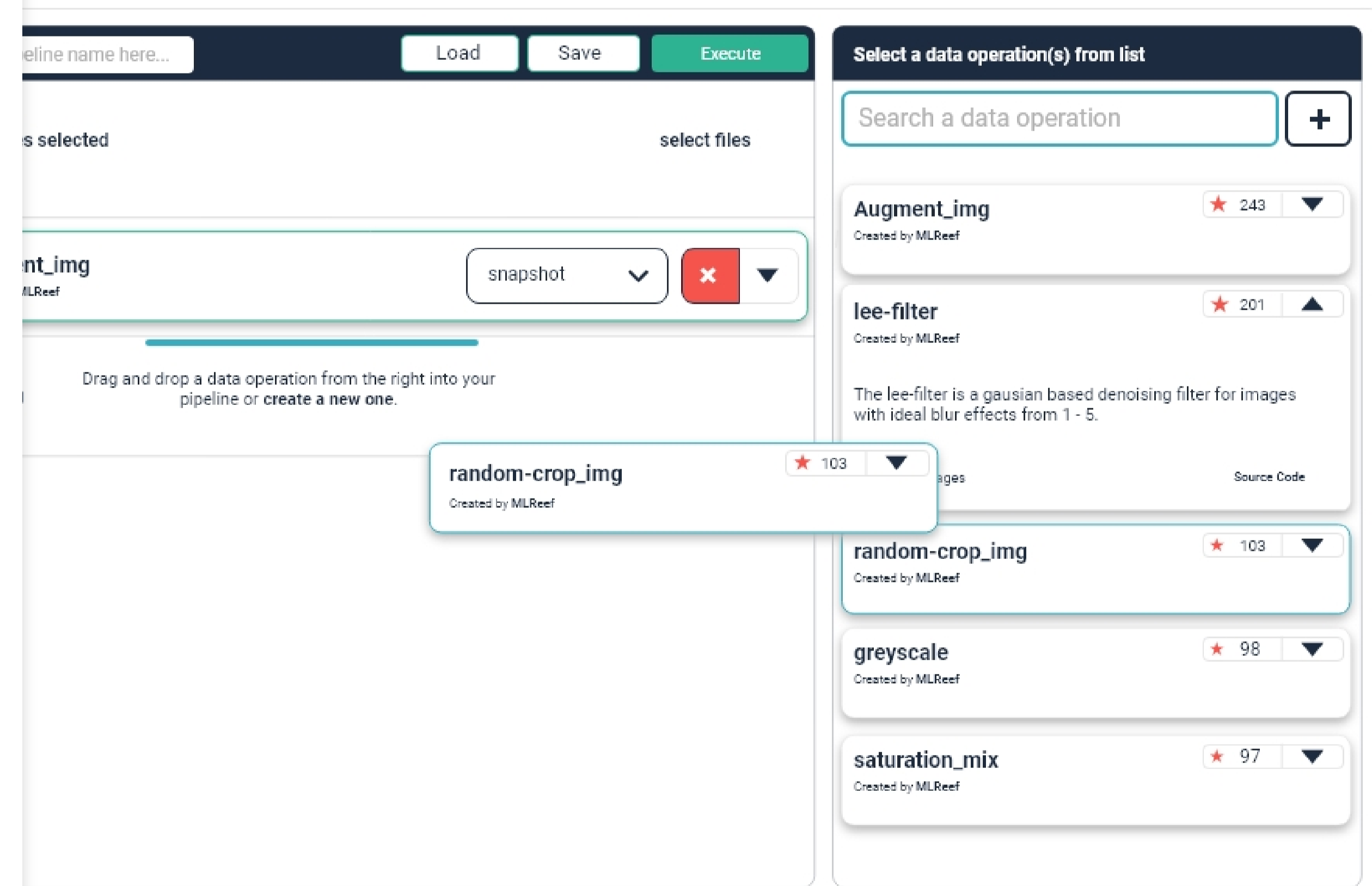
Distribute the ML workload

PIPELINES

Enable non-data scientist to easily run ML pipelines

AI Modules created by your data scientists become drag and drop elements. These are adjustable by parameters, versioned, interoperable and explorable within your entire organization.

