

INTEL EDGE AI ECOSYSTEM PARTNER PORTFOLIO E-BOOKLET

Introducing a portfolio of commercial grade products, and ready to scale offerings that are optimized by Intel® Distribution of OpenVINO™ toolkit from Intel Edge AI ecosystem partners

2020 January Release

EDGE COMPUTING ECOSYSTEM OFFERINGS



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Foxconn Converged Edge Reference Architecture (CERA) for Multi-Access Edge Computing Solutions 日本 Foxconn 鴻海科技集團

Foxconn is developing revolutionary multi-access edge (MEC) solutions based on Intel's Converged Edge Reference Architecture (CERA) and Intel® Xeon® D and Intel® Xeon® Scalable Processors.

Equipped with AI, networking and cloud computing, Foxconn has become a pioneer of the "Advanced Manufacturing + Industrial Internet" ecosystem. Foxconn is committed to providing high-quality, premium products, services, and solutions.

Industrial MEC solution and combined MEC and cellular base station benefits

Standalone MEC solution utilizes a server powered by a single-socket Intel® Xeon® D Processor

- Intel® Xeon® D Processors support high-density, single-socket network, storage, and edge computing with a range of integrated security, network, and acceleration capabilities
- Designed for applications like MEC that have space and power constraints

MEC private wireless solution supports 4G/LTE and 5G new radio networks on a dual-socket Intel® Xeon® Scalable Processor-based server

 Configured so Intel® Xeon® Processor socket can deliver LTE base station services including virtual radio access network (vRAN), virtual evolved packet core (vEPC), and 5G new radio centralized unit (CU) services while the other CPU is utilized for MEC services

Features

- Supports hardware acceleration for applications that use Al
- Intel® Arria® 10 FPGA and Intel® Movidius™ Myriad™ X Vision Processing Unit (VPU) can be added to either server to provide a dedicated engine for accelerating deep learning inferencing at the edge
- CERA network function
 virtualizations infrastructure
 (NFVI) has been tested with
 several virtual network functions
 (VNFs) that help facilitate 5G
 radio access network
 functionality (RAN) for private
 wireless networks
 - Utilizes FlexRAN software-based radio reference architecture in its private wireless solution, to enable cloud RAN in a variety of flexible configurations
- Facilitates compatibility with a wide range of VNFs using open source software for the NFVI
- Built in Open Network Edge Services Software (OpenNESS), an open source software toolkit developed by Intel to enable easy onboarding, deployment, and management of edge services across diverse network platforms

QNAP Converged Edge Reference Architecture (CERA) for Retail

Q Universal Customer Premises Equipment (uCPE) edge server from QNAP Systems, Inc. leverages Intel's Converged Edge Reference Architecture (CERA) as the foundation for retail store platforms with an AI framework. CERA unifies and converges edge workloads into a single platform, enabling IoT with 4G and 5G wireless infrastructure technology.

QNAP Systems, Inc., headquartered in Taipei, Taiwan, provides a comprehensive range of cutting-edge network-attached storage and video surveillance solutions.

Benefits

QNAP uCPE edge servers enable new, valuable use cases through revolutionary video and analytics, along with improvements in latency, data privacy, and reliability. By adopting CERA, QNAP uCPE edge servers can help retail chains converge multiple workloads and functionalities into a single server.

- Based on Intel® Xeon® D processors designed for applications that have space and power constraints
- Supports Intel® QuickAssist Technology (Intel® QAT) for heavy encryption and decryption needs
- Leverages Open Network Edge Services Software (OpenNESS), an open source toolkit to enable easy onboarding, deployment, access and management of edge services across diverse platforms and multi-cloud environments

Features

QVR Pro: surveillance storage and monitoring solution

- **Embedded monitoring channels** for a complete surveillance environment
- Support for up to eight 1080p video streams
- Smart motion detection analyzes posture, motion, and movement



QVR Center centralized management software

- **Coverage of multiple distributed** instances of QVR Pro allowing users to plan for both busy and quiet periods
- Health status display for individual QVR Centers to pre-plan for maintenance

Intel® Distribution of OpenVINO™ toolkit

QNE supports a full AI framework for facial and object recognition based on the Intel® Distribution of OpenVINO™ toolkit. The toolkit helps enable deep learning inference and execution across multiple Intel platforms at the network edge or across cloud architectures. Deep learning retail use cases enabled by OpenVINO include:

- Object recognition can automatically track a shopper's Face Recognition VNF scan faces on a surveillance cart allowing for automated checkout with integrated facial recognition and object recognition AI engines
 - video, a camera, or uploaded video and quickly and accurately compare them to profile photos in a database

DycodeX SMARTernak Cattle Farm Assistance Platform



DycodeX SMARTernak is an IoT + AI-powered cattle farm assistance platform. The platform allows farms to manage livestock more efficiently and reduce loss by monitoring cattle location, health, and status through AI-powered insights.

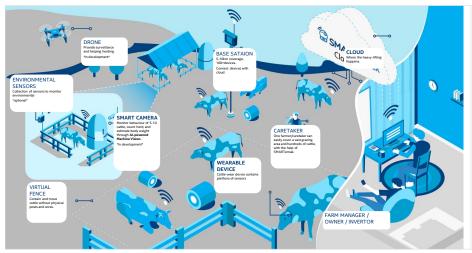
SMARTernak is designed and developed by **DycodeX**, Indonesia's leading AI + IoT, and maker movement enabler. DycodeX is a pioneer and leader in the development of end-to-end IoT- and AI-based systems in Indonesia.

Benefits

- ✓ Cut human resources costs by automating coverage of vast grazing areas
- ✓ **Improve efficiency** by containing and managing cattle without the need for posts and wires
- ✓ **Reduce livestock loss** through escape, theft, or accidental death of non-eating cows

Components and Features

- Cattle-Wearable Device and environmental sensors can detect motion, GPS location, body temperature, device removal, and also ambient temperature, ambient light, and more.
- ✓ **On-Farm Smart Camera** provides cattle herd counting and monitoring of 5-10 cattle at a time to provide behavior analysis, weight estimate, etc.
- Base Station connects devices with the SMARTernak Cloud over Low-power wide-area (LPWA) network, for analytics, allowing farm decision-makers to detect, learn about, react to, and predict cattle behavior. LPWA network is leveraged to provide cost-effective, low-power, and wider coverage connectivity.



Accelerated through Intel®
Distribution of OpenVINO™
toolkit: Deep neural networks
were accelerated by Intel®
Distribution of OpenVINO™
toolkit on Intel® Myriad™ X
VPUs/Intel® Neural Compute
Stick 2. This powerful
combination enabled AI deep
learning-assisted
recommendations to predict
cattle behavior.

Project CORaiL Coral Restoration & Research Smart Buoy

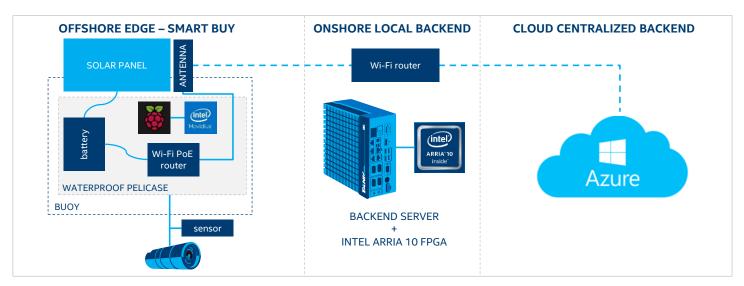


Project CORaiL Coral Restoration & Research Smart Buoy from Sulubaaï Environmental Foundation is a fully functional, modular AI-powered environmental monitoring proof-of-concept. Project CORaiL uses an underwater camera unit to continuously count and analyze visible reef fauna, providing granular and frequent insight into reef population and health without disrupting marine life.

Components and Features

Consists of a buoy equipped with marine grade solar panels, batteries and transmitting device (Wi-Fi or 4G), as well as a camera attached to the mooring line

- Transmits images at regular intervals on Azure app to remote PC
- Counts and classifies the marine population with a custom-trained inference model
- · Displays reporting dashboards



Accelerated through Intel and Intel® Distribution of OpenVINO™ toolkit:

- Leveraged Intel® Myriad X VPU on Intel® NCS 2 plus on buoy, Intel® Arria 10 FPGA on local backend IEI Tank PC
- ✓ Intel® Distribution of OpenVINO™ toolkit for deep learning acceleration and integration using frameworks like TensorFlow

To learn more, please visit: <u>sulubaai-foundation.com</u>

Hitachi Diagnostic Imaging with Intel® DevCloud for the Edge



Hitachi is improving healthcare quality through intelligence at the edge by leveraging high-performance Intel® AI technologies like **Intel® DevCloud for the Edge** and Intel® Distribution of OpenVINO™ toolkit.

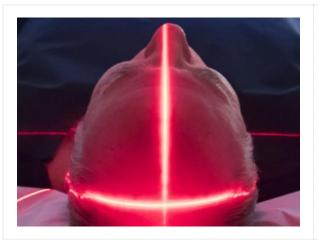
Acceleration through Intel® DevCloud for the Edge

Hitachi accelerated prototyping and testing using Intel DevCloud for the Edge—a cloud-hosted sandbox—in order to innovate, refine, and speed time-to-market for their imaging solutions.

- ✓ Collaborated seamlessly—as if they were on Hitachi's own internal development environment
- ✓ Moved GPU algorithms to OpenVINO with no significant schedule disruption
- ✓ Optimized solutions at a lower cost and minimized long-term maintenance support while delivering the reliability and accuracy essential to the healthcare industry

Acceleration through Intel® Distribution of OpenVINO Toolkit

Hitachi sought to accelerate development time by leveraging AI and targeting smoother integration and fusion of AI and non-AI algorithms by Intel® Distribution of OpenVINO™ toolkit.



- ✓ **Pre-integrated** in select Intel®-based offerings
- ✓ Minimal learning curve for developers
- Flexible software development environment for deep learning inference
- ✓ Enables scalability and performance with information to prepare hardware systems powered by Intel® Xeon® Scalable Processors and Intel® Core™ Processors

To learn more, please visit: https://devcloud and software.intel.com/en-us/devcloud Explore the Intel® Distribution of OpenVINO™ toolkit at software.intel.com/en-us/openvino-toolkit





Cloudpick Autonomous Store (Cashier Free)

Cloudpick Autonomous Store uses AI technologies based on the Intel® Distribution of OpenVINO™ toolkit to upgrade brick-and-mortar stores into new, digitized, graband-go experiences.



