

Factsheet: Acuvate AI Services

INTRODUCTION

Acuvate has built up extensive experience with AI and in this Factsheet, we give an overview of our underpinning AI services used to drive our AI solutions.

Acuvate's AI services empower enterprises to harness the full potential of Artificial intelligence, machine learning and machine vision from pilot projects to full-scale production. Our comprehensive approach encompasses strategizing, consulting, engineering, and validating AI solutions, ensuring businesses maximize their investments in cloud and data technologies. Partner with Acuvate to stay ahead of the competitive curve and transform innovative ideas into tangible business outcomes with our cutting-edge AI services.

CAPABILITIES

Acuvate's AI services capabilities include the below

Computer Vision/Machine Vision

Acuvate helps enterprises conceptualize, validate, prototype, build and integrate computer vision solutions into enterprise applications. We specialize in object detection, object recognition, OCR text extraction, Image preprocessing techniques and live stream real time Video analytics. We leverage Multimodal Gen AI, Deep learning and classic machine learning to make the computer vision and machine vision model objectives a reality with high business ROI.

Natural Language Processing (NLP)

Our services have been used to build tools that can navigate through petabytes of structured and unstructured textual information, summarize, classify, analyze sentiments, retrieve key data for enterprises to be able to make swift decisions based on the textual information. This has helped enterprises simplify business workflows and make applications become co-pilots for employees and front-line workers.

Predictive Analytics

Turn insights from historical data and contextualization to predict what's coming in advance to eliminate threats and identify new business opportunities with Acuvate's custom built predictive and forecasting models. Our Data Science specialists build and utilize classification, clustering, time-series, and other types of algorithms that discover trends and patterns within dataset of inventory, manufacturing, demand, sales, marketing to create accurate forecasts.

Anomaly Detection

Spot deviations, fraud, or malfunctions before they cause any real harm. Acuvate has been helping enterprises effectively manage risks and maintain high standards of operation with ML-Based Anomaly detection to enhance customer experience, data quality, optimize machine utilization and improve operational stability.

Recommendation Engine

Acuvate's AI-powered recommendation engines enhance customer engagement by delivering highly personalized content and product suggestions. By analyzing user behavior and preferences through advanced algorithms such as collaborative and content-based filtering, these engines predict and suggest products that align closely with user interests. This system is effective across various platforms, including e-commerce and social media, helping to boost sales and improve user experience by keeping content relevant.

AI-Powered Data Engineering

Acuvate's Data engineers leverage AI powered data pipelines and overall data infrastructure management. We have been helping customers employ AI-powered data engineering to meet strategic business priorities at a faster pace.

Data Governance with AI

In data governance, Acuvate leverages AI to ensure data quality and compliance across the organization. By integrating AI technologies, the governance frameworks can automate data management processes, enforce policies, and provide actionable insights. This AI-enhanced governance helps in maintaining accurate and consistent data, which is crucial for regulatory compliance and operational efficiency.

MLOps

Acuvate's MLOps practices streamline the lifecycle of machine learning models from development to deployment and maintenance. This involves continuous integration and delivery pipelines for ML systems, automated testing, and monitoring of models in production to ensure they perform optimally over time. MLOps is essential for businesses looking to scale their AI capabilities efficiently while minimizing downtime and technical debt. Our MLOps practice will leverage MFlow in Databricks.

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USE CASES

Predictive Maintenance

Acuvate data platform predicts when a particular machine will require maintenance or is at risk of failure, enabling proactive repairs and minimizing downtime. This predictive capability is powered by analyzing historical data and real-time performance metrics using advanced machine learning algorithms. This approach not only increases the reliability and lifespan of the machinery but also optimizes maintenance costs and improves overall operational efficiency.

Demand and sales forecasting

Acuvate's AI-driven platform leverages historical sales data, market trends, and consumer behavior analytics to predict future demand and sales with high accuracy. This enables businesses to optimize inventory levels, streamline supply chain operations, and enhance strategic planning. By anticipating market changes and customer needs, companies can adjust their production schedules, marketing strategies, and distribution plans effectively, ensuring they meet customer demands while minimizing surplus and shortages.

