Lenovo and Guise AI, Inc. AI Solution for Anomaly Detection, Computer Vision and Predictive Maintenance

Gain actionable insights from real-time data extracted at the far edge to grow your top line and create greater operational efficiencies.

Overview

Guise AI solves real-world problems for enterprises, governments and utilities at the far edge. For organizations operating in resource constrained environments or who face issues with latency, bandwidth or privacy (e.g. retail, energy, smart cities, manufacturing) it is necessary to run algorithms at the edge where data is generated. Guise AI products leverage local compute to extract meaningful data delivering better insights for enterprises.

Guise AI extracts actionable data at the far edge to help clients reduce unplanned downtime and increase production, understand customer behavior, and realize operational efficiencies. Guise AI makes data insightful and actionable for its customers across Retail, Oil & Gas, Smart Cities, and Industrial Manufacturing through interactive dashboards and APIs.

The Challenge

Industries such as retail, energy (Oil & Gas initially), industrial manufacturing, and smart cities can gain significant efficiencies by utilizing AI. The need to leverage AI, from understanding customers to improving operational efficiencies, is greater than ever. But adoption has remained relatively flat because of historical inability to optimize for: (i) resource constrained environments; (ii) latency; (iii) efficiency in system design (hardware and cloud costs); and (iv) privacy.

The Solution

Lenovo in partnership with Guise AI has created a state-of-the-art solution at the edge, extracting real-time actionable data so clients can leverage these insights to grow revenue and generate operational efficiencies.

This solution uses Lenovo's ThinkEdge Servers (including the SE30, SE50, SE350, and SE450) at the edge. Guise AI algorithms are optimized for Intel® Distribution of OpenVINO™ toolkit. Intel® Distribution of OpenVINO™ toolkit provides best-in-class performance on a range of Intel processors and other hardware platforms.

Guise AI products are licensed to customers on a per use case per device or through an enterprise license. Dashboards are available as well as a proprietary EdgeOps platform for scalability and automation at the edge.

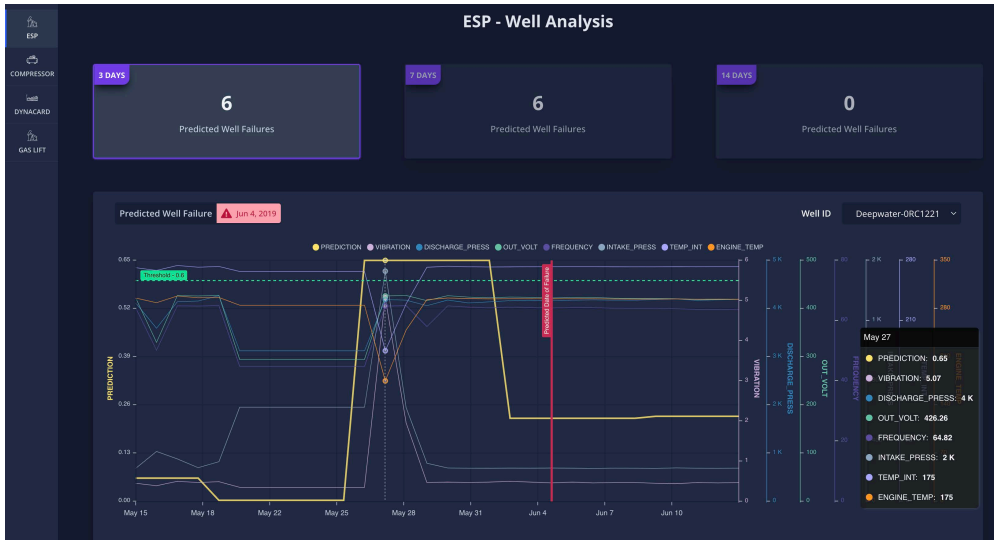
Use cases include:

- Predictive maintenance (Oil & Gas)
- Process optimization (Logistics, Oil & Gas, Industrial Manufacturing)
- Retail customer behavior (Logo detection, People count, Age & Gender, Dwell time, Apparel color)
- Traffic Management (ANPR, Vehicle count, Automotive logo)

The Results

Guise AI's solution is built from the ground up to create use cases that reduce unplanned downtime, achieve process optimization, transform the customer experience, and increase ROI. For Oil & Gas, these predictive maintenance products reduce costly unplanned equipment downtime and increase production, generating greater revenue and lowering costs. Computer Vision use cases for Retail, Smart Cities and Industrial Manufacturing use next-gen AI to improve operations or customer experience.

Traffic Management



Oil & Gas Predictive Maintenance and Equipment Behavior

[1]Approximately 80% or more of projects stall before deploying an ML model, according to a poll conducted by **KDnuggets in 2022.**

Retail - Apparel Logo Detection

Validated Architecture

- Guise AI Platform can be deployed at the far edge and on-premise, based on the requirement.
- Guise AI provides the necessary hardware requirements.
- Pricing for software licenses is based on a per use case, per device basis and typically is an annual license with automatic renewal.
- The Applications of Guise AI are containerized and run on RHEL, Ubuntu, and Windows.

The solution is built with microservices container architecture for real time processing of the data at the edge and inferencing on machine learning models optimized for best performance on the low compute resources with Intel® Distribution of OpenVINO™ toolkit. It helps in deploying applications at the edge and scale.

Design Components

	Servers	Software Accelerator	AI Software
Edge	Lenovo ThinkEdge SE30, SE50, SE350, and SE450 Servers	Intel® Distribution of OpenVINO™ toolkit	Guise AI Solutions

Resources

- Explore the Lenovo HPC and AI Innovation and Briefing Center
- Lenovo Validated Design for AI Infrastructure on ThinkSystem Servers
- www.guise.ai

Why Lenovo

Focused on a bold vision to deliver smarter technology for all, Lenovo is developing world-changing technologies that create a more inclusive, trustworthy, and sustainable digital society. By designing, engineering and building the world's most complete portfolio of smart devices and infrastructure, we are also leading an Intelligent Transformation – to create better experiences and opportunities for millions of customers around the world.

Why Intel

Intel CPUs are flexible processors designed to handle most AI workloads. Intel® Core™ processors are ideal for AI at the Edge, enabling AI for local cameras, robots, drones, distributed equipment, and other edge devices with technology tuned for low-latency inference. Since most ThinkEdge systems are Intel vPro™ platforms, they include Intel® Active Management Technology with support for remote management over Wi-Fi and over the cloud. With a range of AI capable processors supporting deployments from data centers to the edge, Intel Xeon processors are the foundation for deep learning inferencing with AI enhanced capabilities (e.g., Intel® Deep Learning Boost, Intel® AVX 512) integrated in the silicon. The Intel® Distribution OpenVINO™ provides best-in-class performance on a wide range of Intel processors, as well as other hardware platforms.

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