- ✓ Fast iteration on data, code and pipelines
- ✓ Easy of use and still highly flexible
- ✓ Deep support for concurrent workflows & pipelining



Let your Teams collaborate in ML Projects



Demand forecasting for item-level sales data at different stores



Crop type classification using Earth Observation data

Manage your data, collaboratively

Viewing

Dataset: Data_Set_Name (funky-dolphin)
 Status: Completed
 DataOps ID: 3

Created: 01.01.2019 - 17:00
 Completed: 01.01.2019 - 18:00
 Running time: 2 hours, 12 minutes, 3 seconds
 Owner: Username1

Data

Files selected from path
train/cats/file01.xml
 from
Branch_name

Data Ops

Op. 1: **Augment** latest commit: has83km62
 Branch published: Master
 Publication: #196 - 14.02.2020 15:30

Op. 2: **Rotate** latest commit: jlu5mb210
 Branch published: Master
 Publication: #196 - 14.02.2020 15:30

View Pipeline

Name	Last Commit	Size (Files)	Last Update
File 01_Id_code.jpg	data pipeline	24 KB	1 day ago
File 02_Id_code.jpg	data pipeline	13 KB	1 week ago

DATA MANAGEMENT

Make data processing a collaborative and connected work

Data handling often requires expert knowledge that data scientist simply lack. MLReef enables your domain experts to relieve your data scientists in data processing task, reducing complexities and increasing the data quality for model training.

- ✓ Use integrations to your data warehouse
- ✓ Structured data processing & visualizations
- ✓ Store versions of dataset

Create reproducible models

EXPERIMENTS

Run Experiments iteratively and with full reproducibility

Training models is easy, flexible, scalable and built for high iterative workflows. Do not lose any history with full Version Control on data, code, parameters, pipeline run and base environment.

- ✓ Run any number of pipelines and experiments
- ✓ Track all metrics and runs in one place
- ✓ Reproduce and replicate at any time previous results

Completed

singing-cuttlefish-07/04/2020
 Created by MLReef 2 hours ago

Model: ResNet_50
 L_acc: 0.98

Performance achieved from last epoch:
 val_acc: 0.82
 L_acc: 0.98
 val_loss: 0.23
 train_loss: 0.14

Data

17.215 files selected
 from
 dataset: laughing-penguin-02/04/2020
 resulting from a data pipeline with
 Op1: augmentation
 Op2: random_crop
 Op3: random_rotate
 Op4: rgb
 sourced from
 branch: branch_1

Model

ResNet 50
 from
 branch: feature/include-dropout
 being
 3 commits ahead and 1 commit behind
 from its master branch

Defined parameters

P: L rate = 0.0001
 P: optimizer = adam
 P: dropout = 0.5
 P: param1 = 2
 P: layers = 3

