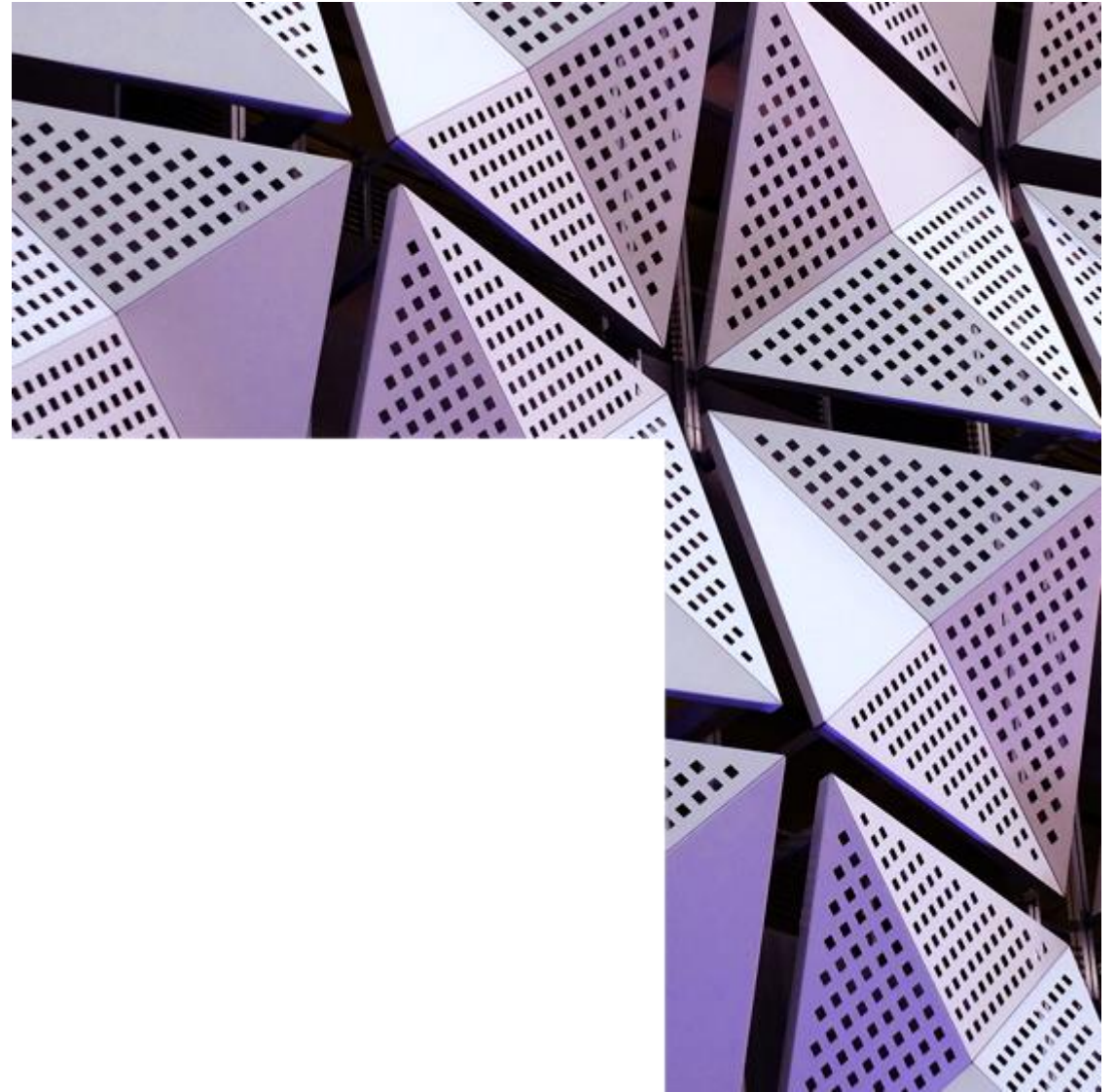


Introduction to CGI Machine Vision IP



Solution overview

Machine Vision (MV) is CGI's **visual generative AI platform**. Built on **deep neural net technology** and a **large language model** trained on over a **billion images**, it uses **edge computing** and **IoT** to fundamentally **understand** objects and people. Like Copilot for vision.

Monitoring the Unmonitorable

MV can **remotely monitor infrastructure, assets and people** autonomously for condition and safety

Tracking the Untrackable

MV can **track objects and people in real time** using its deep knowledge to **understand** and **distinguish** them

Business Value

- 1 Continuous **monitoring** of asset / infrastructure condition and ability to pro-actively address
- 2 Reduction in operational **costs** by identifying problems before they become a disaster
- 3 Intelligent **tracking** of anything that moves to recognize unique characteristics even if it disappears and returns





Sample Use Cases

People Dynamics



- Counting people at events and hosting facilities
- Monitoring crowds at stations to keep public transport passengers safe
- Retail interest 'heat maps' to inform product and services placements

Infrastructure



- 24x7 Monitoring of unmanned facilities such as water treatment plants, dams, pipes and substations to produce alerts for stopped or slow equipment, water leaks, or to produce alerts for unusual activity e.g. people.

Flood & Erosion Monitoring



- Monitoring the integrity of remote or physically difficult to access assets such as bridges and [railways](#).
- Producing alerts about property damage due to for example, flooding or vegetation encroachment or wear and tear.



Sample Use Cases

Traffic



- Detect impending bridge strike, or level crossing issues before vehicle impact
- Extraction of vehicle registration plate details in real time
- Gauge volume and loads of vehicles
- Detect loose or unsecured loads
- Supports multiple lanes of traffic

Smart Meters



- Near real-time water usage measurements
- Intelligent tracking of water usage source e.g. showers, toilet
- Warning of leaks and other disruptions
- Digital readers can be added to existing meters without need for plumbers

Construction



- Improve worker safety and security compliance through people video analytics:
 - monitor use of safety and protective clothing
 - detect workplace accidents
 - spot potential hazards ahead of time
- Vehicle site visit tracking

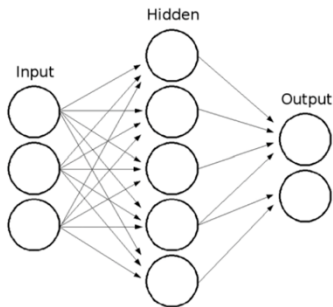
Differentiators

1

Model Training

Machine Vision is based on **Large Language Model** technology, training on millions of open-source images.

New use cases, locations and objects **do not require building a new model** from the bottom up with thousands of annotated images – only model prompting and tweaking.

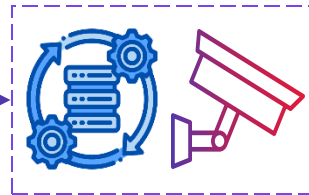


2

Edge Deployment

The Machine Vision LLM is pruned, shrinking the model down and allowing it to efficiently run on low-power **edge devices** at the source.

The edge device sends only **meta-data** back to the cloud – minimizing bandwidth and **enhancing data privacy**.



3

Situational Understanding

Machine Vision has superior spatial, temporal and contextual **awareness** compared to traditional AI.

High model performance adapting to **dynamic environments** with obstructions, variable weather conditions and changing camera angles.



4

Real-Time Response

Real-time alerts via 4G connection, supplementing smart analytics to **monitor and predict** unfolding operational situations and detect **threshold breaches**.

Dynamically update use cases and interact with video feeds in real time with **LLM capability**