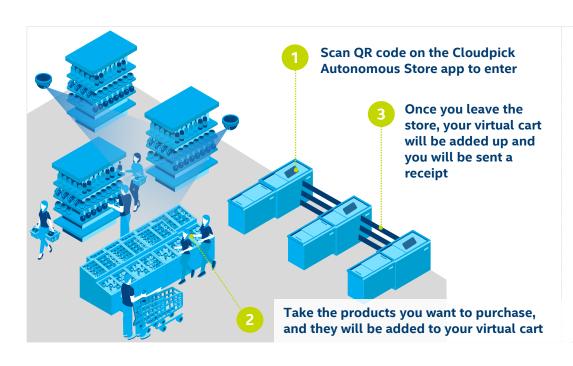
Save labor costsby introducing automation to the checkout process



Increase operational efficiencies by reducing human error



Improve customer
experience by cutting wait
time and minimizing
dependency on staff



- End-to-end security protocols
- Optional components include smart shelf, speed lane turnstiles, learning box, and more

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More Cloudpick solutions at:







WonderStore is a retail service that helps businesses form detailed understandings of customer preferences and needs. The service can profile visitors by extracting data that is traditionally difficult to deduce, such as gender, age, emotion, presence of glasses, cosmetics, traffic flow schedules, and more—then visualize the data to provide actionable insights.



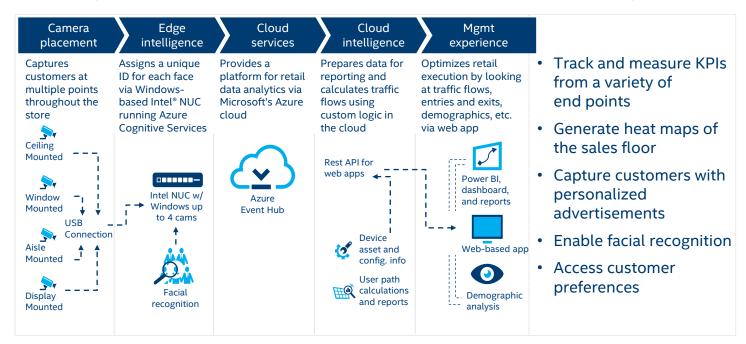
Increase window conversion rates by aggregating data to help design storefronts



Improve customer profiles with a platform that can recognize characteristics



Deploy data-oriented campaigns by tracking traits at the POS and advertising efforts



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More WonderStore solutions at:

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wonderstore



Dahua Smart Retail Solution | So

Dahua Smart Retail Solution helps retailers digitally transform and respond to increased industry competition through extensive video-aided business intelligence and analytics functionality.



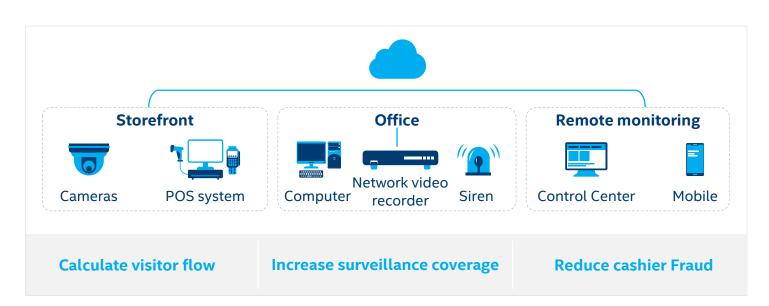
Improve security with HD video surveillance, 24/7 real-time monitoring, and surveillance without blind spots



Preserve profit with facial recognition, POS integration, audio and video overlay, and remote monitoring and playback



Maximize efficiency with intelligent management features, like people counting, heat map viewing, and business intelligence reporting



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Storewide Sale

BUY ONE GET ONE

FRFF

TODAY ON

VISUAL DISPLAY

Shenzhen ASL Giada Digital Signage **Management (GDSM) Solution**

Giada Digital Signage Management solution is a system of media players for various industries and scenarios. The system is part of a new generation of intelligent digital signage that provides information to patrons in a physical space using both single or multi-displays.



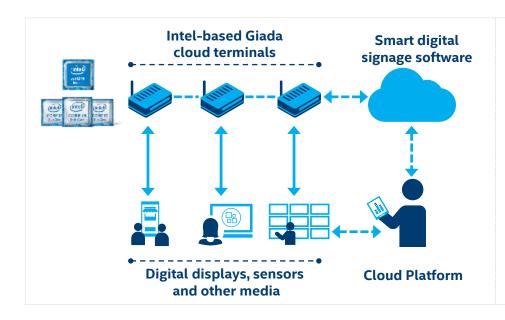
Simplify hardware architecture with a flexible application tailored to the needs of the system



Streamline operations with processes that control technology and maintenance efficiency



Save time through a customized service with independent capabilities and technical support



- High quality visuals
- Interaction between company and customers
- · Real-time release of advertisements and info.
- Product info on consuming preferences

LEARN MORE Intel contact:

ASL Giada contact:

More Giada solutions at:

Giada



Telefónica on the Spot Spotsign Solution

Telefónica On The Spot Spotsign solution is a digital signage system that enables retailers to create, manage, and share key products, services, promotions, and entertainment content playlists. The solution is geared to help drive customer engagement in-store through an easily deployed, low cost platform.



Deploy quickly with an allin-one DIY kit, free images and videos, and customizable templates



Engage customers with content and advertising campaigns and scheduled promotions and messages



Simplify management using a single, access portal that enables updates and monitoring from anywhere any time

Display Hardware A professional screen, videowall, or kiosk

Spotsign Player + Client SW

Application that allows contents to be displayed according to a schedule

SpotDyna Smart Retail cloud platform

Tool for creating, programming, and distributing content across all connected Spotsign Players





Get started quickly with 5-steps

Scale the solution with additional Spotsign sticks

Create customized content

Utilize a drag-and-drop interface

Receive ongoing support

Control content remotely

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More Telefónica solutions at:

onthespot.com/en/

O_onthespot





Digital China Warehousing Business Automation and Visualization of Management Process

Digital China Warehousing Business Automation and Visualization of Management Process solution is an equipment set that helps businesses manage their warehouses to create higher efficiencies and reduce human errors in the picking, packing, and shipping processes.



Enhance warehouse management efficiency with data visualization tools that help supervisors track performance



Improve customer experience, tracking that packages are delivered on time to the correct destination



Decrease costs, labor, and overhead requirements with automation



- Real-time location tracking of personnel, vehicles, and goods in the warehouse circulation process
- Work path planning and dynamic scheduling
- Real-time detection of illegal entry and exit of personnel and vehicles

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More Digital China solutions at:

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Inovance E2E Industrial Machine Vision Solution for Smart Factory

Inovance's E2E Industrial Machine Vision solution is a set of hardware and software that helps manufacturing facilities increase efficiency and accuracy by automating assembly line packaging and printing processes. With its high precision and efficiency, facilities can reach their standard of quality.



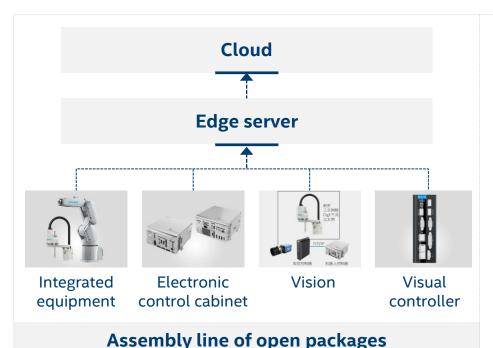
Reduces costs and labor requirements on the assembly line



Increases efficiencies through automation



Increases quality due to high precision handling



- · High precision packaging
- Visual recognition of objects
- Pick and place, swing, rotate functionality
- Screwing
- Vertical assembly

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More Inovance solutions at:

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INOVANCE



Shenzhen Konghui Intellitech Konghui Industrial Workload Consolidation Solution

Shenzhen Konghui Intellitech Konghui Industrial Workload Consolidation Solution is an industrial solution with machine vision, motion control, and cloud capabilities for industrial use cases, designed to maximize the performance of video processing systems.



Maximize performance on Intel's latest hardware with Intel® Distribution of OpenVINO™ toolkit



Enable control of multiple cameras with Intel® FPGA integration capabilities



Process images in real-time for accurate analysis



- Real-time image processing
- Intel® FPGA integration capabilities
- Performance acceleration of computer vision solutions
- Cloud connectivity

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More Shenzhen Zhenghui Intelligent Co., Ltd. solutions at: gki-eip.com/







Seebot Soluções Inteligentes Agent + Traffic Optimization

Seebot Soluções Inteligentes AGENT + Traffic Optimization solution is a set of traffic signaling devices and AI-embedded software that captures traffic information in real-time. It monitors public roads and optimizes traffic to improve transit flow.



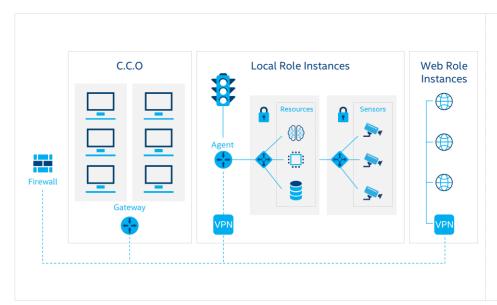
Reduce gridlock by transforming real-time data into indexes for traffic flow optimization



Improve infrastructure with a plug-and-play solution that works with other manufacturers and suppliers



Decrease pollution in city centers by shortening vehicle idling time



- Increase traffic light visibility
- Record, store, and transmit video of roads and intersections
- Detect traffic infractions
- Generate and store data to create an index of historical traffic

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mRobot Hospital Logistics Robot

mRobot Hospital Logistics Robot is a medical robot that uses leading technologies to transport medical materials across hospitals. By automating logistics and securing the transportation of important materials, the robot improves patient care by allowing medical professionals to focus their attention on the needs of patients



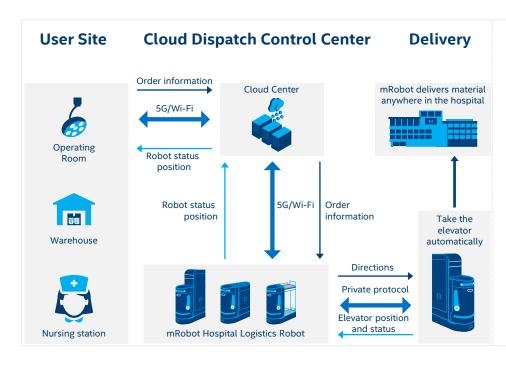
Automate distribution of medicine, lab specimens, and other materials for patients



Reduce nurse workloads by letting the mRobot solution handle delivery tasks



Increase access to materials with a robotics solution that can operate without distraction



- Load up to 300kg of medical resources
- Ensure persistent operability
- Integrate seamlessly
- Manage easily and intuitively
- · Save on maintenance costs

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MaxQ Al Accipio

The MaxQ Al Accipio platform is a fully-automated Al solution for brain bleed head trauma, stroke care, and other life-threatening conditions, designed to support the Radiologists, Emergency Room, and Neuro-rad teams. The solution helps physicians under extreme pressure make quick and accurate decisions, while treating many patients.