loud-ariel-06/04/2020
 Created by MLReef 11 days ago

Model: ResNet_50
 L_acc: 0.78

Use your preferred host

host on mlreef.com

or

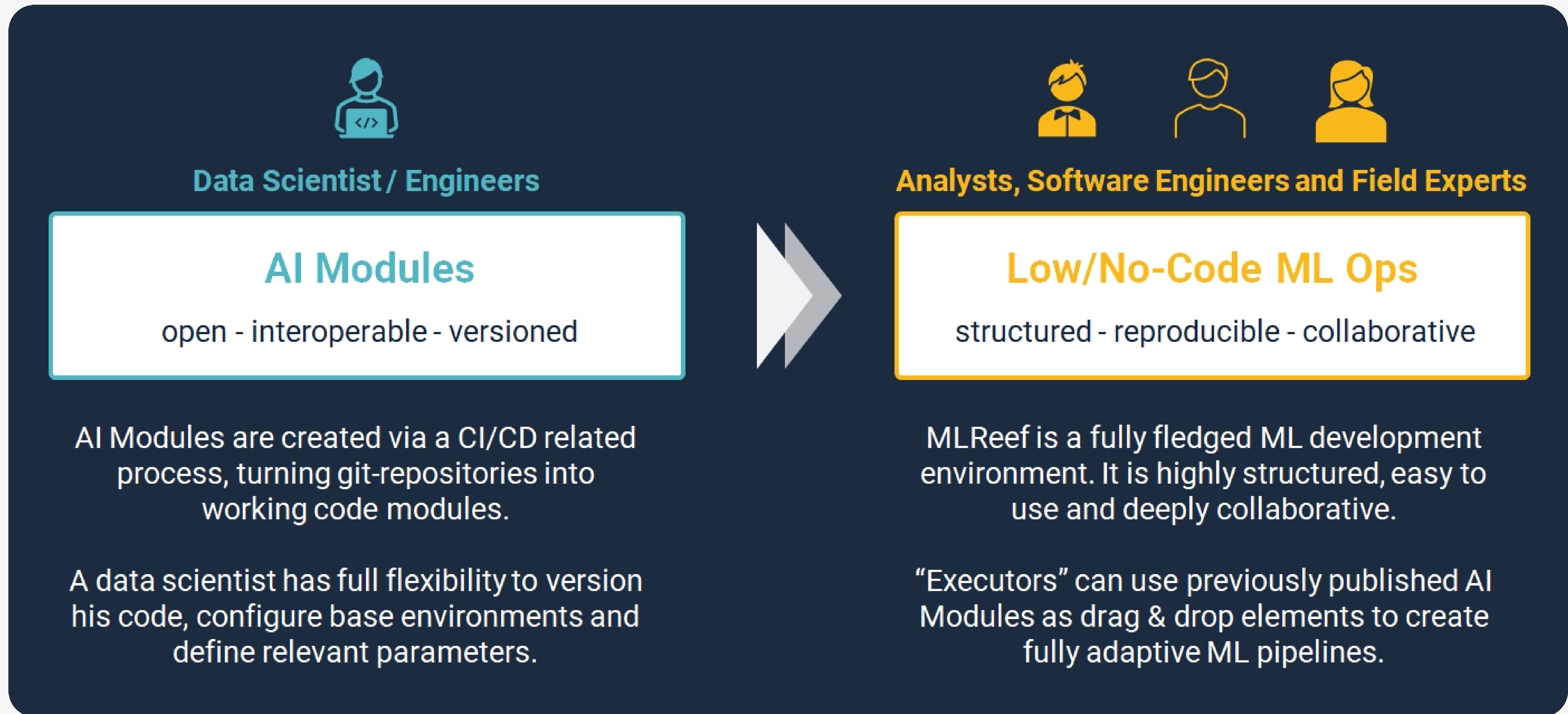
