

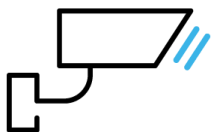


# Intensive In-Camera AI Vision Processing

Yaniv Iarovici

Head of Business Development

**HAILO**



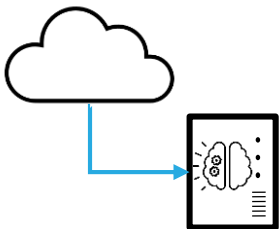
## The smart camera market is growing rapidly

- ~200 million cameras to be deployed by 2027, total revenue of US\$35B\*



## Demand for AI capacity at the edge is exploding

- More complex and granular objects need to be detected
- Higher resolution video streams become more common
- More tasks and complex applications are required

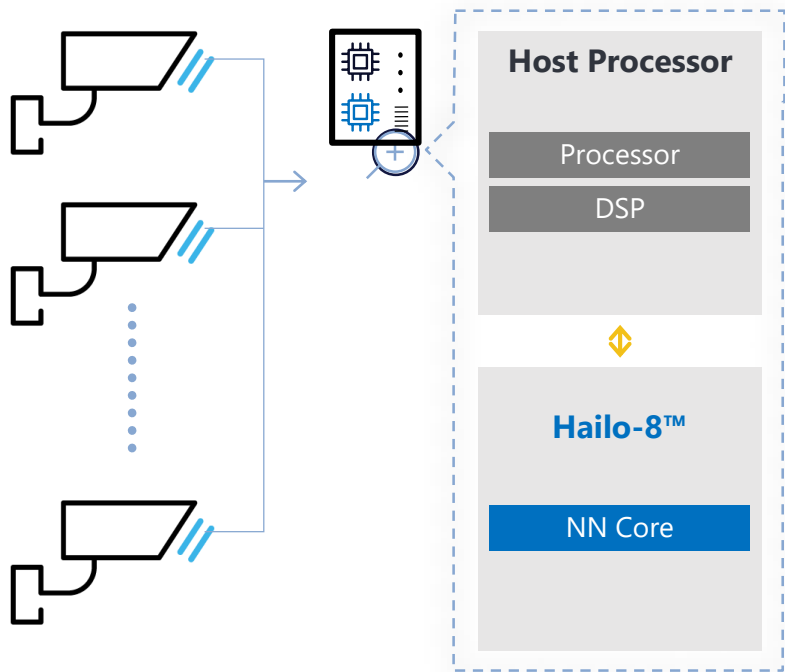


## AI is moving from cloud to edge

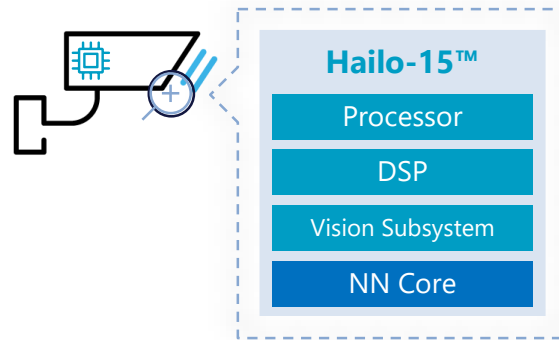
- Larger amounts of data for analysis and real-time insights
- High cost of transferring, computing and storing on the cloud

# A Portfolio of AI Processors for all Edge Deployments

## AI Inference Accelerators



## AI Vision Processors



- Supported by the same Software suite
- Field-proven by 100s of customers

# Introducing Hailo-15™

## The **first AI-centric vision processors**

Specifically designed to empower smart cameras with powerful AI compute

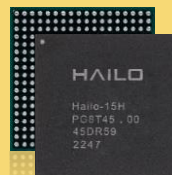
### More Analytics

- More tasks in parallel
- Multi tasking with complex pipelines
- Image enhancement

### Better Analytics

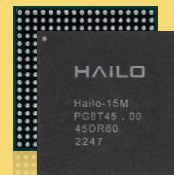
- Identify smaller and more distant objects with higher accuracy and less false alarms
- Faster detection at high resolutions

**A family of SoCs that sets new standards in computer vision and deep learning model processing**



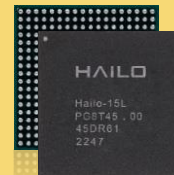
Hailo-15H

20 TOPS



Hailo-15M

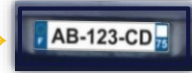
11 TOPS



Hailo-15L

7 TOPS

# More AI Capacity → More Video Analytics



Automatic license plate recognition



Dangerous situation identification



Abnormal behavior detection

## More tasks, higher complexity, faster detection

# More AI Capacity -> AI-Powered Video Enhancement

**Improved image quality for precise detection,  
eliminating misses & false alarms**



Noise reduction



Digital zoom



Motion compensation & image stabilization



Dynamic range and 3A (Auto Focus /  
Auto White-Balance / Auto Exposure)