Material wastage reduction

Acuvate's AI solutions help businesses minimize material waste by optimizing manufacturing processes and supply chain management. Using predictive analytics, the system identifies inefficiencies and predicts points of waste before they occur. This allows companies to adjust their procurement, production, and distribution strategies in real-time, ensuring materials are used more efficiently. The platform also supports sustainable practices by improving resource allocation, reducing excess production, and facilitating recycling efforts, thereby contributing to cost savings and environmental sustainability.

Computer vision for HSSE

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Computer vision for Inventory management

Acuvate's AI-powered computer vision technology revolutionizes inventory management by automating the tracking, counting, and management of stock in both manufacturing and retail environments. This system utilizes cameras and image recognition software to continuously monitor inventory levels, detect discrepancies, and update stock records in real-time. In manufacturing, it ensures that materials are available just in time for production, reducing storage costs and enhancing efficiency. In retail, it helps in accurate shelf stocking and quick identification of low-stock items, improving customer satisfaction by ensuring product availability. Additionally, this technology aids in loss prevention by identifying unauthorized removal of items from inventory.

Computer vision for product quality

Acuvate employs state-of-the-art computer vision technologies to enhance product quality control processes across manufacturing sectors. This system utilizes high-resolution cameras and deep learning algorithms to inspect products in real-time during production. It automatically detects defects, inconsistencies, and deviations from standard specifications with high precision and speed. This allows for immediate corrective actions, reducing the risk of poor-quality products reaching consumers. By integrating this technology, companies can uphold stringent quality standards, reduce manual inspection costs, and increase customer trust through consistent product excellence.

Recommendation Engine

Acuvate's AI-powered recommendation engine personalizes user experiences by suggesting products, services, or content that align with individual preferences and past behaviors. This technology utilizes advanced machine learning algorithms to analyze user data, including purchase history, browsing patterns, and preferences, to generate tailored recommendations. This not only enhances customer satisfaction and engagement by making relevant suggestions but also increases conversion rates and boosts sales. The engine is versatile and can be integrated across various platforms such as e-commerce websites, streaming services, and content portals, providing a seamless and intuitive user experience.

Anomaly detection for fraudulent transactions

Acuvate with its solution offerings employs sophisticated anomaly detection techniques to identify and prevent fraudulent activities in real-time. This system analyses vast amounts of transaction data to spot unusual patterns and behaviours that deviate from the norm, which are often indicative of fraud. By leveraging machine learning models and statistical algorithms, the platform can quickly isolate suspicious transactions and alert security teams, minimizing the risk of financial loss. This proactive approach not only protects revenues but also safeguards customer trust and complies with regulatory requirements, making it essential for industries like finance, retail, and telecommunications.