Increase Intracerebral Hemorrhage (ICH) detection

and reduce missed ICHs through near real-time triage, annotation and diagnostic ruleout – because every minute matters for TBI, trauma, and stroke patients



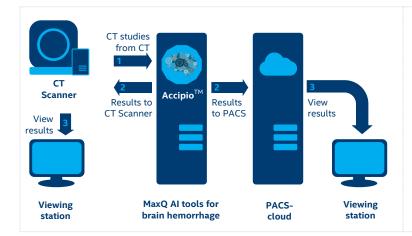
Enhance clinical confidence,

including mobilization of ischemic stroke and neurosurgery teams



Provide the right care readied faster,

improving quality to potentially avoid poor patient outcomes and to decrease costs and liability



- Trusted results: The MaxQ AI Accipio provides a highly accurate autoprocessing of the DICOM non-contrast head CT images
- Powerful simplicity: Auto-returns realtime case-level signal and summary page stating if a suspected hemorrhage has been found
- Rigorously tested: Accipio is class II FDA cleared, CE approved, and PHI compliant

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Wincomm Corporation Smart EMR Solution for e-Healthcare

The Wincomm Corporation Smart EMR Solution for e-Healthcare combines high-powered medical display panels with a high-capacity EMR software that can dramatically improve healthcare facility operations, data collection, and patient care.



Connect healthcare facilities with flexible implementation across various locations, from operating rooms to nursing stations and everywhere in-between

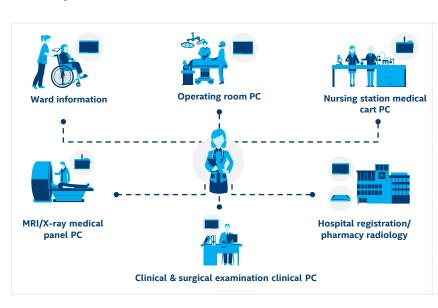


Increase patient safety

with anti-bacterial device housing, enabling machines to be easily cleaned and disinfected



ensure consistent
operability through a
collection of failsafe
features, such as
swappable batteries,
and additional ports for
flexible expansion



- Connect: Access the EMR conveniently
- Communicate: Update medical accounts conveniently
- Compute: Enable efficient data consumption and transmission using a powerful suite of Intel chipsets optimized with the Intel® OpenVINO™ toolkit
- Cable-less: Operate 24/7 in a diverse range of healthcare facilities

LEARN MORE

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More Wincomm solutions at:

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Accenture Video Analytics Service Platform

The Accenture Video Analytics Service Platform (VASP) is a video analytics service that enriches existing video appliance platforms and helps customers protect assets and generate insights from their video data. Accenture connects cameras at the edge to their cloud-based data center, allowing users to gain a new breadth and depth of information, and inspiring real-time decision making in a wide variety of use cases.



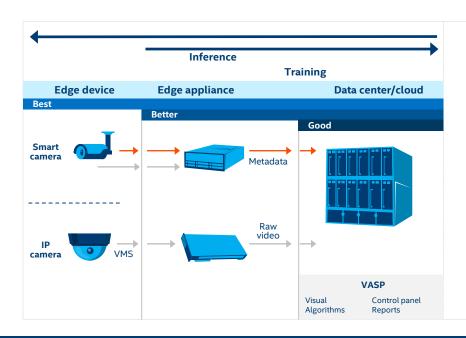
Maximize the effectiveness of CCTV cameras



Increase the speed, quality, and accuracy of data analytics by moving analytics to the edge



Protect people and assets by deploying intelligent video monitoring solutions at critical locations



- Strategic consulting to take advantage of the best combination of technologies while reducing cost
- CCTV connectivity
- Analyze, alert, and report on CCTV footage quickly, efficiently, and with increased accuracy with video analytics services
- Leverage thought leadership from public safety experts

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More Accenture solutions at:
accenture.com/us-en





AllGoVision – Al Powered Video Analytics

AllGoVision – Al Powered Video Analytics is an open solution for retail that combines an IoT platform with integrated computer vision and multi application provisioning. The solution supports local analytics and decision making, a range of retail use-cases, as well as cloud-based application provisioning that simplifies application life-cycle management in retail.



Monitor cities and traffic with alarm cases from tailgating and speeding, illegal parking, and license plate recognition



Secure smart buildings by monitoring boundary crossings, video smoke detection, and missing object detection



Gain business insights by tracking crowd monitoring, queue management, and facial recognition

Partner integration	Management	Applications	Algorithms	Platform
VMS	SW DEPLOYMENT	UI	DEEP LEARNING	CPU
PSIM		ALARM CENTER VERTICAL APPLICATION	OBJECT DETECTION	
CAMERA			OBJECT	GPU
	POST-DEP ALGORITHM TRAINING		LOCALIZATION	HW ACCL
IOT		REPORTING/		
STORAGE/ HW		VISUALIZATION	FACIAL RECOGNITION	
SENSORS	WARRANTY AND SUPPORT	DATA ANALYTICS	ANPR	EDGE
DATA ANALYTICS		FORENSIC SEARCH	TRAINING DATASET	CLOUD

- Connect through LAN, WAN, Ethernet/Wi-Fi, and 3G/4G LTE
- Continue surveillance despite difficult situations
- Choose between over 50 surveillance use cases
- Send alarms to relevant parties
- Stream a large amount of video data

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GeoVision Smart Video Management Solution

Powered by Intel® architecture, **GeoVision's Smart Video Management** solution provides a versatile and effective IP-based Digital Security and Surveillance (DSS) system. It brings video surveillance to the IoT ecosystem by connecting different IoT platforms and existing hardware to create an all-in-one physical security solution.



Increase operational
efficiency with
centralized video
management and AIinfused video analytics



Reduce deployment costs with a scalable solution that can be quickly implemented



Protect people and assets with 24/7 video surveillance and controlled access







IP Video Devices

GV-VMS/GV-Recording Server*

GV-Control Center*

- Monitor live views and recordings across all premises with centralized remote management
- Scale to fit project needs from 1 video channel to 57,600 video channels with the GV-Control Center
- Support integration with other IoT systems via open SDK and API
- Use Al video analytics to reduce false alarms and scale to different industries
- Adjust live video view and playback layouts with intuitive drag-and-drop function
- Backup all video recordings across different sites with a fallover server and Intel SSD

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geovision.com.tw/





Gorilla Intelligent Video Analytics Recorder (IVAR)

Built on Intel technology, **Gorilla Technology's Gorilla IVAR (Intelligent Video Analytics Recorder)** solution utilizes groundbreaking real-time intelligent video analytics to extract business and operational insights across all facilities to a single dashboard enabling users to improve facility security and business operations.



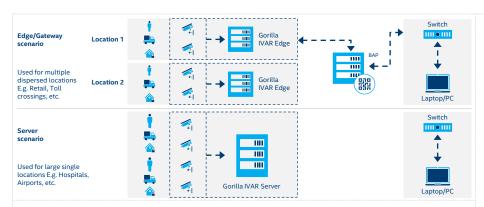
Accelerate response time by increasing situational awareness and detecting suspicious events quickly



Heighten operational
performance
by reducing human error,
centralizing facility
management, and optimizing
monitoring functions



Maximize asset value by using existing video surveillance systems and scaling with reliable server/edge architecture



- Centralize camera feeds in different locations with remote administration
- Configure security parameters at different times from the centralized monitoring station

- Monitor and track suspicious activities and people with facial recognition and watchlists, zone intrusion detection and human behavior
- Regulate registered vehicles and restricted areas using license plate recognition
- Receive automatic real-time video analysis alarms via email, push notifications, and SMS

LEARN MORE

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More Gorilla solutions at:

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Touch Cloud WPI TC Telescope Construction Site Safety

Touch Cloud WPI TC Telescope is a computer vision surveillance solution designed to capture objects and human behaviors within a designated construction zone for monitoring and security purposes.



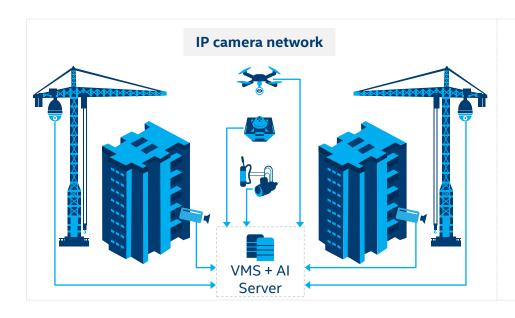
Increase worker safety by recognizing and alerting for PPE non-compliance in construction zones



Improve security by surveilling designated areas and detecting abnormal objects



Store video footage for further incident analysis and improved business logic



- Object and people detection
- Behavior detection
- Virtual fencing
- Real-time analysis and alerts
- Event bookmarking and searching
- Incident analysis

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More Touch Cloud solutions at: touchcloud.com.tw/#home







Innodep's VURIX Video Surveillance Solution is a highly scalable, all-in-one surveillance solution that helps build smarter cities and improves public safety. The solution performs real-time, multi-channel monitoring with a VMS capable of integrating over 10,000 channels.



Increase public safety with multi-channel, real-time monitoring for instant access to safety information



Scale quickly and reliably with an open platform, all-in-one video surveillance tool



Reduce costs and utilize your existing assets with a solution compatible with hundreds of IoT devices and 3rd party applications



- Monitors, records, and manages data in a single system
- Open platform software supporting hundreds of devices
- Real-time video streaming

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More Innodep solutions at:





INTEL® DISTRIBUTION OF OPENVINO™ TOOLKIT-ENABLED INTEL® IOT RFP READY KITS

Connected Retail
Visual Display
Connected Transportation
Connected Factory
Predictive Maintenance
Logistics and Asset Management
Building Management
Security & Surveillance





AOPEN Solutions Smart Scale m-intelligence

The AOPEN Solutions Smart Scale (m-intelligence) is the first AI enabled, computer vision bulk product scale and labeling system built on the meldCX platform that can recognize products, learn behaviors, and apply business rules at the edge and in the cloud.





Reduce wastage in stock and inventory by making the check-out process one easy step

Improve staff efficiency with a self-service POS, allowing managers to better triage staff needs and floor issues

Install and scale easily with AOPEN Solution's platform combined with meldCX

Initial data capture

Machine learning training unit (meldCX software + AOPEN hardware) captures and tags product images

Human training

The human trainer ensures that the correct tag is applied. Images are sent directly to the Azure cloud for storage.



Cloud training

Cloud-based servers compute the key features of the captured images. The model is optimised using the OpenVINO framework before being pushed to devices.

Edge machine learning

Movidius Compute Stick loads the model to further capture and process data at the edge, including instant product recognition and behaviour detection

Human review

Training results are reviewed in the cloud then sent to the model for deployment approval process

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JWIPC Smart Retail & Vending RRK

The JWIPC Smart Retail & Vending Kit is an interactive vending kiosk that enables sellers to demonstrate the potential of computer vision solutions for customers across several verticals.



