

Factsheet: Acuvate Generative AI Services

INTRODUCTION

Acuvate's Generative AI services provide state-of-the-art solutions that harness the power of advanced AI technologies like ChatGPT and other large language models (LLMs). These services aim to revolutionize business operations by generating human-like text, automating complex tasks, and enhancing data-driven decision-making processes. Generative AI capabilities offered by Acuvate are designed to improve operational efficiency, drive innovation, and deliver personalized experiences for both customers and employees.

Generative AI leverages machine learning algorithms to generate new data, insights, or content from existing datasets. This technology enables enterprises to transform their operations by automating content creation, enhancing customer and employee experiences, and providing deep analytical insights. By using generative AI, businesses can achieve a new level of efficiency and innovation that is crucial in today's competitive landscape.

CAPABILITIES

Acuvate's Generative AI services capabilities include the below:

Chatbots and Automation

- Develop intelligent chatbots that can handle structured and unstructured data, providing seamless customer service and support. These chatbots can understand and respond in natural language, enhancing the customer experience.
- Implement automation solutions to streamline repetitive tasks, allowing human workers to focus on higher-value activities, reducing errors, and increasing productivity.

Data Visualization and Analytics

- Utilize Generative AI for advanced data visualization, making complex data more accessible and understandable. This helps in uncovering hidden patterns and insights.
- Enhance data analytics with generative AI to derive deeper insights, support predictive analytics, and drive strategic decisions.

Marketing content generation

- Use generative AI to create compelling marketing content, including blog posts, social media updates, product descriptions, and email campaigns. This capability helps marketing teams to generate high-quality content at scale, ensuring consistency in brand voice and messaging while freeing up time for strategic activities. AI-driven content generation tools can quickly adapt to different marketing needs, providing creative and relevant content that resonates with target audiences.

Model Fine-Tuning

- Fine-tune AI models to meet specific business requirements, improving accuracy and performance in various applications. Custom models can be developed to cater to unique business challenges.

Prompt Engineering

- Design and optimize prompts for AI models to ensure they generate the desired outputs efficiently and effectively. This involves crafting precise queries that yield accurate and relevant AI-generated content.

Knowledge Graph generation

- Develop comprehensive knowledge graphs that integrate diverse data sources, enhancing information retrieval and knowledge management. These graphs can help in connecting and contextualizing vast amounts of data, making it easier to draw actionable insights using generative AI.

Voice Assistants

- Create generative AI-powered voice assistants for various applications, from customer service to internal business processes. These assistants can understand and respond to voice commands, providing a hands-free, efficient way to interact with systems and data.

Custom Vision Agents

- Develop custom vision agents that use AI to analyze and interpret visual data. These agents can be used in applications such as quality control, security monitoring, and automated inspections. By leveraging computer vision, businesses can automate visual tasks, reduce errors, and improve operational efficiency.

LLMOps

- Implement LLMOps to manage, deploy, and maintain large language models efficiently. This includes monitoring model performance, ensuring data privacy and compliance, and continuously updating models to improve their capabilities. LLMOps streamlines the lifecycle management of large language models, making it easier to integrate them into business operations.

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USE CASES

IT Helpdesk Enablement

Acuvate Gen AI data platform automates IT support with Generative AI, providing quick, context-aware resolutions to technical issues, thereby reducing downtime, and improving productivity. Generative AI can handle common queries, escalate issues when necessary, and provide detailed troubleshooting steps.

Content Generation

Use generative AI to create high-quality content for marketing, communications, and other business needs, saving time and resources. AI can generate reports, articles, product descriptions, and more, ensuring consistency and quality.

Employee Experience Enhancement

Transform the workplace with generative AI solutions that streamline processes, enhance communication, and improve overall employee satisfaction. AI can assist with onboarding, training, and ongoing support, creating a more engaged and productive workforce.

Vision use cases

Quality Control

Use Generative AI-powered multimodal vision systems to inspect products for defects, ensuring high-quality standards and reducing waste. For instance, automated visual inspections can quickly identify flaws in manufacturing processes.

Automated Inspections

Deploy Generative AI vision agents in industrial settings to automate inspections of machinery and infrastructure. This helps in identifying maintenance needs and preventing equipment failures.

Logistics and Warehousing

Implement AI vision systems to manage inventory, track shipments, and optimize warehouse operations. These systems can automate inventory counts, detect damages during handling, and ensure efficient storage and retrieval processes, improving overall logistics efficiency.

