Solution Brief

Intel® AI: In Production

Irida Labs with Intel technology enables high-powered, vision-based AIoT solutions

Irida Labs' PerCV.ai platform optimizes performance of AIoT devices, utilizing Intel® Distribution of OpenVINO™ toolkit, and expedites time to market.

AIoT market snapshot

24.1 billion

The expected number of worldwide connected IoT devices by 2030[1]

26%

The expected CAGR of global AI in the IoT market over a forecast period of 2019 to 2024[2]

At-a-glance

IRIDA LABS

Irida Labs bases AI on RGB or 3DToF sensors, providing in-store analytics such as customer counting and tracking, dwell times and area heatmapping, inventory management and service times.

Smart Retail dashboard heatmap

Demand for vision-based AIoT solutions is steadily increasing

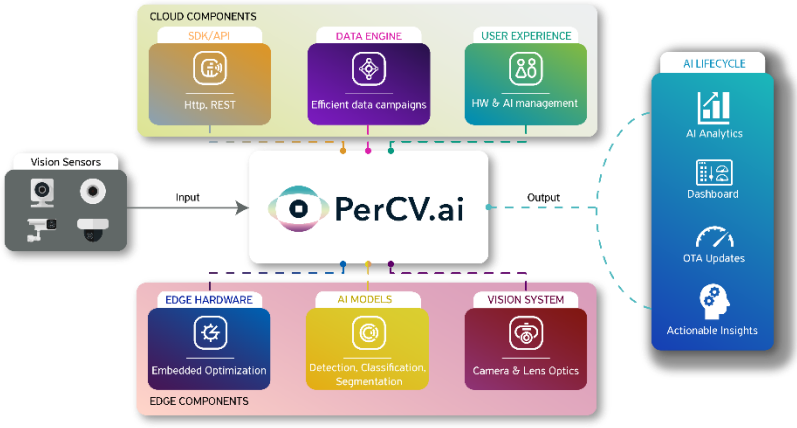
For retail businesses, efficient vision-based, embedded machine learning unlocks usable analytics to help enhance the customer experience. Vision-based solutions require software to process real-time data that streams from IoT devices in a variety of expanding markets. AI, machine learning, and deep learning technology provide an opportunity to effectively leverage exponentially increasing data while reducing maintenance costs and downtime.

To capture these opportunities, organizations require a solution that:

- **Enables AI capabilities at or near the edge**, leveraging computer vision and deep learning
- **Scales those capabilities** over a range of markets and use cases

Irida Labs powers AIoT devices with a state-of-the-art AI platform – PerCV.ai

PerCV.ai is an end-to-end AI software and services platform that supports the full Vision-AI product lifecycle. PerCV.ai integrates machine learning models for people, vehicles, or any type of object detection together with vision system design, data management and ready to use deployment tools for on-device intelligence. PerCV.ai enables the creation of vision-based AIoT sensors and solutions with optimum performance, low cost and reduced time to market.



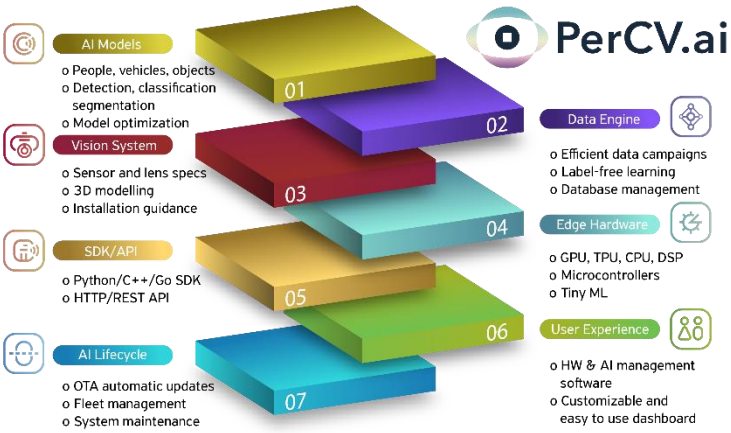
PerCV.ai platform diagram

1. Statista IoT devices
2. MarketsandMarkets AI in IoT

Leveraging the capabilities of Intel® Distribution of OpenVINO™ toolkit

OpenVINO enables Irida Labs to significantly reduce the required time for porting proprietary machine learning algorithms into Intel® VPUs. Using OpenVino and Intel® Myriad X VPUs, Irida has been able to speed up inference performance by up to 55x vs ARM-based CPU, and accelerates full solution development, from algorithmic design to in-store deployment, down to two months.

Smart Retail dashboard object counting



PerCV.ai solution components diagram

The improvements made using OpenVINO allow Irida to recommend an easy to integrate and cost-efficient hardware platform to their customers. Hardware that can deliver real-world AI performance that meets their needs, minimizing proof of concept deployments and vastly accelerating time to market and product deployment.

Various networks and model architectures have been tested on a Raspberry Pi 3 ARM-based CPU implementation against two versions of Intel's NCS VPU using the OpenVINO framework. On an RPi3 plus Intel's NCS1 Irida was able to go from 0.6 FPS to 10 FPS based on MobileNet V2 architecture and from 0.2 FPS to 3.6 FPS based on Inception V2 SSD architecture. Using a RPi3 and the NCS2, the performance reached 14 FPS and 11 FPS, resulting in a 23x and 55x speedup vs the CPU-only versions, respectively.*

Irida Labs partners with ULISSE to develop an AIoT retail analytics sensor

Irida Labs joined forces with ULISSE to create a powerful AIoT retail analytics sensor. The sensor provides precious data insights based on customer counting and tracking, and features state-of-the-art machine learning technology, seamless in-store integration options and robust design. Valuable analytics related to customer behavior and interactions within a retail store are generated in real-time and lead to actionable insights that translate into measurable improvements in ROI and KPIs.

Combined with advanced features like personnel analytics or product monitoring, this complete, inventory and customer insights solution is low-cost, energy efficient and easy to install, marking a new era in retail business understanding.

Learn more

Intel® AI: In Production is an ecosystem focused on reducing deployment complexities, promoting partner AI offerings, and increasing collaboration between its partners.

Learn more about Irida Labs and Intel® technologies:

- Home – Irida Labs
- Intel Artificial Intelligence
- Intel® AI: In Production | Overview

*Based on Irida Labs internal testing. Intel does not control or audit third-party benchmark data or the web sites referenced in this document. You should visit the referenced web site and confirm whether referenced data are accurate.