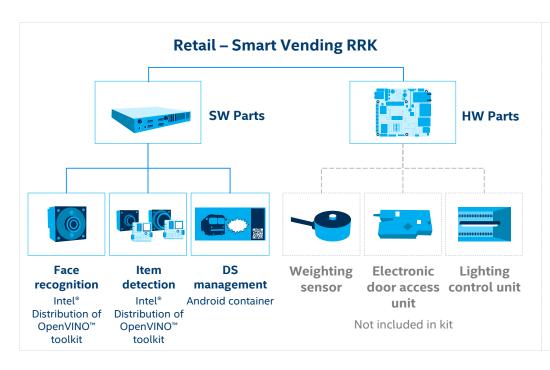
Reduce equipment costs using computer vision instead of pricey machines for SKU detection



Save space with a system that takes out the need for bulky machinery



Enhance the experience for customers with a system that promotes interactions and reacts accordingly



- Weighted sensor management
- Facial recognition
- · Item detection
- Pre-loaded Android container for DS management

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More JWIPC solutions at:

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Gorilla In-Store Analytics

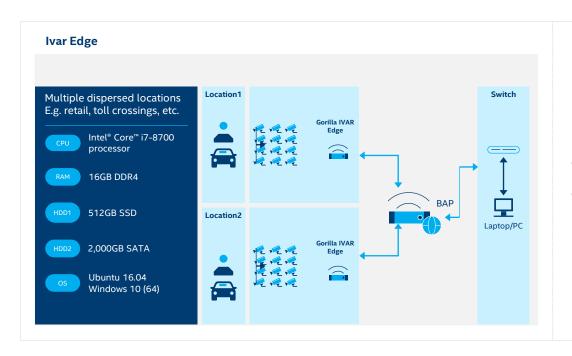
Gorilla In-Store Analytics provides intelligent analytical data from video sources and is an essential tool to gain business insights of single to multi-store floor spaces and better store management.



Integrate easily with reliable and scalable architecture that works with most IP cameras or existing surveillance system



Enhance insight into your business with video analytics, enabling you to easily conduct real-time search



- No GPU required
- Reveals customer demographics

LEARN MORE

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Gorilla



ASUS Intelligent Edge Solution for Smart Retail

ASUS Intelligent Edge Solution for Smart Retail is an AI edge-computing solution with a versatile computer and exclusive software. When combined with an IP or USB camera, the kit supports services such as device management, remote monitoring and control, and data visualization.



Uncover new insights on customer traffic and in-store behavior

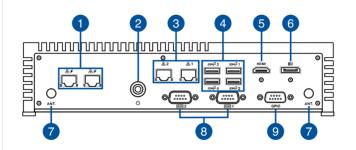


Ensure optimal
performance even in harsh
conditions with a solution
that adapts to the
surrounding environments



Maintain GDPR compliance with a solution that does not capture, store or process personal information

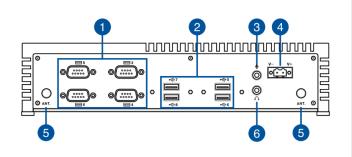
Front View



- 1. LAN port with PoE
- 2. Power button
- 3. LAN port
- 4. USB 3.2 Gen 2 port
- 5. HDMI port

- 6. Dual-mode display port
- 7. Antenna hole
- 8. Serial (COM) connector
- 9. GPIO connector

Rear View



- 1. Serial (COM) connector (on selected models)
- 2. USB 2.0 Port (on selected models)
- 3. Microphone
- 4. Power input
- 5. Antenna hole
- 6. Headphone jack

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More ASUS solutions at:
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NEXCOM Robot with Al Vision Kit

NEXCOM Robot with AI Vision Kit is designed to showcase a robotic AI automation solution that can build an LED board with a specific pattern.



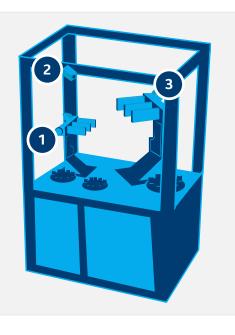
Showcase AI Vision as a solution that enhances efficiency and precision of factory robots and equipment



Educate manufacturers on how robotic control with machine vision deploys easily for a variety of use cases



Drive leads by exciting manufacturers with a hands-on experience demonstrating the power of AI vision



- 1 MiniBOT
 - · Interact with audience
 - · Set an LED pattern
- Al Vision powered by Intel® Distribution of OpenVINO™ Toolkit
 - Recognize the correct color of LED modules
 - · Acquire location of LED modules
- MiniBOT 7R
 - Assemble LED modules
 - Test assembly results

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More Nexcom solutions at:

nexcom.com







NEXCOM Smart Shelf-Checkout Solution

Designed for interactive signage solutions, the **NEXCOM Smart Shelf-Checkout Solution** equips the Network Driver interface Specification (NDiS) series with facial recognition and object detection to assist customers during the checkout process and help retailers optimize staff.



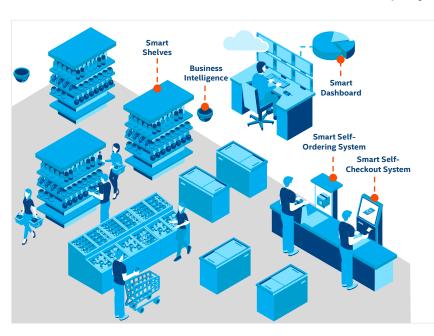
Save labor costs by decreasing the amount of personnel needed to operate checkouts



Reduce queuing time with simplified payments and easy checkout that minimize the dependency on retail employees



Limit human error with object detection to record each sale and track inventory



- Object detection for direct and easy inventory tracking
- Cameras to analyze customer in-store behavior, in turn reducing crime and theft
- Detailed analytics, including transactions, interests, and hotspots, that indicate key trends and consumer behavior

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More NEXCOM solutions at:
nexcom.com/





AAEON UP AIM2Retail Suite

The AAEON UP AIM2Retail Suite kit combines software and hardware to simplify real time video analysis on the edge to extract useful demographic and behavioral information.



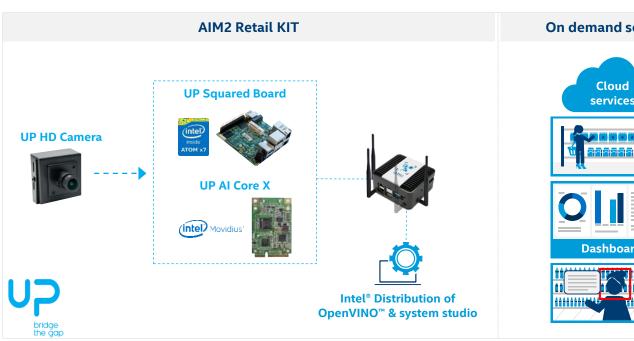
Deliver insights through AI algorithms that can detect and organize customers and their shopping trends

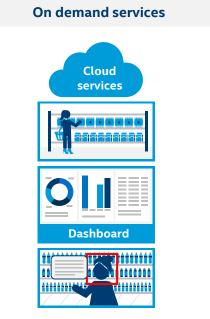


Ensure compliance Without streaming or saving images of customer data



Streamline management using secure, remote access to assets and workflows from anywhere at anytime





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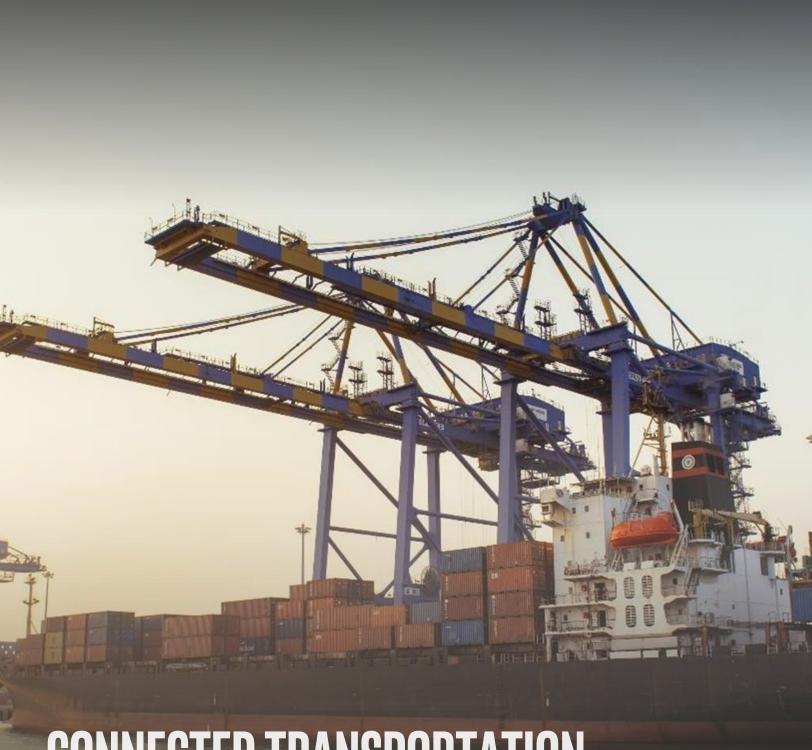
More AAEON UP solutions at:

up-board.org/









CONNECTED TRANSPORTATION

xVisio vSLAM Edge Computing Solution for AR Glasses and Robotics

The xVisio vSLAM Edge Computing Solution for AR Glasses and Robotics offers high-speed vSLAM and AI capabilities on the edge for AR glasses, and tracking and navigation of robotics and AGV applications.



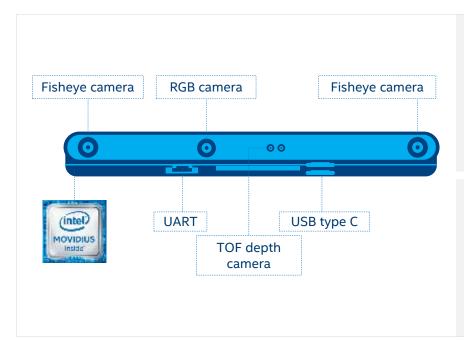
Deploy easily with a cost-effective turnkey solution for quick product integration



Customize sensor configuration for specific applications with a flexible, Al-ready platform



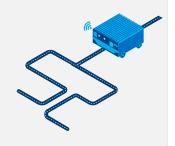
Install anywhere with a space saving and battery operational design



6DOF tracking for AR/VR HMD and glasses



Localization, mapping, obstacle avoidance, and recognition for robots and AGVs



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More xVisio Technology solutions at:

xvisiotech.com









Apuqi Machine Vision Kit for Industrial Manufacturing

The suite, based on Intel® solutions, offers machine vision solutions for the manufacturing industry, including hardware and software. **Apuqi Machine Vision Kit for Industrial Manufacturing** kit can provide detection, identification, positioning, measurement, and other core functions.



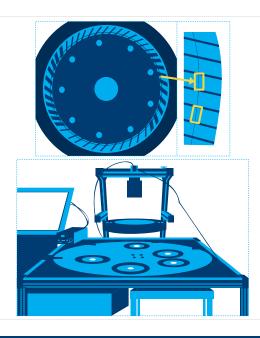
Improve efficiency
with visual detection
functions such as target
positioning and
dimension measurement



Increase accuracy with intelligent gap service that identifies defects and reduces error rates



Reduce costs and energy consumption with high-performance computing based on core-graphics card



- Intelligent project management
- Guided algorithm configuration process
- Statistical analysis of test results to provide data support
- Independently developed and highly expandable intelligent algorithm database that can meet diversified testing requirements

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More congatec solutions at:
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Congatec Realtime Workload Consolidation (WLC) Starter Set

Designed in cooperation with Intel and Real-Time Systems, the **Congatec Realtime Workload Consolidation (WLC) Starter Set** supports the next generation of vision-based collaborative robotics, automation controls and autonomous vehicles that tackle multiple tasks in parallel, including situational awareness utilizing deep learning-based AI algorithms.