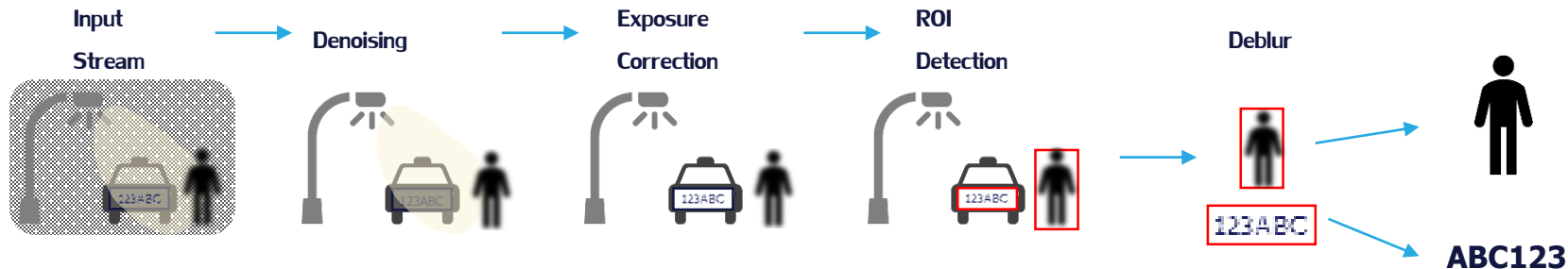
Distortion correction



# AI-Powered Video Enhancement

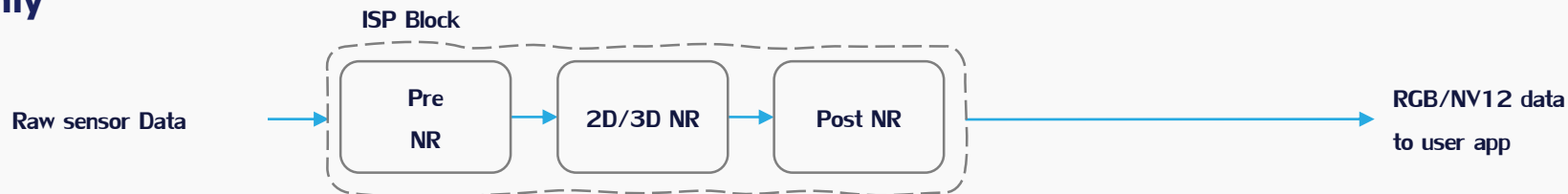
The NN-centric pipeline is:

- Trained on a realistic noise model
- Semantic aware
- Does differential processing by ROI

