New IDC MarketScape Provides Assessment of 13 Machine Learning Platforms Vendors in China

BEIJING, August 28, 2019 — International Data Corporation (IDC) has just published a new MarketScape report assessing 13 leading vendors of machine learning development platforms in China, concluding seven months of research.

The 13 vendors profiled in the 2019 China Machine Learning Development Platforms Vendor Assessment are: Alibaba Cloud, AWS, Baidu, DataCanvas, IBM, iQubic, Kingsoft Cloud, MeritData, Neusoft, New H3C, Tencent Cloud, Transwarp, and 4Paradigm.

China's machine learning market including hardware, software and services alone amounted to RMB1 billion in 2018 and is expected to grow at a compound annual growth rate (CAGR) of 62% to 2023, the report predicts. IDC defines artificial intelligence (AI) applications as those based on machine learning and deep learning. According to this definition, applied machine learning contributed RMB10 billion to China's AI market last year.

As machine learning achieves increasing penetration into the Chinese market and a wider range of application scenarios emerge, IDC is stepping up its research on machine learning development platform vendor assessment.

Market Overview

Current situation of technology applications: Current machine learning development platforms can provide more than 30 classic machine learning algorithms with support for mainstream frameworks such as TensorFlow, PyTorch and Caffe. Besides machine learning and deep learning, graph algorithms have begun to go to market. The most popular application at this stage is classical machine learning. While leading vendors advance innovative machine learning applications, they are also implementing deep optimization of the underlying hardware for machine learning workloads. These optimizations provide users with efficient and flexible products integrating software and hardware.

Current situation of application implementation: Currently, industries that have deployed commercial machine learning products include finance (anti-fraud and credit model assessment) and cross-industries (product recommendation and precision marketing). Industries expected to deploy commercial machine learning applications in the coming one to two years include energy (especially electricity), defense and manufacturing.

Market Landscape:

1.Platform-level companies represented by cloud service providers mainly promote public cloud machine learning applications which help users quickly build machine learning models on the cloud. These cloud service providers have accumulated a large number of machine learning application practices among existing customer groups. This group of vendors has the advantage of a large user base that can be quickly converted to users of machine learning products.

2.Successful startups represented by 4Paradigm and iQubic lead technology/product trends with cutting-edge innovations such as federated migration Learning and automated machine learning (AutoML). The advantage of this group of vendors is their leading technology.

3.Big data platform companies such as New H3C, Neusoft and Transwarp are also introducing machine learning components which help users implement predictive analytics on big data platforms. Such vendors need to catch up with the leaders both in terms of technology and market share.

Automated machine learning, machine learning modeling engineers, data resource quality and market uncertainty: Currently, algorithm engineers are still in short supply, which has to some extent restricted the promotion and implementation of machine learning. The lack of data resources for application scenarios is also a limiting factor affecting the application of machine learning. Automated machine learning can alleviate the need for professional algorithmic engineers by allowing business personnel to, following some training, perform modeling. In general, enterprise users' preferences of how machine learning products are delivered and the supply and demand for algorithm engineers will shape the trends of the machine learning market.

Frontier areas worthy of attention: Leading vendors in 2019 have focused on developing automated machine learning, intelligent data annotation, interpretable deep learning, interface visualization, graph algorithms and batch data processing, among others.

Vendor summary profiles

In this study, IDC China analyzed 13 mainstream vendors: Alibaba Cloud, AWS, Baidu, DataCanvas, IBM, iQubic, Kingsoft Cloud, MeritData, Neusoft, New H3C, Tencent Cloud, Transwarp and 4Paradigm. Five typical vendors are examined below:

Internet platform-level vendor: Baidu

Baidu has a solid foundation in machine learning. Its open source deep learning framework PaddlePaddle, the first in China, has maintained high-speed growth of downloads and active users in recent years. Baidu was also among the first of domestic vendors to launch automated machine learning products and its EasyDL product has a high market awareness. In terms of commercialization, Baidu has been able to quickly roll out and iterate machine learning capabilities by leveraging Baidu Cloud's large customer base and market reach.

Innovative startup: 4Paradigm

4Paradigm is focused on AI algorithm development with a view to thorough optimization and integration of software and hardware. With mature enterprise-grade products and a strong commercialization capability, it has stood out from the pack and achieved rapid business expansion.