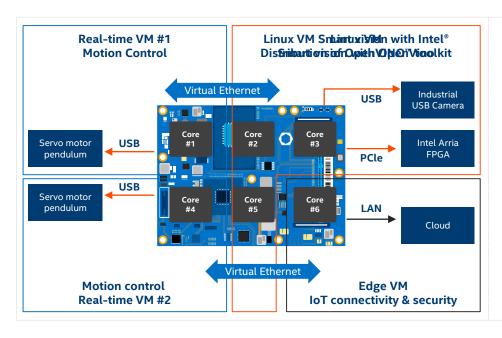
Reduce costs with one multicore system requiring a lower initial investment and maintenance costs



Increase reliability with a less complicated hardware system that requires fewer cables



Improve security with a wholly integrated firewall for secure IoT connectivity



- Run a wide range of applications/OS on one system
- Require less maintenance with a single system instead of multiple specialized boxes
- Simplify operations with individually partitionable applications so disturbance to one application does not impact another

LEARN MORE

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Zeljko.loncaric@congatec.con

More Congatec solutions at: congatec.com







Shanghai Deepsight Information **Technology YODA-100**

Shanghai Deepsight Information Technology YODA-100 solution uses state-of-theart deep learning, computer vision, and image processing technologies to analyze video in real time and extract key information and insights for businesses.



Increase factory performance with built-in algorithms that accelerate processing of hardware



Improve product quality by catching defects during the production process



Boost profitability through production efficiency, deployment speed, and worker productivity







- Real-time defect detection and 99.9% defect detection accuracy
- Accelerated computer vision analytics using Intel® Distribution of OpenVINO™ toolkit
- Fully integrated camera interface easy to connect with production line equipment

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More DeepSight solutions at:

DEEPSIGHT





LIPS Path Planning (for Automated Plasma Spray System)

LIPS Path Planning (for Automated Plasma Spray System) plans and guides maneuvering strategies for robotic arms as they move through manufacturing environments. The kits integrates a 3D camera and LIPS' proprietary algorithm with robotic arms in an automated plasma spray system.



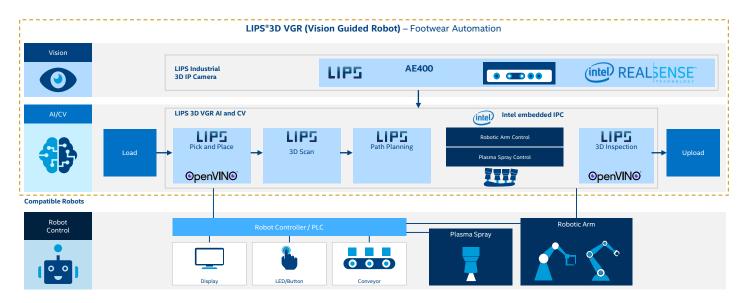
Mitigate health risks with a system that utilizes robotic arms to administer potentially hazardous materials



Cut labor costs by automating repetitive manufacturing and quality control tasks



Improve product efficiency and quality through streamlined, vision-controlled processes that can reduce error



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JWIPC AI Ready Vision Kit for Smart Manufacturing

The **JWIPC AI Ready Vision Kit for Smart Manufacturing** provides edge analytics for factory computer vision analysis and predictive maintenance.



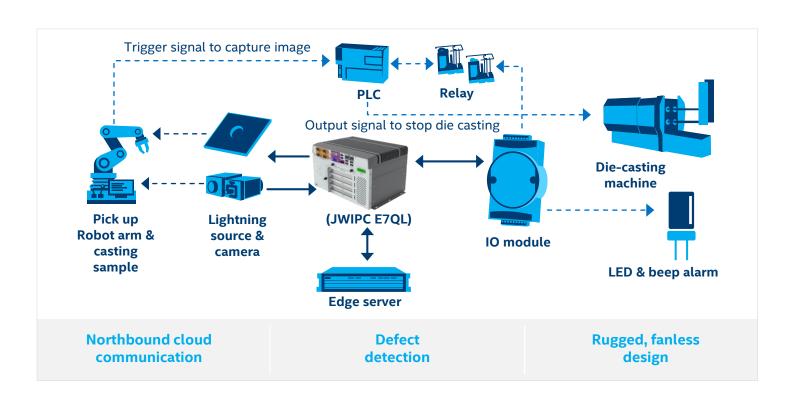
Drive automation by removing reliance on manual inspections



Reduce operations costs with edge analytics for computer vision



Streamline processes by connecting factory equipment



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More JWIPC solutions at:
jwipc.net/







QuEST ThirdEye – Vision Analytics Platform on the Intel® Distribution of OpenVINO™ toolkit

QuEST ThirdEye - Vision Analytics Platform on the Intel® Distribution of **OpenVINO**[™] **toolkit** is a comprehensive, AI powered solution that automates security, surveillance, predictive maintenance, inspection, and more for your business.



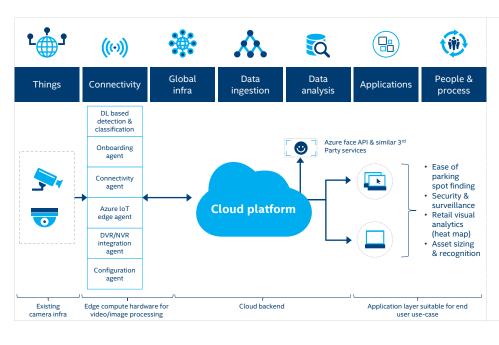
Expand monitoring capabilities with a userfriendly dashboard, powered by real-time analytics features



Empower decision making with real-time alerts to act on emergent situations during day to day operations



Enhance existing infrastructure with easy integration into your current IP or CCTV camera



- Identification of persons, vehicles, and several other objects
- Facial recognition for real time demographics
- Product inspection to automate product monitoring
- Video analytics at the edge

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More QuEST solutions at:



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AAEON UP Squared Robomaker Dev. Kit

AAEON UP Squared Robomaker Dev. Kit is designed to build autonomous mobile robots (AMRs). The development of AMRs take advantage of Amazons AWS RoboMaker Services to easily deploy from the cloud to the robot.



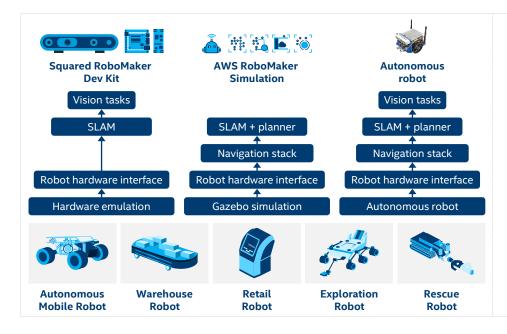
Reduce time to deployment with a complete solution stack



Upgrade and scale your robot easily with high-performance hardware and a cross-platform software stack



Extend the open-source robotics software framework with connectivity to cloud services



- Highly customizable and upgradeable
- Fully integrated platform
- Designed to be fully compatible to AWS RoboMaker
- Simulate and manage up to thousands of robots



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alingwu@aaeon.eu

More AAEON UP solutions at:

up-board.org/









Yanzhi Ali LinkVisual Nbox

The Yanzhi Ali LinkVisual Nbox is a video cloud platform that offers storage, forwarding capabilities, and video AI functions on video streams.



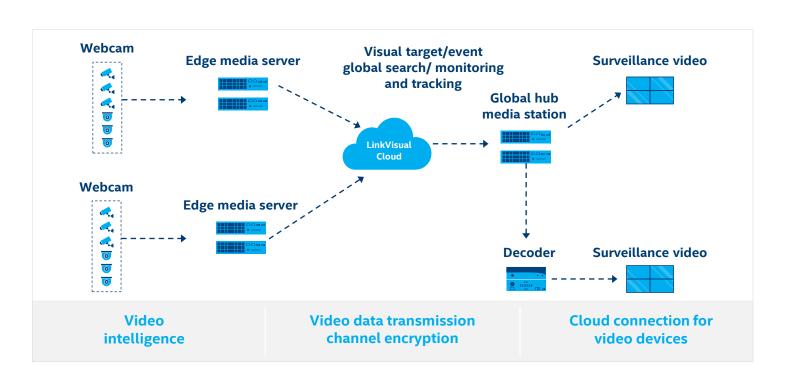
Increase performance with high stability and high concurrent platform capability



Enhance security with video data transmission channel encryption



Improve efficiencies with video algorithm online labeling, training, and configuration



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Intel contact: Yanzhi contact: gth@rt-ics.com More Yanzhi solutions at:









AAEON UP Squared AI Vision Development Kit

AAEON UP Squared AI Vision Development Kit is a robust prototyping environment enabling developers to quickly implement and deploy computer vision.



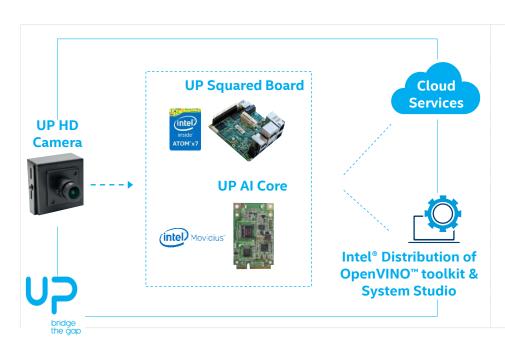
Get to work quickly with a pre-installed custom OS, the Intel® Distribution of OpenVINO™ toolkit, and a **USB HD camera**



Design with scalability using powerful Intel processors and a plug-in VPU



Expedite designs with ready access to over 400 sensor driver with both MRAA and UPM library compatibility



- Detect, classify, and recognize objects
- Integrate deep learning inference with the Intel® Distribution of OpenVINO™ toolkit
- Customize with optional Wi-Fi and cellular module add-ons
- Accelerate vision detection and recognition

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More AAEON UP solutions at:

up-board.org/







Gorilla IVAR Analytics Appliance, Powered by BCDVideo

Gorilla IVAR Analytics Appliance, Powered by BCDVideo gives insight into business and operations. Protect your business with event-based solutions that effectively search and track people, vehicles, and objects. This kit can also detect suspicious events and prevent loss and shrinkage.



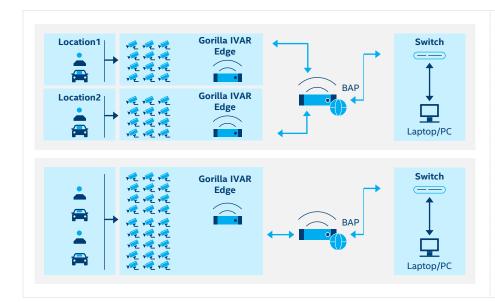
Improve security with the ability to detect suspicious events with behavior analysis and facial recognition



Integrate easily with reliable and scalable architecture that works with most IP cameras or existing surveillance system



Enhance insight into your business with video analytics, enabling you to easily conduct real-time search and track people, objects, and vehicles



Basic:

- Detect and send alerts for intrusion
- Detect and alert repeat offenders for apprehension
- Monitor multiple sites with less personnel

Premium:

- · Detect suspicious behavior
- Build watchlist based on the suspicious activities
- Alert when there is a match to watchlist
- Search, find, and track people, vehicles and objects

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Gorilla

BCDVIDEO"

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More BCDVideo solutions at: bcdvideo.com





iBase Al Education Platform

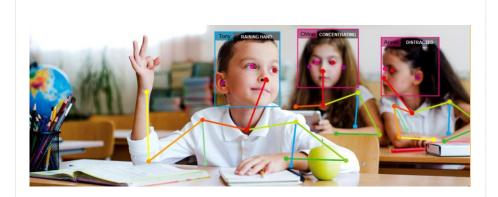
The iBase AI Education Platform is a comprehensive AI deep learning and edge computing solution for the education market. With the aid of facial recognition, students' behavior and class engagement become quantifiable data that can be used to promote effective teaching in educational environments.



