

# MLOps

How to efficiently develop, test, deploy, and maintain machine learning (ML) applications in production

2024 CONSTELLATION SHORTLIST

The Constellation ShortList™ presents vendors in different categories of the market relevant to early adopters. In addition, products included in this document meet the threshold criteria for this category as determined by Constellation Research.

This Constellation ShortList of vendors for a market category is compiled through conversations with early adopter clients, independent analysis and briefings with vendors and partners.

## ABOUT THIS SHORTLIST

With the explosion of artificial intelligence and ML models in the enterprise space, productionizing ML models is very expensive for many digital-native companies. The solutions for MLOps are expected to become a \$4 billion market by 2025. Data scientists are not full-stack programmers, as their skill set is limited to experimenting and developing the best model to solve a specific business problem. If the model is accepted by the business owners, then deploying it in production in the shortest time possible before competitors do can provide a distinct business advantage. The plethora of MLOps frameworks, both commercial and open source; a fragmented ecosystem; and fragmented data sources make this task harder for deployment teams. Integrating all these ML capabilities, tools, platforms, and practices with existing application lifecycle management systems is extremely difficult and time-consuming.

The art of model development, model training, model deployment, model monitoring, and model governance involves major engineering work that is generally managed by data engineering teams. This is the area where development operations (DevOps) practices are applied to ML. It involves creating production-grade models, deploying them, and refreshing them as quickly as possible. It means automating the majority of these tasks so that the models can be deployed with one push of a button as soon as they are ready and approved by the stakeholders.

## LIKE WHAT YOU SEE?

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To learn more about Constellation Research Shortlists visit: [www.constellationr.com/ShortList](http://www.constellationr.com/ShortList)

## 13 SOLUTIONS TO KNOW

Constellation evaluates more than 20 solutions categorized in the MLOps market. This Constellation ShortList is determined by client inquiries, partner conversations, customer references, vendor selection projects, market share, and internal research. Of those solutions, the following are short-listed to be in our future market overview deep-dive MLOps report.

- AMAZON SAGEMAKER
- CLOUDERA
- DATABRICKS
- DATAIKU
- DATAROBOT
- DOMINO DATA LAB
- GOOGLE VERTEX AI
- IBM
- IGUAZIO
- INTEL CNVRG
- MICROSOFT AZURE
- PAPERSPACE
- SAS

## THRESHOLD CRITERIA

Constellation considers the following criteria for these solutions:

- Support for multicloud environments. The chosen MLOps tool/platform should support—at a minimum—AWS, GCP, and Azure.
- Its ability to allow and manage the deployment of ML models on Kubernetes with ease.
- Connectivity to as many commonly available data sources as possible.
- Integration with major continuous integration/continuous delivery (CI/CD) and DevOps tools.
- Support for the following model capabilities:
  - Model versioning
  - Model training & experimentation
  - Model deployment
  - Model validation
  - Model monitoring
  - Model retraining
  - Model registry
  - Feature engineering
  - Model serving
  - Model governance
  - ML pipeline automation

## ABOUT CONSTELLATION RESEARCH

As an award-winning Silicon Valley-based strategic advisory and futurist analyst firm, Constellation Research serves leaders and organizations navigating the challenges of digital strategy, business-model disruption and digital transformation. Constellation works closely with solution providers, partners, C-suite executives, board of directors, and its Constellation Executive Network of buy-side leaders to lead the way in research coverage and advise clients how to achieve valuable business results.

## FREQUENCY OF EVALUATION

Each Constellation ShortList is updated at least once per year. Updates may occur after six months if deemed necessary.

## EVALUATION SERVICES

Constellation clients can work with the analyst and the research team to conduct a more thorough discussion of this ShortList. Constellation can also provide guidance in vendor selection and contract negotiation.

## BUSINESS THEMES



Technology Optimization



Data to Decisions



Next-Generation Customer Experience



## Andy Thurai VP & Principal Analyst

Andy Thurai is an accomplished IT executive, strategist, advisor, enterprise architect and evangelist with more than 25 years of experience in executive, technical, and architectural leadership positions at companies such as IBM, Intel, BMC, Nortel, and Oracle. Andy has written more than 100 articles on emerging technology topics for publications such as Forbes, The New Stack, AI World, VentureBeat, DevOps.com, GigaOm and Wired.