self-host on any premise or cloud infra

NAUTILUS

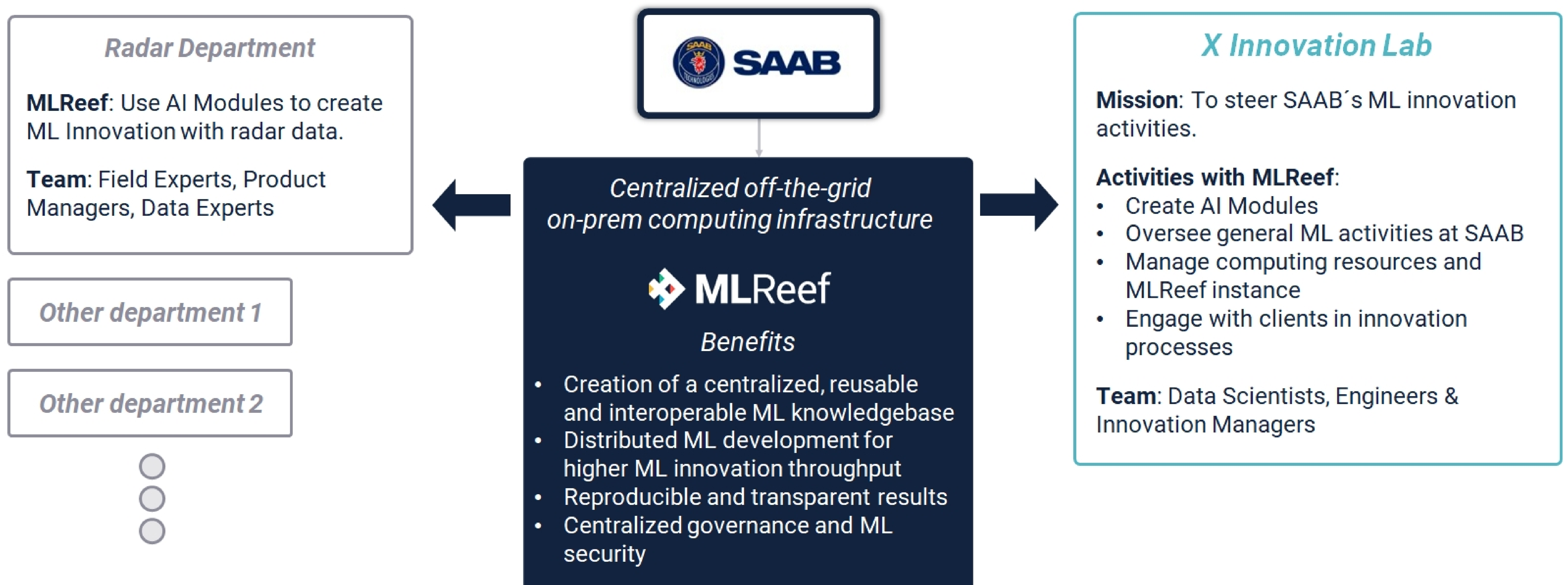
Host MLReef on any infrastructure - on the cloud or on-premises