Strengthen the classroom experience with enhanced insights into student reactions to lesson content and instructions



Improve student progress with real-time data to identify inattentive students



- Behavior mode and motion identification such as writing, reading, and raising hands
- Keypoints detection for precise recognition of the human skeleton
- 3D coordinates to position students in the room
- No limits to the number of people detected

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More iBase solutions at:

ibase.com.tw/index.php







Honeywell MAXPRO VMS and MAXPRO NVR

Honeywell MAXPRO VMS and MAXPRO NVR is an open, flexible, and scalable IP video surveillance system that uses Honeywell cameras to provide high definition IP recordings.



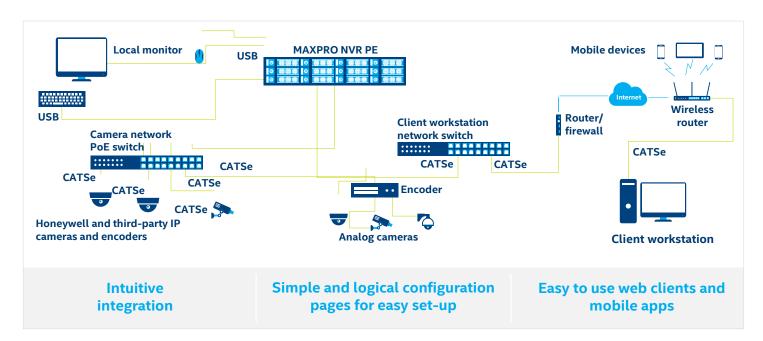
Develop more valuable insights with improved analytic recognition of face detection



Improve video processing performance by providing faster processing of more video through Intel technology



Maintain compliance with technology that follows data privacy guidelines such as GDPR



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Honeywell contact:

<u>SecurityEcosystem@Honeywell.com</u>

More Honeywell solutions at:

security.honeywell.com/All-Categories/video-systems







IEI Tank AloT Development Kit

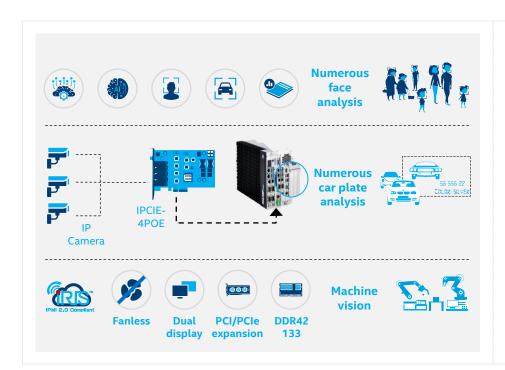
IEI Tank AloT Development Kit is a pre-configured, embedded computer platform designed to increase the productivity of computer vision solutions and interface systems for IoT solutions.



Ensure optimal performance to analyze multiple HD video streams and large amounts of sensor data



Help eliminate challenges in determining package dependencies



- Simplifies installation with rich
- Powers add-on cards through an on-board, internal power connector
- Enables hardware expansion with flexible design
- Supports high resolution with dual independent display
- Enables portability and scalability of software through an abstraction layer

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ieiworld.com/tank-aiot-development-kit/en/







IoTech Open IoT Commerce Platform

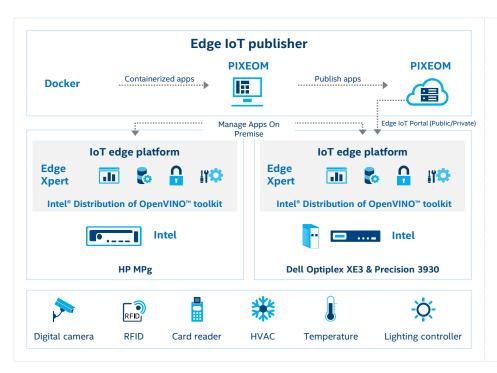
IoTech Open IoT Commerce Platform is an open solution for retail that combines an IoT platform with integrated computer vision and multi application provisioning. The solution supports local analytics and decision making, a range of retail use-cases, as well as cloud-based application provisioning that simplifies application life-cycle management in retail.



Simplify the connection and management of data sources and applications with a flexible, open solution



Ingest, normalize, aggregate, process, and analyze device and sensor data and respond to results in real-time



- Support local analytics and decision making with an edge IoT platform
- Enable a range of retail usecases with an integrated digital camera
- Simplify applications lifecycle management in retail with cloud-based application provisioning and orchestration

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More IoTech solutions at:
iotechsys.com







Vehant TrafficMon (Traffic Monitoring vSolution)

Vehant TrafficMon (Traffic Monitoring vSolution) is a video-based, AI and machine learning-powered traffic enforcement and management solution. It offers violation detection capabilities like red light jump, over speeding, no helmet riding, wrong lane movement and various other traffic violations in real-time.



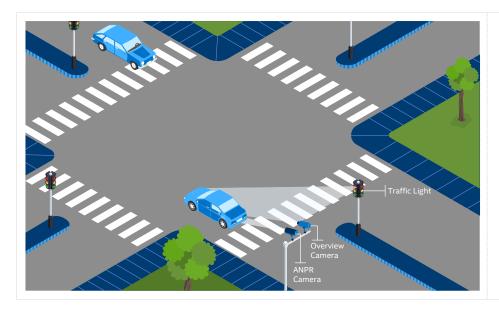
Improve safety by decreasing road accidents and casualties with real-time traffic violation information



Enhance accuracy with a complete evidence capturing mechanism that reviews violation and evidence data



Increase safety staff efficiency by providing pre-filled, customized reports on violations and integrating with e-ticketing systems



- Real-time alerts for red light and speeding violations
- Reads up to 120 km/hr with high accuracy
- Leverages optical character recognition (OCR) for efficient traffic management
- Works with non-lane disciplined traffic
- 24/7 operations

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Vehant contact:

<u>jatinb@vehant.com</u>

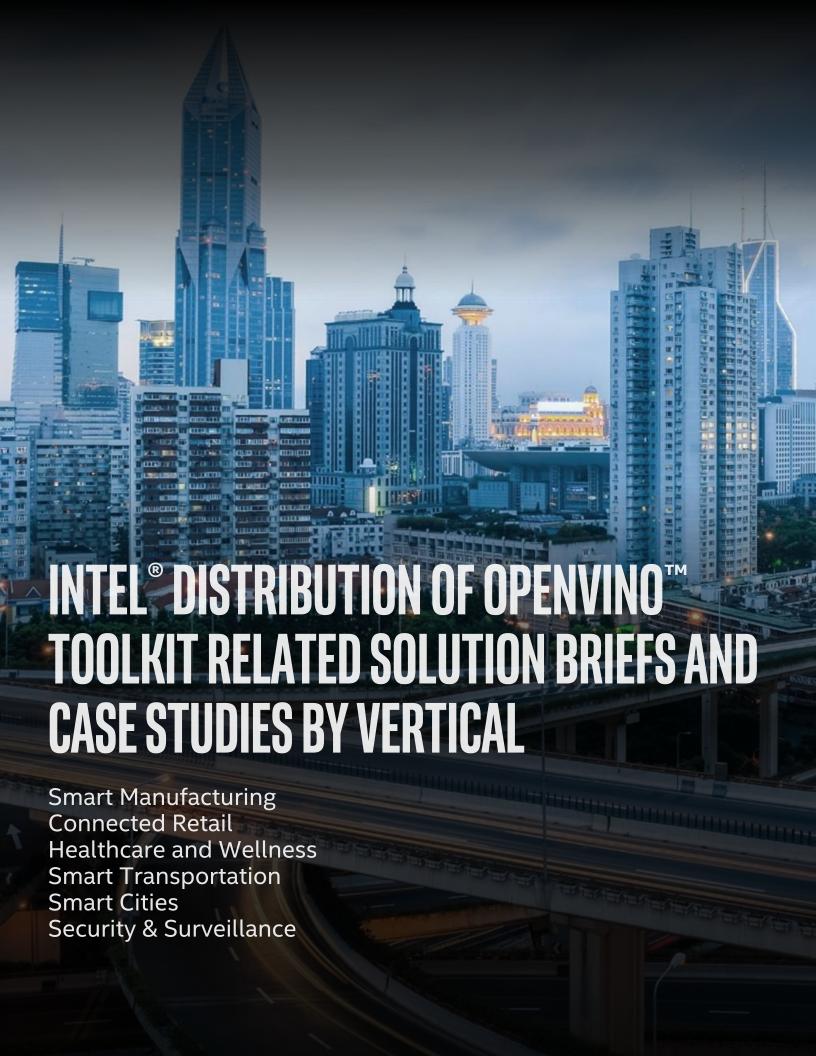
More Vehant solutions at:

<u>vehant.com</u>















"ADLINK's AI platforms can speed up image processing, computer vision, and deep learning inferencing with power efficiency not yet fully recognized in the market. We saw more than an 11x increase in CPU performance vs. without the intel® Distribution of OpenVINO™ toolkit. Even more compelling is the 19x performance increase we saw when we added our own...mini-PCle accelerator card based on the Intel® Vision Accelerator Design."1

> Edgar Chen, general manager, Embedded Platforms and Modules, ADLINK Technology

ADLINK and **Intel** provide a turnkey video solution for manufacturing operations.

Solution description

Powered by Intel® architecture, ADLINK uses an AI engine to assist in data analytics, detection, classification, and prediction by optimizing the convergence of vision capabilities, IoT, and AI based solutions for businesses.

Benefits

- Help prevent downtime through early detection and warnings of anomalies, and better tracking
- Reduce costs from Automated Optical Inspection and reduce errors in manufacturing resulting in fewer defects, and a safer environment
- **Simplify installation** from a Single Source Platform for manufacturers to save time, costs, and maximize training time for employees

Technical features

- High performance per watt per dollar
- Field protocol control interfaces
- Edge-to-cloud connectivity
- Function expansion for image acquisition, I/O control and motion control
- Cloud scalability for potential expansion
- Defect classification to improve quality control
- Provide real-time images and video streaming





Case Study:

Situation: Detecting defects in the LED manufacturing process

Action: Installing smart machinery end-to-end solutions to simply production lines combining hardware and software.

Result: Saving extra coding effort, results in high accuracy, and repeatability leading to increased customer satisfaction and productivity.

NexCOBOT provides next generation modular robotics.