Anomaly detection for IoT data quality

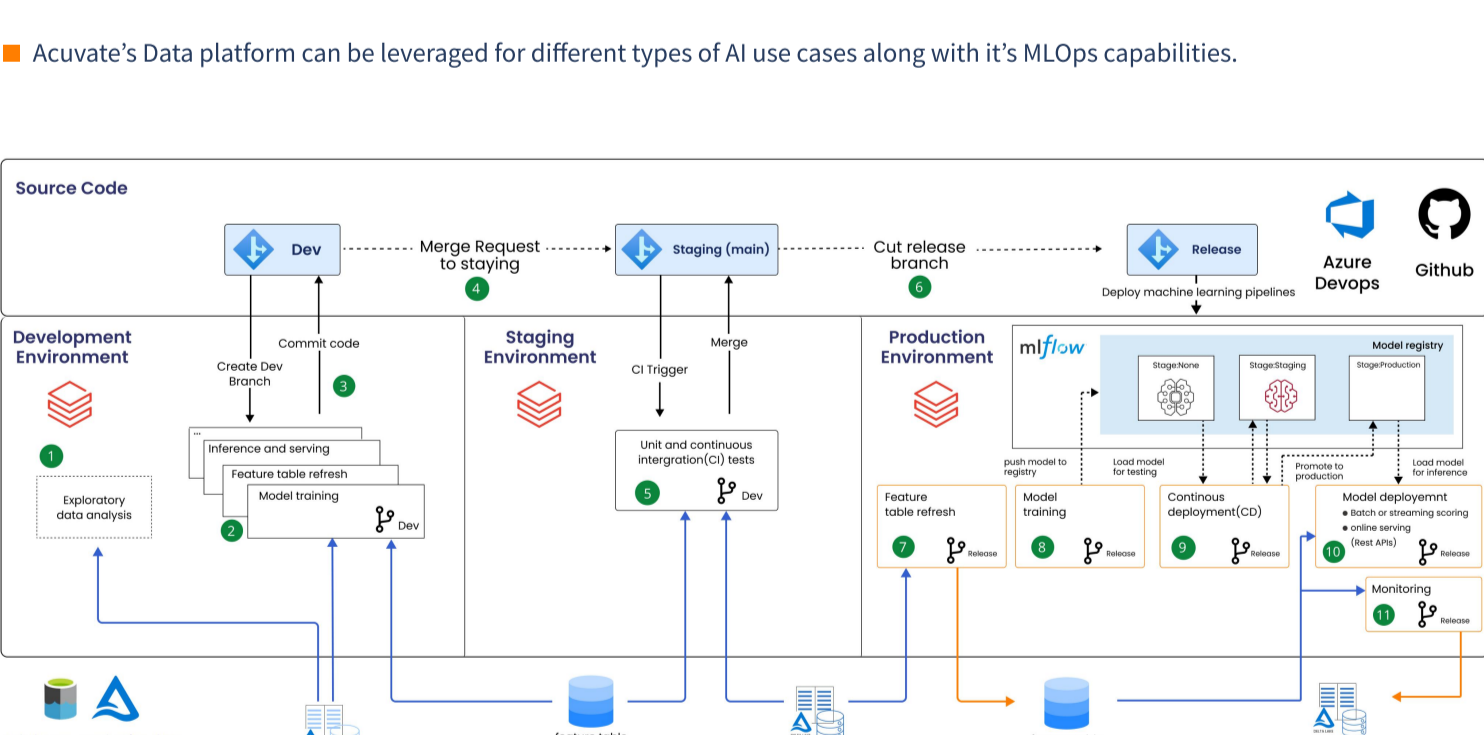
Acuvate's AI framework enhances the reliability of IoT ecosystems by continuously monitoring data quality and detecting anomalies. Using advanced machine learning algorithms, the system analyzes data streams from IoT devices in real-time to identify outliers, errors, or inconsistencies that could indicate device malfunctions, environmental interference, or cyber-attacks. By promptly addressing these issues, the platform ensures the integrity and accuracy of data, which is crucial for making informed decisions and maintaining the efficiency of automated processes. This capability is vital in sectors such as manufacturing, healthcare, and smart cities, where IoT device performance directly impacts operational success.

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BUILDING BLOCKS

Acuvate leverages the Acuvate data platform and the modern data and ai stack to implement the AI services. The technical capabilities used for implementing AI solution are:

- Acuvate's Data platform can be leveraged for different types of AI use cases along with its MLOps capabilities.



- Our solution is a data-centric approach to AI.
- The best practice being followed is to deploy the code in a separate pipeline from the models.
- Core components of the AI project are data pipelines - Feature engineering, training, model deployment, inference, and monitoring pipelines.
- Acuvate data platform has unified data governance that registers the models being deployed.
- Operationalizing an AI solution would need joining data from predictions, monitoring, and feature tables with other relevant data tables. So we use the same best practices which we use for managing production data.
- Acuvate data platform provides a well structured organization of data and AI assets within it's unified governance framework so it is easy to identify and locate these assets when needed.
- An AI solution consists of data, code and models. These need to be developed, tested(staging) and deployed(Production).
- For model pre-deployment, Acuvate data platform performs pre-deployment checks and realtime model deployment.
- Code and models progress asynchronous through these stages. So Acuvate data platform manages the model artifacts independent to code, so production models can be updated independent of code.
- Pre-deployment checks include : Deployment readiness checks, load testing for Latency, Throughput, standard load evaluation, stress assessment.
- Real time model deployment includes A/B testing, gradual rollout, shadow deployment.

SUPPORT

Support options:

- Contact our Advisors for online access to information on how to exploit these services to solve your Business problem(s) à advisors@acuvate.com and you will be contacted within 24 hours.
- Integration:** Integrating our solutions with company components, such as our sources and reporting tooling already in place.
- Operational support:** Once installed we offer Operational Support & Management services including all elements you expect such as: Alert management; Preventive Management; Housekeeping; Performance Management; Evergreening; etc. and SLA based.

LICENSING

Given the various components do contact Support as above about this.