Innovative vendors in data science and big data: MeritData and DataCanvas

The report placed Xi'an-based MeritData is in the Leaders quadrant. With decades of experience in serving enterprise digital transformation, Merit Data's Tempo AI machine learning product has been applied and much valued in multiple industries including manufacturing and energy. Its leading position is backed by its mature and stable products and success stories from a wide range of customers.

DataCanvas, which is in the Major Players quadrant, mainly serves the financial sector with diversified applications such as anti-fraud and user profiling. DataCanvas has also created many innovative application cases for machine learning in cooperation with its customers in different sectors such as government and manufacturing.

International vendor: AWS

AWS is a towering presence in the global machine learning market. According to Amazon's internal research data, about 80% of TensorFlow projects are deployed on AWS. In China, AWS has quickly gained significant market recognition through its automated machine learning platform Sage maker and customers using its cloud services can quickly deploy its machine learning products. AWS's previously launched machine learning reasoning chip Inferentia has also been used in the construction and promotion of the ONNX (Open Neural Network Exchange) project. While it dedicates substantial resources to strengthening independent R&D, AWS has consistently been able to provide users with flexible machine learning options in an open manner.

Advice for Technology Buyers

Summary of maturity of application scenarios: The most mature application scenarios include product recommendation, user profiling, anti-fraud, and optical character recognition (OCR) for simple document recognition.

Application scenarios being explored: predictive maintenance of equipment, quality inspection based on product appearance, and rail spark analysis. As this study is focused on machine learning development platforms for developers, application scenarios such as face recognition, voiceprint recognition, and phrase recognition are not included.

Partner selection recommendations:

1. First, make sure machine learning fits the current business scenario being considered. After discussing this with a prospective vendor, consider whether your company has the ability to develop machine learning models at this stage. If not, you can choose a machine learning product with a higher degree of automation. If you have sufficient development capabilities, you can also try to build a machine learning platform using open source technology.

2. When it comes to product selection, aim for flexible products that are easy to start with. While assessing the range of models, also consider whether the models provided meet the requirements of internal applications.

3. Consider adopting highly automated machine learning products with a view to facilitating the transition of business analysts into data scientists.

A key requirement for machine learning and AI applications is the presence of data required for modeling. Many machine learning projects have failed due to a lack of resulting in inaccurate predictions unable to meet business requirements. In the long run, companies will need to consider products/services capable of strengthening their internal data capabilities and develop core intelligent data platforms compatible with AI models.

IDC advises that when adopting machine learning and AI solutions, companies should not confine their attention to hardware and computing platforms to the detriment of software and applications. It is important to choose the most suitable underlying architecture for short-term AI workloads and plan for medium- and long-term AI workloads. When embracing intelligent applications, it is crucial to maximize the value of machine learning and deep learning.

Yanxia Lu, Senior Research Manager for AI at IDC China, said: “Despite a slower pace of innovation in deep learning algorithms, we believe that machine learning applications will steadily find their way into production systems in an increasing number of industries. While technological innovation in this space is slowing, productization and commercialization are accelerating. Going forward, we expect automated machine learning to lower the threshold of AI adoption for industry users and accelerate evolution to a higher level of automation and intelligence.”

Related research:

IDC Market Glance: Machine Learning Development Platforms, 1H19 (October 30, 2019)

IDC Market Glance: China AI Software and Applications, 1H19 (October 30, 2019)

AI User Perspective: AI Deployment Guidelines for Industry Users (November 30, 2019)

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About IDC MarketScape

IDC MarketScape vendor analysis model is designed to provide an overview of the competitive fitness of IT, telecommunications, or industry-specific suppliers in a given market. The research methodology utilizes a rigorous scoring methodology based on both qualitative and quantitative criteria that results in a single graphical illustration of each vendor's position within a given market. IDC MarketScape provides a clear framework in which the product and service offerings, capabilities and strategies, and current and future market success factors of IT, telecommunications, or industry-specific vendors can be meaningfully compared. The framework also provides technology buyers with a transparent foundation to allow companies to independently compare the strengths and weaknesses of current and prospective vendors.

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Figure 1

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