Solution description

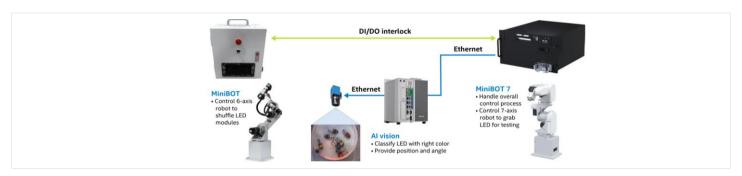
NexCOBOT uses the insight of AI, the mobility of robotics, and the capabilities of machine vision, to provide precision and optimization for manufacturing and industrial implementations.

Benefits

- Develop a robot control system with an open modular solution to fit specific requirements
- Reduce costs through next generation robotics and improved customization
- Simplify and integrate with one single robot control and AI platform

Technical features

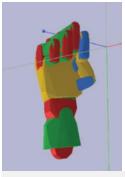
- Customizable for complex networks
- Powered by Intel® Core™ i7 and Celeron® Processors
- Ultra low power consumption
- Works under varying environmental conditions



For more information, visit: nexcom.com









Beyond Vision

"Vision [alone] is simply not suited to the nature of the problem: Grasping tasks are a matter of contact and forces, which cannot be monitored by vision. At best, vision can inform the robot about finger configurations that are likely to succeed, but in the end a robot needs tactile information."

 Vincent Duchaine, professor at École de Technologie Supérieure (ÉTS) in Montreal, Canada **SenseNet** supports theoretical computational neuroscientists for machine learning applications.

Solution description

Supports development of deep learning algorithms that enable touch, as well as vision, create tremendous opportunities for robotic applications.

Benefits

- **Broaden robotics applications** with algorithms that enable touch and vision
- Support the next generation of robotics through deep learning and increased automation and Enable autonomous robotic independence through deep reinforcement learning
- Expand robotic mapping through sensorimotor neural systems and tactile feedback

Technical features

- Speed up bootstrap testing of new algorithms
- Use an open source research framework for training using multi-core CPU processing
- Provide new opportunities to combine sensory input with visual and image AI technologies
- Can be used as a "re-enforcement" environment/testing with ease of implementation







Case study: Real time data helps retailers

"Advantech is launching several solution-ready packages for vertical markets, including people counting, heatmap analysis, facial recognition, and loss prevention. With the Intel® Distribution of OpenVINO™ toolkit, we can easily process realtime video recording and transcoding, human detection and counting, as well as signage management."

 MC Chiang, associate vice president of Service-IoT, Advantech **Advantech** deploys hardware and software solutions with Intel to drive retail sales.

Solution description

Advantech uses AI video analysis technology to detect human activity enabling precise staff and product allocation for businesses

Benefits

- Improve traffic counts with data analytics results for precise staff allocation and merchandise adjustment
- Improve sales with better analysis on customer behavior and traffic patterns
- Improve customer service experiences by customizing service based on products and traffic

Technical features

- · Access data on public or private cloud
- Provide near-real time data on customers and inventory levels
- Operate on a broad range of networks with Intel® Modivius™ VPUs



For more information, visit: advantech.com

ADVANTECH



\$17B+ computer vision overall market by 2023¹

79% of retailers will invest in vision analytics by 2021²

"Intel® Distribution of OpenVINO™ toolkit enabled us to run our deep learning algorithms on Intel CPUs & GPUs which is already available to our customers, broadening our market reach and simplifying project scoping."

— Georges
Tannous, Strategic
Alliances Director
for Genetec

Genetec provides surveillance, access control, visitor counting, and visual recognitions into data for organizations.

Solution description

Powered by Intel®, Genetec's real time solutions help protect, understand, and enhance the customer experience for businesses.

Benefits

- Enable responsive real-time visual analytics by driving compute at the edge and saving time
- Drive in-store traffic by maximizing marketing and store layouts based on foot traffic patterns
- Improve inventory forecasting with long-term insights for impactful operation decisions
- Solve challenges from intelligent vision capabilities

- StreamVault's retail bundle is an end-to-end visual analytics solution speeding up installation
- Incorporate highly accurate vision analytics performance and compute efficiency
- Use existing security infrastructure with "Retail Sense" to save time and capital expenditures
- Run deep learning algorithms on a broad range of hardware platforms for simple deployment







Prevent Loss

Situation: Detection of products or erratic behavior is hard to identify

Task: Activity recognition from customer making "payments" collected and analyzed immediately

Action: Alert on anomalous behavior to staff or authorities for action and loss prevention

Result: Loss from theft avoided, property secured

Mindtree's Smart Vision Analytics System enhances security and reduces shrinkage with Intel.

Solution description

Mindtree allows store owners to reduce losses due to perpetrators, by accessing AI and deep learning capabilities at the edge in near real time while improving workplace safety.

Benefits

- Take actions by quickly recognizing and sending alerts within seconds of a suspicious event or theft
- Save time and costs by scaling and deploying at multiple locations across your enterprise
- Save money through flexibility and customized installation for various capabilities and

- Short deployment timeframe for installation and deployment for retailers and businesses
- Immediate detection and activity recognition (cash/card) at the point of sale
- Co-relation of POS data with video for inferencing for ease of use
- Powered by Intel's VPU leading to lower costs per watt per dollar







Optimized Models exceed GE inferencing goals¹

- 14x faster
- 5.9x above target

"We think using multipurpose processors along with Intel-optimized frameworks and software tools from Intel can offer a cost-effective way to leverage AI in medical imaging in new and meaningful ways."

David Chevalier
 Principal Engineer,
 GE Healthcare

GE Healthcare uses AI to improve diagnostic scanning and healthcare workflows for better care.

Solution description

GE Healthcare improves the quality of healthcare through better imaging quality and faster clinical workflow.

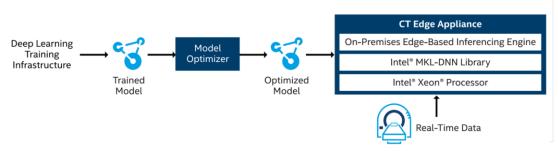
Benefits

- Provides scalability with high performance for deep learning without high costs and expenses
- Utilize a diverse network of frameworks and training platforms for ease of use and deployment
- Improve medical imaging quality and workflows to benefit individual patient care and treatments

Technical features

- Ability to combine multiple algorithms as an "inference engine"
- Includes Intel® Math Kernel Library for deep neural networks for direct optimization
- Optimize full data workflow from edge to cloud

Al-Enhanced CT Imaging using Intel' Distribution of OpenVlNO™ Toolkit



For more information, visit: gehealthcare.com







Enterprise NAS

The situation: The degeneration of the macula, central part of the retina, ages and leads to impaired vision and blindness

The problem: Results from imaging can take weeks delaying treatment

The solution: The QuAI team used QNAP to improve image recognition for faster diagnosis and eventual treatment helping to save eyesight

QNAP and **IEI** help healthcare researchers challenged by enormous data and imaging that requires power, storage, and network resources.

Solution description

QNAP offers data scientists, medical researchers a quick to deploy vision system in collaboration with a deep learning kit to manage data at hospitals.

Benefits

- Efficient No need to transfer the large data sets from the NAS to the server for deep learning to save time
- **Streamlined** Seamless integration between hardware and software components
- Easy to use being using with one click, without the need to install any library or drivers
- Lower TCO Optimize solution management to get the highest level of control and performance available in the solution design specification

Technical features

- Provide a scalable data management system for clinics and hospitals that is quick to deploy
- Incorporate QNAP NAS, Intel Xeon Processors
- Use Intel Vision Accelerator Design products for power efficient deep neural network for fast and accurate analytics

Disease data analysis

General hospital information center

Data transmission

Branches/local hospitals





Bone-age prediction model: 188x increase in images per second¹

Lung segmentation model: 38x increase in images per second¹

Case study

Situation: X-ray of human bones help identify medical conditions that lead to bone loss

The problem: Images are often in high resolution, difficult to analyze, slowing and reducing patient care

The solution: Philips uses Al to scale down images without quality loss while accurately identifying issues that may lead to future medical treatment for a faster, and more economical patient care **Philips** teams up with Intel to help doctors analyze medical images for better patient outcomes.

Solution description

Philips Healthcare imaging provides substantial speed improvement by utilizing AI to help identify anomalies in medical images earlier, faster, and at a lower cost for hospitals, clinics, and patients.

Benefits

- Process images efficiently without slowing down radiologists' workflows thus saving time
- Increase accuracy of diagnostics for patients by reducing errors related to poor image quality
- Use AI object detection and segmentation helping radiologists increase patient flows and treatments

- Ability to scale down high resolution images while preserving bio markers leading to more accurate results
- Use of OpenVINO speeds deep learning model development from training to inference execution.
- The AI model optimizer helps node merging, BN elimination, constant folding, and horizontal fusions in preparation for the inference engine





Gorilla Technology Founded in 2001 in Taipei Gorilla Intelligent Video Analytics Recorder



Case study - Railways

The problem: A nationwide rail network was seeking better commuter services and improved station security

The solution: Integrated with IoT sensors, the Gorilla IVAR™ edge system was deployed to monitor 300 train stations

The results: The railway administration has experienced a 90% decrease in response time. Plus, incidents and complaint rates have dropped by 70%¹

Gorilla Technology used the Intel® Distribution of OpenVINO™ toolkit to achieve a 50% increase in CPU performance.

Solution description

The Gorilla IVAR™ solution delivers real-time intelligent video analytics to extract business and operational insights across all facilities to a single dashboard enabling users to improve facility security and business operations.

Benefits

- Accelerate response time by increasing situational awareness and detecting suspicious events quickly
- Heighten operational performance by reducing human error, centralizing facility management, and optimizing monitoring functions
- Maximize asset value by using existing video surveillance systems and scaling with reliable server/edge architecture

- Monitor and search suspicious activities
- Regulate registered vehicles and restricted areas
- Enable real-time video analysis alarms
- Configure security parameters and centralize camera feeds



GeoVision Founded in Taiwan in 1998 Comprehensive video management solution (GV-VMS)



Customer quote

GeoVision worked closely with Intel to optimize the performance of the GV-VMS solution Intel® System Studio

"Using the Intel® Math Kernel Library helps speed up the performance of our deep learning algorithm and makes it possible for us to get real-time results on the inference side.

The result has been an impressive 24x performance gain for its deep learning algorithm, which translates to a huge efficiency advantage for GeoVision's customers."¹

 YC Wang, VP & CTO of GeoVision Software Development **GeoVision** gained a 24x deep learning algorithm performance boost using Intel® System Studio and the Intel® Distribution of OpenVINO™ toolkit.¹

Solution description

The GV-VMS comprehensive video management system includes manufacturing professional-grade digital video recorders (DVR) and network video recorder (NVR) systems, IP cameras, and an in-house video management software.

Performance improvements

- Using a variety of Intel tools, the GV-VMS solution went from processing 600 milliseconds per face to 29 milliseconds per face¹
- By adopting Intel MKL to replace BLAS*, GV-VMS gained another 10x performance increase for its deep-learning based facial recognition algorithm¹

Selected Intel tools

Part of the Intel® System Studio, GeoVision optimized critical development tasks by using:

- Intel® C++ Compiler a standards-based tool to speed application performance
- Intel® VTune™ Amplifier a performance profiler that helps developers create faster code, with accurate data and low overhead
- Intel® Math Kernel Library (Intel® MKL) A code optimizer for future generations of processors



Intelligent Security Systems (ISS)

Founded in 1996 in United States
SecurOS Smart Video Management Solution



Transportation

SecureOS VMS can integrate with existing traffic cameras to analyze vehicle and pedestrian behavior.