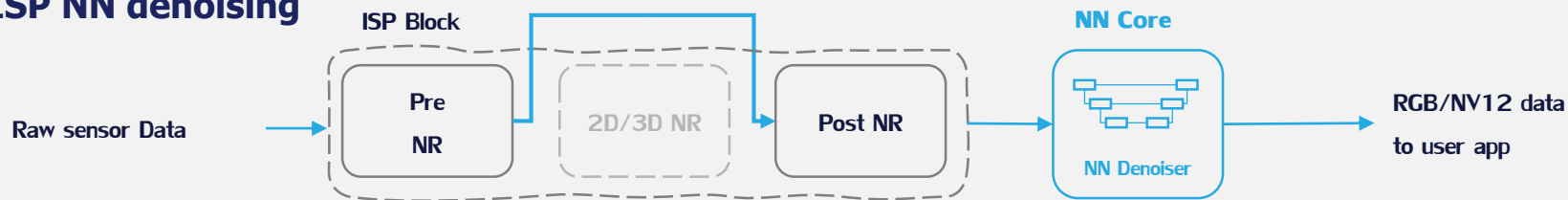


# Noise Reduction – Supported Flows

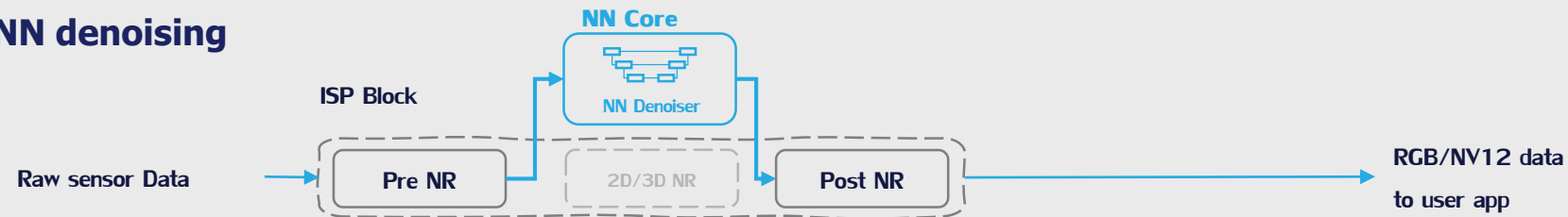
## ISP only



## Post-ISP NN denoising



## RAW NN denoising





# Noise Reduction – Supported Flows

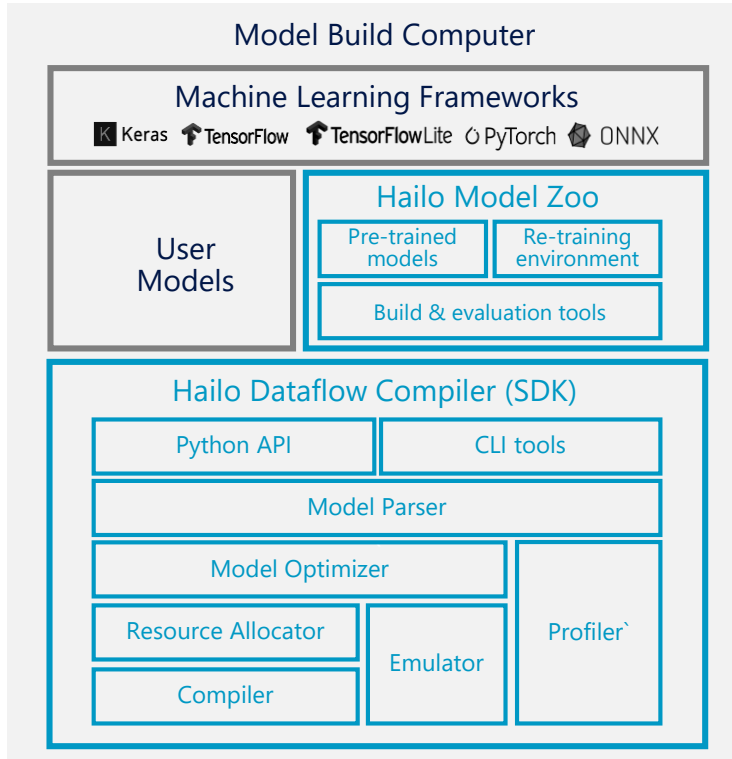
	ISP Only	Post-ISP NN Denoising	RAW NN Denoising
Quality	Good	Better	Best
Conditions	>200 lux	10-200 lux	<10 lux
NN TOPS	N/A	5-20K ops/pix (4K@30FPS: 1-5 TOPS)	3-12K ops/pix (4K@30FPS: 0.5-3 TOPS)

- Leaves enough TOPS for advanced video analytics
- At a very low power consumption of  $\sim 2W$

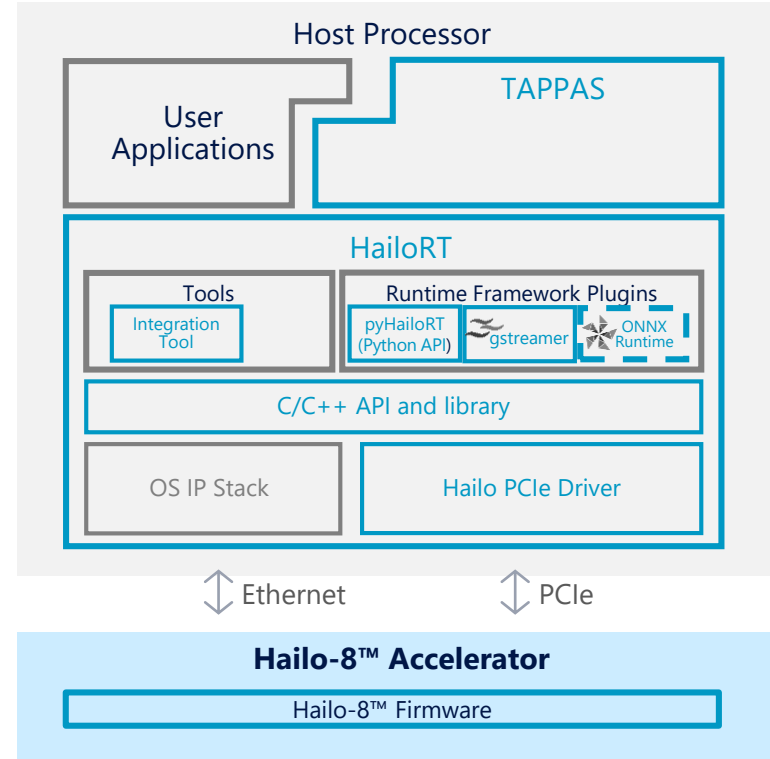
# Mature & Comprehensive AI Software Suite