MLReef comes as a docker image to be installed wherever you need it. Your data is secure while giving you granular access rights to your users and developers.

MLReef is the first platform to introduce Distributed ML Development



Distributed Machine Learning Development
in action



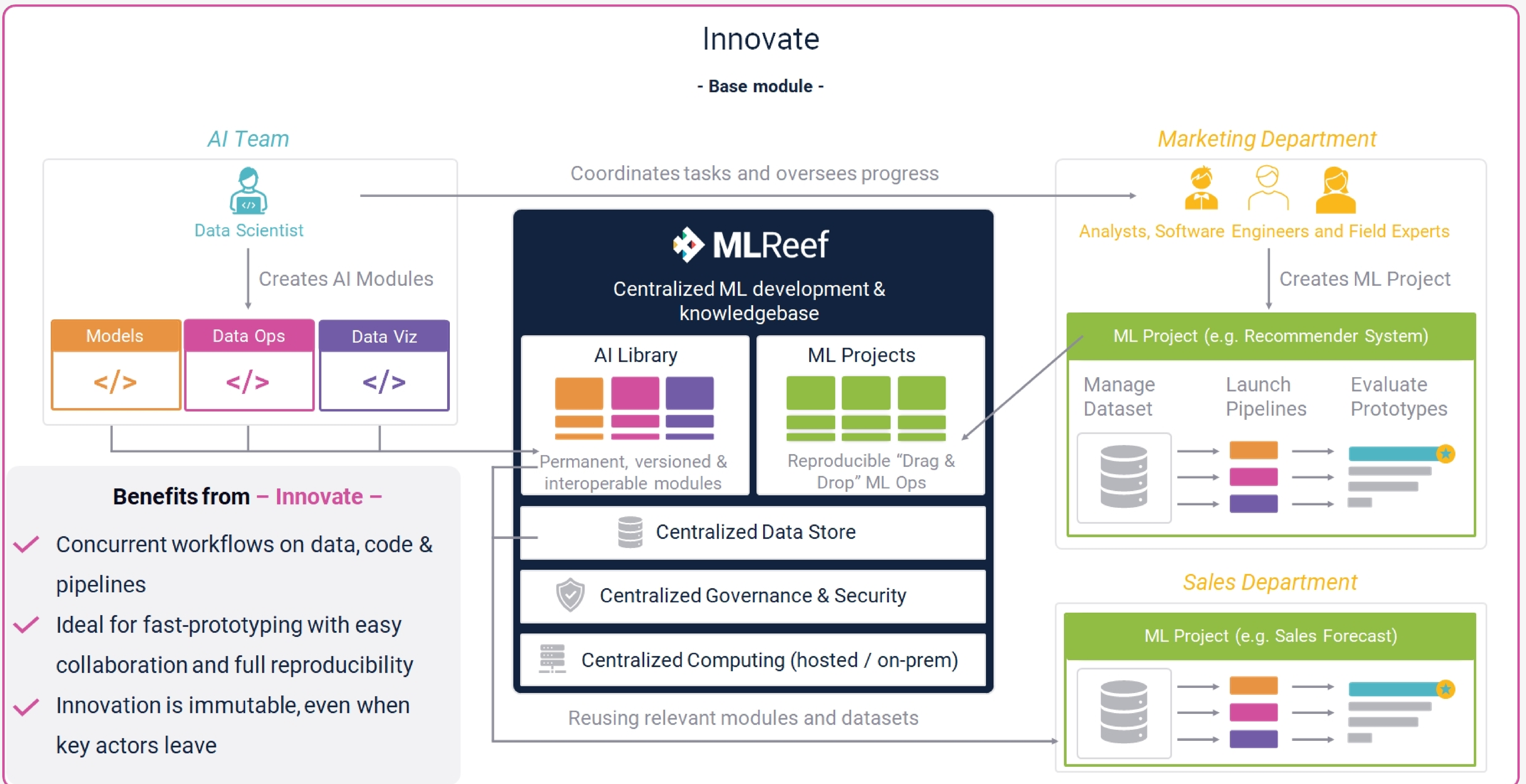
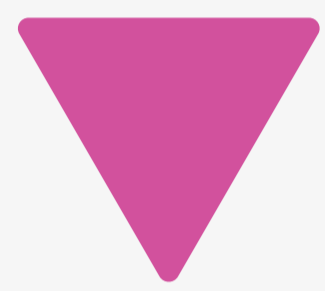
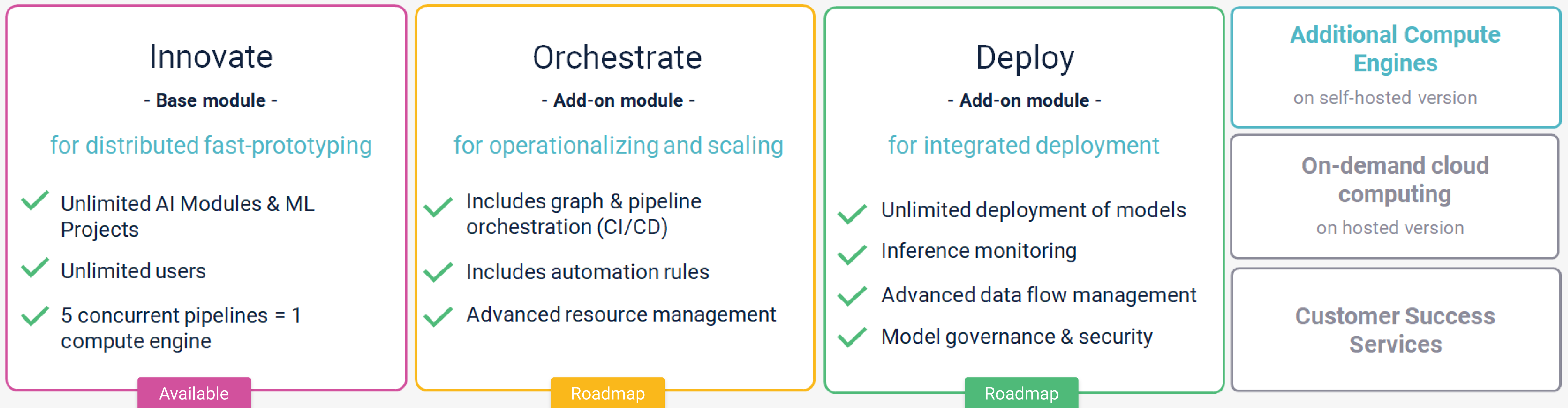
Sven Nielson
Innovation Lead – X Labs