Camera's running
SecureOS transportation
solutions on city streets
can send data that can be
matched against law
enforcement databases to
recognize license plates
and pedestrians to detect
traffic violations

SecureOS cargo module provides security and automates logistics of ports.

Intel's robust portfolio of vision products helps **ISS** deliver advanced visual deep learning neural networks.

Solution description

Intelligent Security System's SecurOS is a wideranging suite of Video Management Systems (VMS) offerings for on-premise and cloud-based video analytics. SecurOS can integrate with legacy systems and is designed to scale with customers as their deployments and surveillance needs grow.

Benefits

- Integrate with legacy systems to scale on existing hardware
- Improve safety and security through the number/character and vehicle/pedestrian behavior recognition
- Scale to capture and analyze vast amounts of visual data with high levels of accuracy

- Distinguish numbers and letters to recognize license plate information in all weather conditions
- Detect complex traffic violations by monitoring multiple vehicles and pedestrian behavior
- Report hazardous driving automatically
- · Capture and analyze traffic statistical data
- Identify railway vehicles using character number recognition and analytics





AnyVision

Founded in 2015, Israel Edge mini-box appliance

100,000+ Empowered By AnyVision Al

Retail use case:

The mini-box appliance is targeted at small and medium-sized retailers

The solution supplies retailers with information collected from in-store heat maps, gaze estimation, customer demography, VIP recognition, people counting, and employee monitoring

Retailers can then use this information to analyze customer preferences and developing a targeted approach to increase sales as well as leverage the insights to alert store personnel to risks of theft in almost real-time

AnyVision and Intel enhance AI capabilities at the edge, while reducing cloud processing and hosting costs.

Solution description

AnyVision uses their 20+ years of academic research and field experience to create proprietary deep learning software, optimized by the Intel® Distribution of OpenVINO™ toolkit, and state-of-the-art edge mini-box appliances.

Benefits

- Make decisions faster by accurately running and analyzing several extensive streams of data simultaneously at the edge in real-time
- Reduce hosting costs with a cheaper alternative to the cloud or heavy on-premise servers that can be used with any cameras or edge devices
- Reach customers under data privacy guidelines with an assortment of GDPR compliant products

Technical features

- · Plug-and-play installation
- Run lightweight and fast algorithms and neural networks for object identification and facial recognition without latency
- Design for any angle camera in any light condition

For more information, visit: anyvision.co/

GNYVISION.

AxxonSoft

Founded in 2003, United States
Axxon Intellect Enterprise PSIM Software

AXXONSOFT AT THE 2018 FIFA WORLD CUP¹:

- 10 STADIUMS
- 49 MATCHES
- 2 MILLION
- SPECTATORS
- 9000+ CAMERAS

Case study

The situation: Russian World Cup organizers needed a way to handle massive amounts of data and efficiently perform safety and security services at scale

The solution: Powered by Intel, 9,000 Intellect PSIM-powered video cameras were deployed with Auto Intellect and Face Intellect software

The result: World Cup administrators protected 2 million spectators by monitored 390 video channels from a central monitoring station

Powered by Intel® Vision Products, **AxxonSoft** helps customers attain a higher level of security than ever before.

Solution description

Axxon's Intellect Enterprise Physical Security Information Management (PSIM) software combines built-in intelligent video and audio analytics, universal IP connectivity, and event-driven automation capabilities in a single environment.

Benefits

- Improve on-premise security with fast, automatic responses to any security situation
- Simplify deployment and scale through universal integration to legacy or new applications, systems and devices
- Ensure surveillance reliability with proven deployments of tens of thousands of cameras on one network and in difficult conditions

- Identify events that match user criteria and trigger specific system actions
- Find archived videos that match a given criteria
- · Count the number of people entering or leaving
- Manage lines with queue length detection
- Learn where and how long visitors stay with a heat map tool that shows the "warmest" places



Honeywell

United States, 2003
Axxon Intellect Enterprise PSIM Software



Use case examples

Enterprise Campus: The MAXPRO platform enables enterprises to monitor activities on the premise and protect against intrusion, theft, or vandalism

Banking Institutions: The MAXPRO platform helps banking and financial institutions centralize their security monitoring system so guards can patrol several locations at once and respond to alerts when there is suspicious activity

Intel helps Honeywell accelerate video processing and increase the number of cameras streaming in real time.

Solution description

The Honeywell MAXPRO VMS and MAXPRO NVR offer customers an open, flexible, and scalable IP video surveillance system that uses Honeywell cameras to provide high definition IP recordings.

Benefits

- Develop more valuable insights with improved analytic recognition of face detection and matching capabilities
- Improve video processing performance by providing faster processing of more video through Intel technology
- Maintain compliance with technology that follows data privacy guidelines such as GDPR

- Xtralis IntrusionTrace Conduct real-time intrusion detection to identify when a person enters or leaves a specified area using virtual boundaries created by the customer
- Xtralis LoiterTrace Detect, track, and identify people that are loitering or remaining in a designated area for too long
- Face Recognition Provide another layer of security and surveillance based on defined rules around facial recognition



Outdu

Founded in 2013 in Bangalore Karnataka, India Digital video management solution





Case study

The situation: A leading retailer in India sought deeper insights into the customers who walk into their 70 stores nationwide

The solution: Integrated with Intel® Compute Sticks and powered by Intel® Core™ M processors, Cameras were deployed at multiple locations in each store for cross-camera analytics and reporting on customer insights

The result: The retailer better served its top customers by sending a message to store staff and the retailers CRM system for processing and delivery of promotions to the customer's phone

Outdu helps customers gain immediate, actionable insights into visitor behavior with edge video analytics.

Solution description

Outdu designs & develops full-HD cameras with in-device edge processing. Featuring Intel hardware and software, Outdu's cloud-ready solution includes a range of prebuilt analytics to detect, recognize, classify, and count objects, such as humans and cars, in real time.

Benefits

- Improve computer vision accuracy with analytics performed on raw video frames and AI software that improves overtime as data is collected
- Gain customer insights through video-based analytics provide rich metadata
- Save costs by avoiding high server-related costs and no additional investments after deployment

- Count and profile all visitor walk-ins by age, gender, and other attributes
- Track the visitor's journey and provide dwell times in specific sections of the location
- Compare relative attractiveness of exhibits and products based on customer insights
- Trigger customized events or alerts that inform staff of preferred customers, necessary assistance, and suspicious activity





Agent Video Intelligence Semiconductors, Taiwan Smart Video Management Solution



Customer Quote:

"With OpenVINO™ toolkit the results have been impressive, enabling us to move from supporting 3 cameras to 14 with one developer, in under three weeks. We will be able to fully scale our solutions to the edge with the right performance per dollar while leveraging Intel® Movidius™ VPU and Intel® FPGA solutions."

Zvika Ashani
 CTO and
 Co-Founder, Agent Vi

Agent Video Intelligence (Agent Vi) InnoVi leverages advanced video analytics for remote guarding, enterprises, and smart cities.

Solution description

Agent Vi InnoVi is a unique, centrally managed video analytics solution powered by cutting-edge Deep Learning technology, that enables unparalleled detection accuracy. It can transform up to thousands of cameras across a city into smart video devices, helping to improve security, safety, and incident response citywide.

Benefits

- Improve operational efficiencies by performing deep learning inference at the edge instead of the cloud
- Enhance insights from multiple video sources analyzed to offer trends and the big picture view
- Prevent crime and shorten emergency response with immediate detection of security threats

Technical features

- Real time event detection rules for different scenarios
- Central management for dispersed or remote sites
- Secure browser GUI, unified login, centralized credential management
- 24/7 health monitoring across all sites

AGENT



The situation: The Palace of Mysore in southern India had become a popular tourist location due to its historical significance and had trouble managing crowds

The solution: AllGoVision helped to install a 120 camera solution that processed video streams and detected unwanted incidents

The result: This helped the palace gain insights on crowd flow and identify suspicious objects AllGoVision's Al Powered Video Analytics Solution iscapable of analyzing a wide range of use cases in smart cities, buildings, and smart businesses.

Solution description

The solution connects a wide range of IP cameras to the Open Platform VMS. Information from the server analyzed by the AllGoVision Analytic Server that can detect everything from license plate numbers to facial recognition.

Benefits

- Monitor cities and traffic with diverse alarm cases from tailgating to illegal parking
- **Secure smart buildings** by monitoring boundary crossings, smoke detection, and missing objects
- **Gain business insights** by tracking crowds, queue management, and facial recognition

- · Connect through either LAN, WAN Wi-Fi, or LTE
- Monitor assets even in fog or congested traffic
- Choose between over 50 surveillance use cases
- · Send alarms to relevant parties through the cloud
- Run surveillance on 200 cameras per server
- Stream video data to a singe viewing point





The situation: Suntec Singapore implemented iOmniscient's video analytics at one of the world's leading conference centers

The solution: Suntec Singapore was looking to increase the sped of incident reaction times and ensure the safety of their visitors

The result: After deploying facial recognition, and crowd management applications Suntec Singapore improved their security

iOmniscient's Al based video analytics system enables organizations to increase safety, security, and efficiency.

Solution description

The iOmniscient solution is built on an AI platform and delivers real-time video analytics, monitoring, and alarms at the edge. The solution allows operators to monitor a wide range of surveillance use cases and minimize false alarms.

Benefits

- Transform operational efficiency with cloud storage enabled, accurate real-time results
- Enhance individual productivity with automated response capabilities that enable faster response times and optimize decision making
- **Provide tangible return on investment** with non-intrusive system implementation

- Facial recognition to locate persons of interest
- Behavior analytics to identify anomalies in crowds
- License plate recognition to track stolen vehicles
- iQ-Sound analysis to track disruptive noises like gunshots or breaking glass
- iQ-Smell to detect a variety of gasses within a radius of several hundred meters





The situation: Acer needed to reduce intrusion at a large city park with two solar farms

The solution: The legacy monitoring system caused too many false alarms and was costly

The result: IronYun deployed a surveillance solution that optimized project planning, decreased costs, and repositioned legacy equipment so that it could be more effective

IrunYun provides advanced video analytics and AI to help cities and industries stay informed, optimized, and safe.

Solution description

The IronYun solution automatically process data and analyzes a variety of use cases with a growing AI enabled neural network inference. The tool identifies, tracks, and stores alarms and matches and can track specific criteria such as employees wearing approved company clothing.

Benefits

- Deploy a cost-effective solution that can be installed without purchasing expensive, custom cameras
- Reduce false positives with strict alarm criteria and high accuracy
- Futureproof support with Intel architecture that supports new software upgrades

- IronYun virtual fence allows sensitive areas to be secured with intrusion alerts
- Facial recognition that can locate people of interest while anonymously surveying crowds
- User friendly that allows operators to make the most of their video data
- Object of Interest detection that allows operators to search for key items such as firearms



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Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer to learn more.

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