Customer Engagement voice assistants

Implement Generative AI-driven chatbots to enhance customer interactions, providing personalized responses and support that improve customer satisfaction and loyalty. These chatbots can handle inquiries 24/7, ensuring consistent customer service.

Data-Driven Decision Making

Leverage Generative AI to analyze large datasets, providing actionable insights that support strategic business decisions. AI can identify trends, predict outcomes, and suggest actions, helping businesses stay ahead of the curve.

HSSE Monitoring

Implement Generative AI-driven vision systems for real-time surveillance, identifying potential security threats and ensuring safety. These systems can recognize suspicious activities and alert security personnel promptly.

Retail Analytics

Use AI vision to analyse in-store customer behaviour, optimizing product placements and store layouts to enhance the shopping experience and increase sales.

BUILDING BLOCKS

Acuvate leverages the Acuvate Generative AI data platform as an accelerator for implementing various generative AI use cases.

The technical capabilities used for implementing generative AI solution are

- Acuvate's Generative AI platform can be leveraged for different types of Generative AI use cases along with its LLMOps capabilities. The foundation of the platform is built on databricks, is portable to any cloud platform.
- Solution can be implemented on-premises as well as on cloud. On-premises implementations are on edge computing with GPU capabilities.

Conversation Channels

This module facilitates access various platforms such as chatbots, voice assistants, and messaging apps, ensuring seamless communication between users and the GenAI system. Provides an ability to integrate with Copilot studio to enable on the different channels.

LLM Model Abstraction

Provides an abstraction layer for integrating various Large Language Models (LLMs), enabling easy switching and management of models based on specific use cases and requirements. Has built-in LLM api's for Azure OpenAI, Llama2, Phi-3 etc.

RAG Chain

Provides a Retrieval-Augmented Generation (RAG) approach, combining the strengths of retrieval-based methods with generative models to enhance the accuracy and relevance of generated content. This helps in pre-processing of the user queries, context management before user query for further processing.

Summarization

Utilizes Generative AI models to shorten lengthy response and conversations into concise summaries, making it easier for users to digest.

Orchestration

Manages and coordinates the interactions between different modules, ensuring smooth and efficient workflow execution within the GenAI platform. Here the platform leverages orchestration tools like Langchain, Semantic Kernel. Built-in agents to do multi-model processing.

Prompt Engineering

Focuses on designing and optimizing prompts to elicit the best possible responses from generative models, improving the quality and relevance of generated content. Has built-in prompt library with industry standard prompts based on our experience working with multiple enterprises.

Validation, Monitor & Logging

Provides mechanisms for validating prompts, outputs, monitoring system performance, and logging interactions to ensure reliability, traceability, and continuous improvement of the GenAI platform. Built-in KPIs for the central GenAI team to monitor the application performance, continuous improvements, improving the adoption of GenAI application.

Security & Governance

Ensures that all data and interactions within the platform are secure, compliant with regulations, and governed by robust policies to protect user privacy and maintain trust. Has the built-in prompts for managing the guardrails around the data.

Responsible AI

Embeds ethical considerations and fairness into the AI models, promoting transparency, accountability, and the minimization of biases in AI-generated content.

Data Platform Integration

Integrates with data platform for seamless data handling and management, supporting both structured and unstructured data.

Front End Interface

Provides a user-friendly front end interface for platform users, including GenAI platform administrators, Platform users, and technical teams, enabling easy interaction and management.

Support for Multiple Languages

Supports various languages to cater to a diverse user base, ensuring wider accessibility and usability.