“At Saab we saw the need for operationalizing our Machine Learning efforts and to include more engineers and analysts into the ML life cycle. With MLReef we have a tool that delivers this.”

Packages

The base module serves fast-prototyping, a business critical phase where low costs and quick iteration are essential. With increased maturity, the modules for orchestration and later deployment become relevant.



Innovate is being used by thousands of users & their ML projects, today.

currently on www.mlreef.com
Jan 2022

957 ML Projects

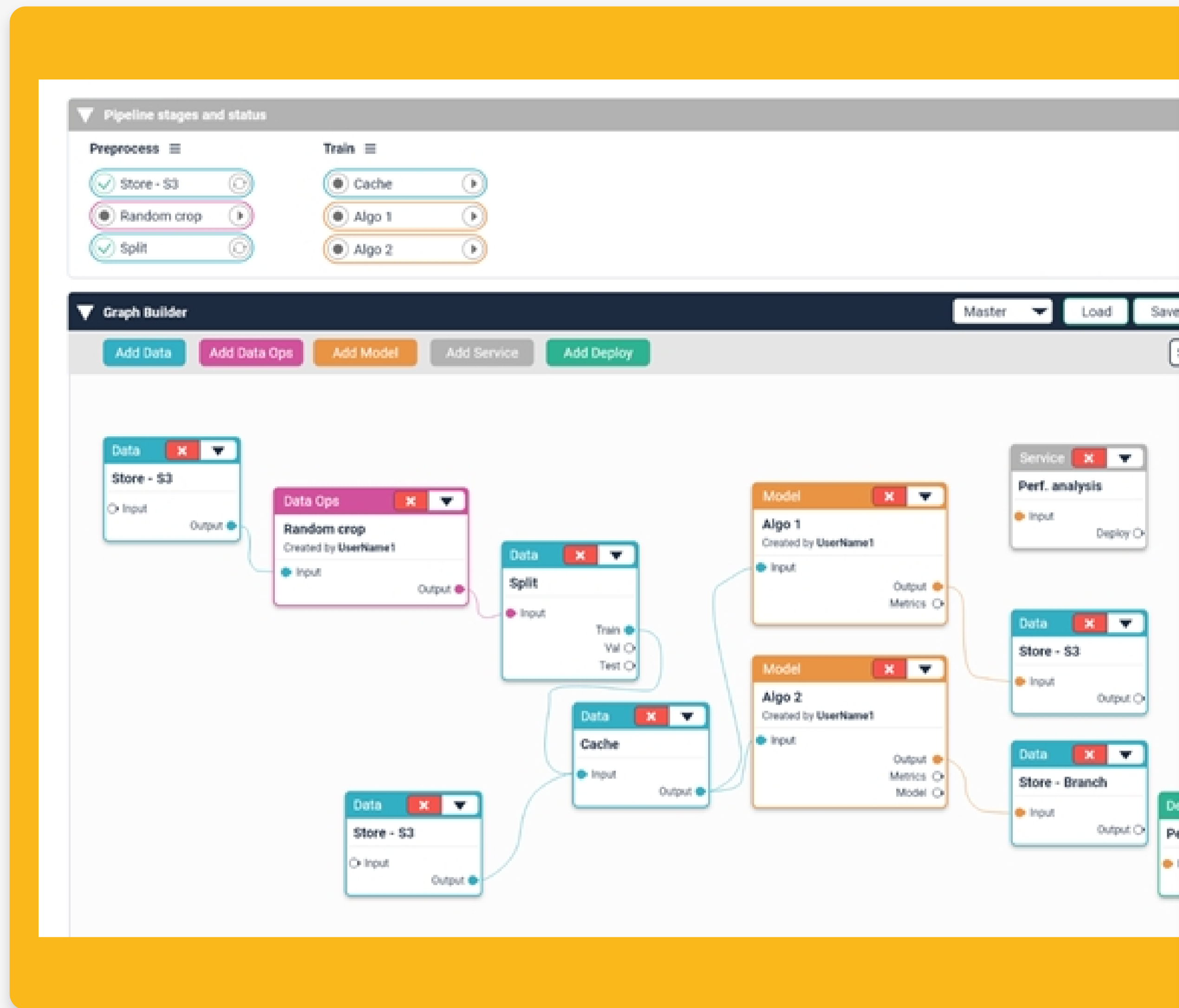
192 AI Modules

6.543 User

+1.300 Stars

Roadmap

The modules for **Orchestrate** and **Deploy** are in the short-term roadmap and planned for release in 2022.