Deployed and field-proven by 100s of customers

## Model Build Environment



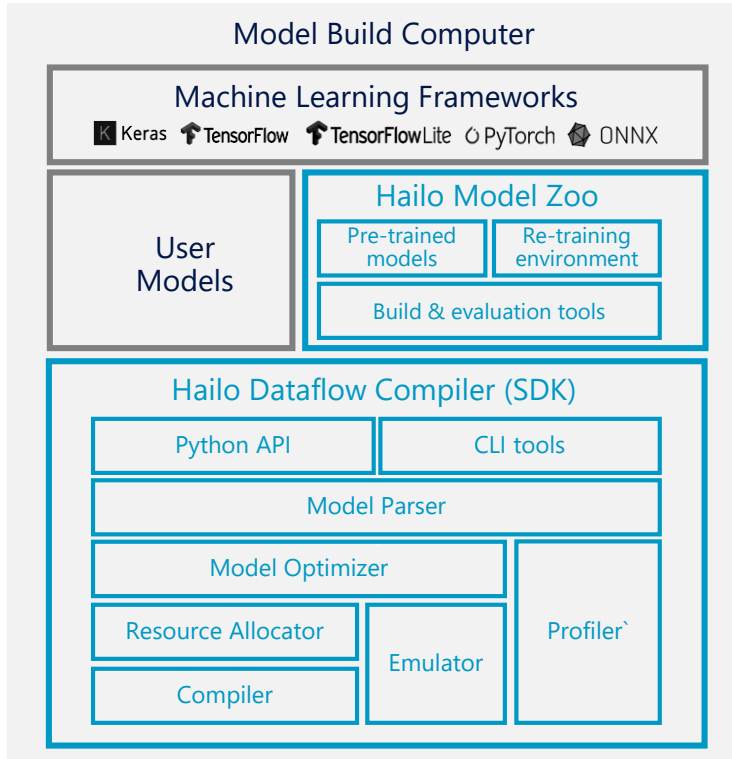
## Runtime Environment



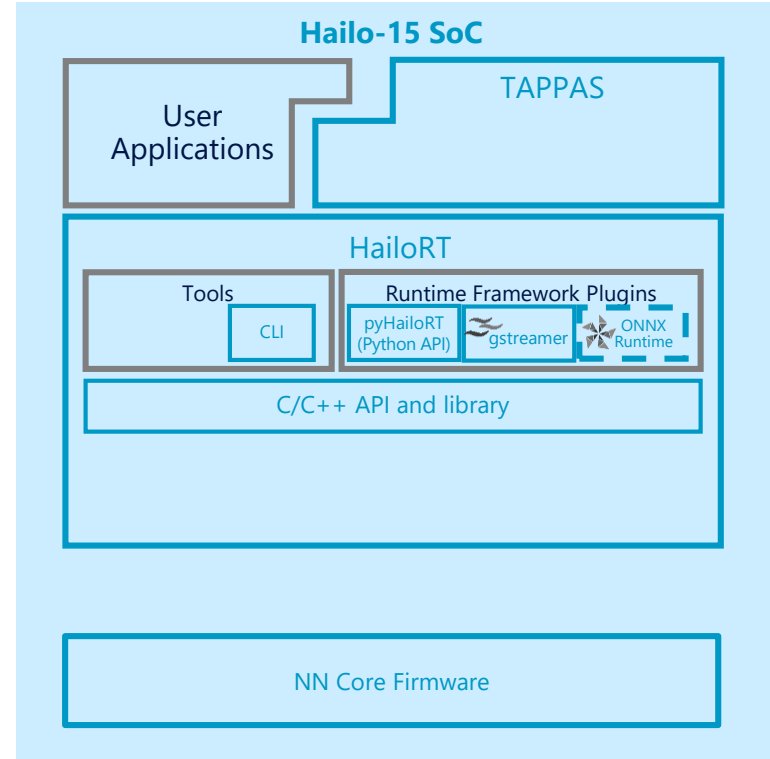
# Now Supporting Video Processing

Deployed and field-proven by 100s of customers

## Model Build Environment



## Runtime Environment





## Unparalleled AI Video Analytics

- High FPS for faster and more accurate detection
- Best AI performance at a standard camera cost & power consumption



## Superior Image Quality

- AI-powered video quality enhancements
- Premium 4K60 video quality
- Cutting-edge ISP pipeline
- Industry leading DSP vision processing & video encoding



## Flexible & Secure System

- Industry-standard frameworks
- Industrial grade SoC with a variety of interfaces
- Security features for ultimate privacy and data safety



Smarter Camera,  
Unmatched Results.

## Live demos

- Hailo-15
- VMS and analytics
- Smart cameras

Get your own AI-generated  
Hailo-15 shirt!



**Thank You**

**[contact@hailo.ai](mailto:contact@hailo.ai)**