User Authentication & Authorization

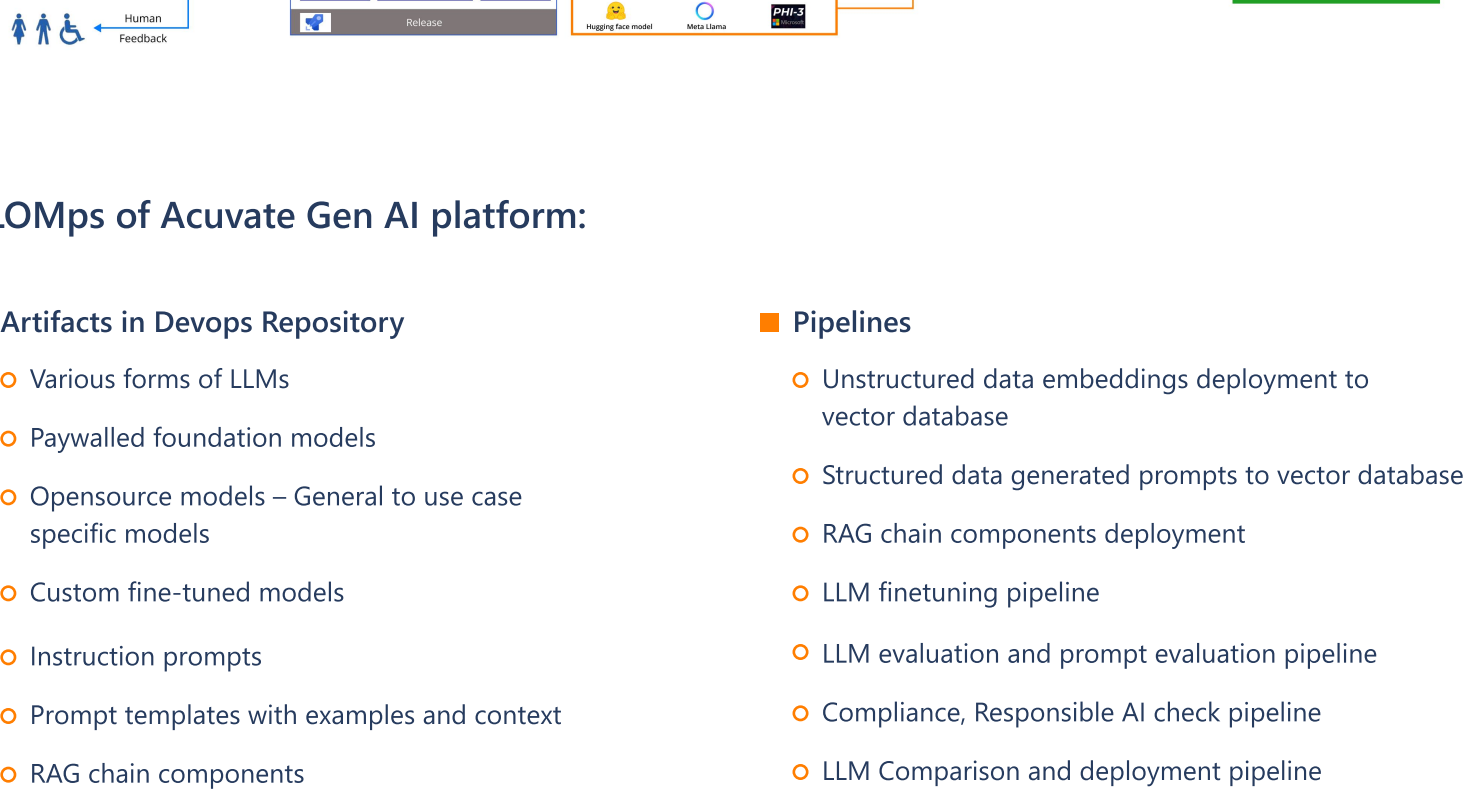
Implements advanced user authentication and authorization mechanisms, integrating with Active Directory for secure access management.

LLM Ops

Develops LLM operations (LLM Ops) for continuous integration, deployment, and management of LLM models, ensuring scalability and efficiency.

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LLMOps-APPROACH



LLMOps of Acuvate Gen AI platform:

- Artifacts in DevOps Repository**
 - Various forms of LLMs
 - Paywalled foundation models
 - Open-source models – General to case specific models
 - Custom fine-tuned models
 - Instruction prompts
 - Prompt templates with examples and context
 - RAG chain components
 - Model Abstraction layer artifacts
- Serving Infrastructure**
 - GPUs with cost performance tradeoffs by reducing model size and computation
- Pipelines**
 - Unstructured data embeddings deployment to vector database
 - Structured data generated prompts to vector database
 - RAG chain components deployment
 - LLM finetuning pipeline
 - LLM evaluation and prompt evaluation pipeline
 - Compliance, Responsible AI check pipeline
 - LLM comparison and deployment pipeline
 - End point updating pipeline
- Human in the loop**
 - LLMOps process and tech stack has included human in the loop to have the models evaluated and tested for future fine-tuning

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 data 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.

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