PIPELINE GRAPH

Benefits from - Orchestrate -

The add-on module to operationalize (CI/CD) ML pipelines

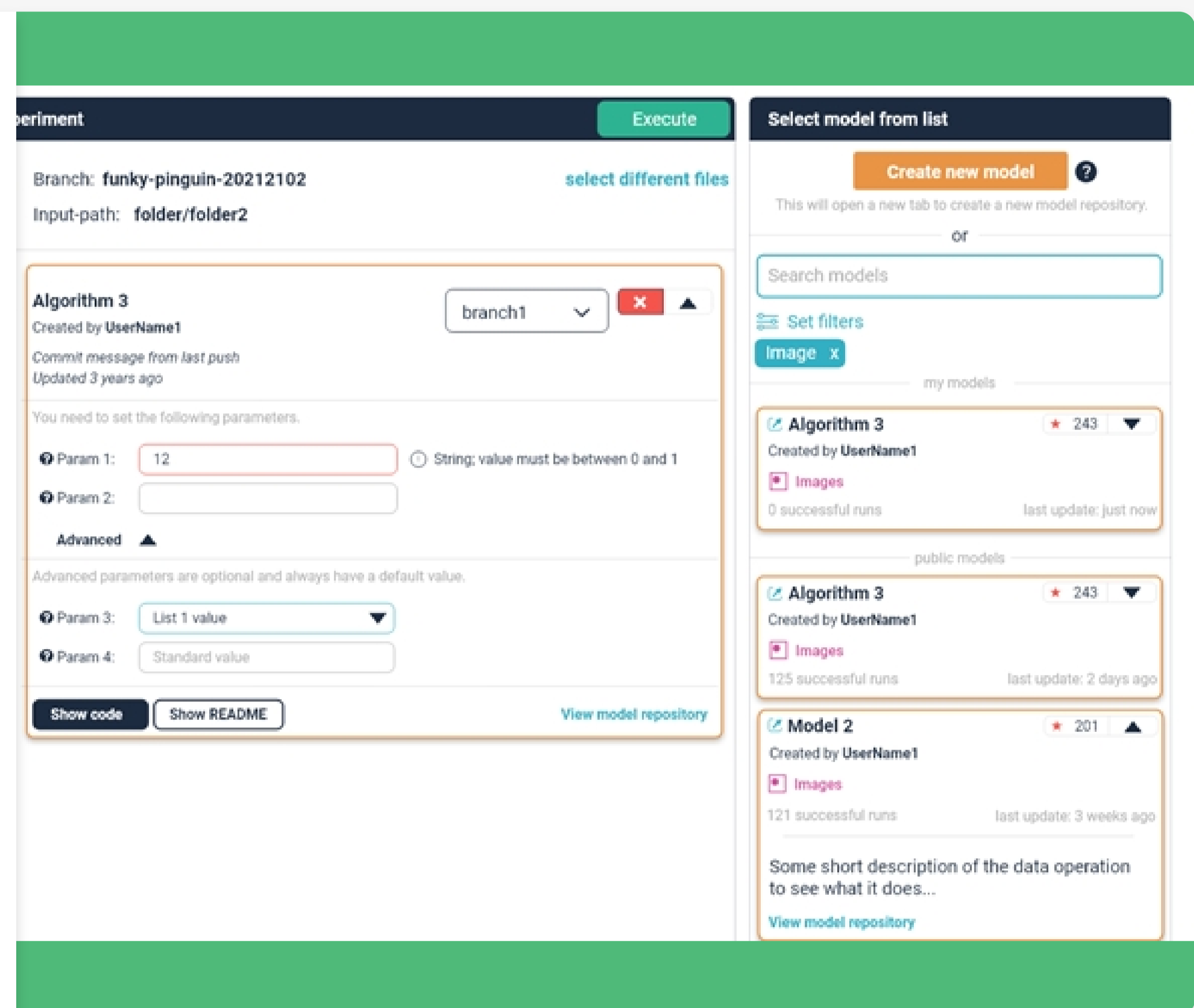
- ✓ Operationalize ML pipelines for Continuous Integration (CI)
- ✓ Automate and orchestrate pipelines across nodes
- ✓ Automate pipelines on data & code changes
- ✓ Easy to setup (drag & drop) and very flexible (YAML configuration)

MODEL DEPLOY

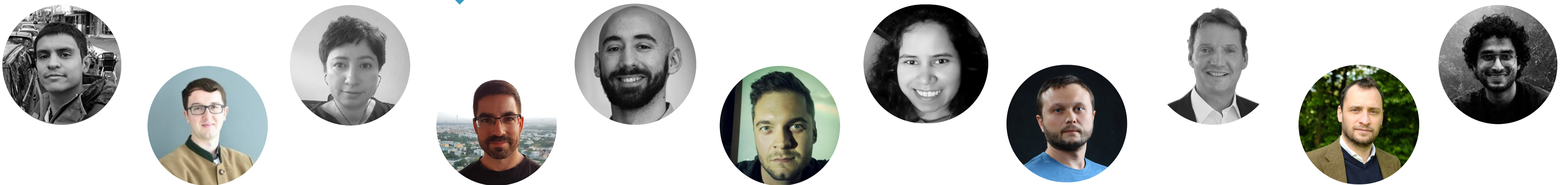
Benefits from - Deploy -

The add-on module to deploy ML models

- ✓ Deploy trained models within the same environment
- ✓ Automate deployments based on new model versions (CD)
- ✓ Continuously validate and monitor inference performance
- ✓ High security standards and governance tools



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Camillo Pachmann

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