

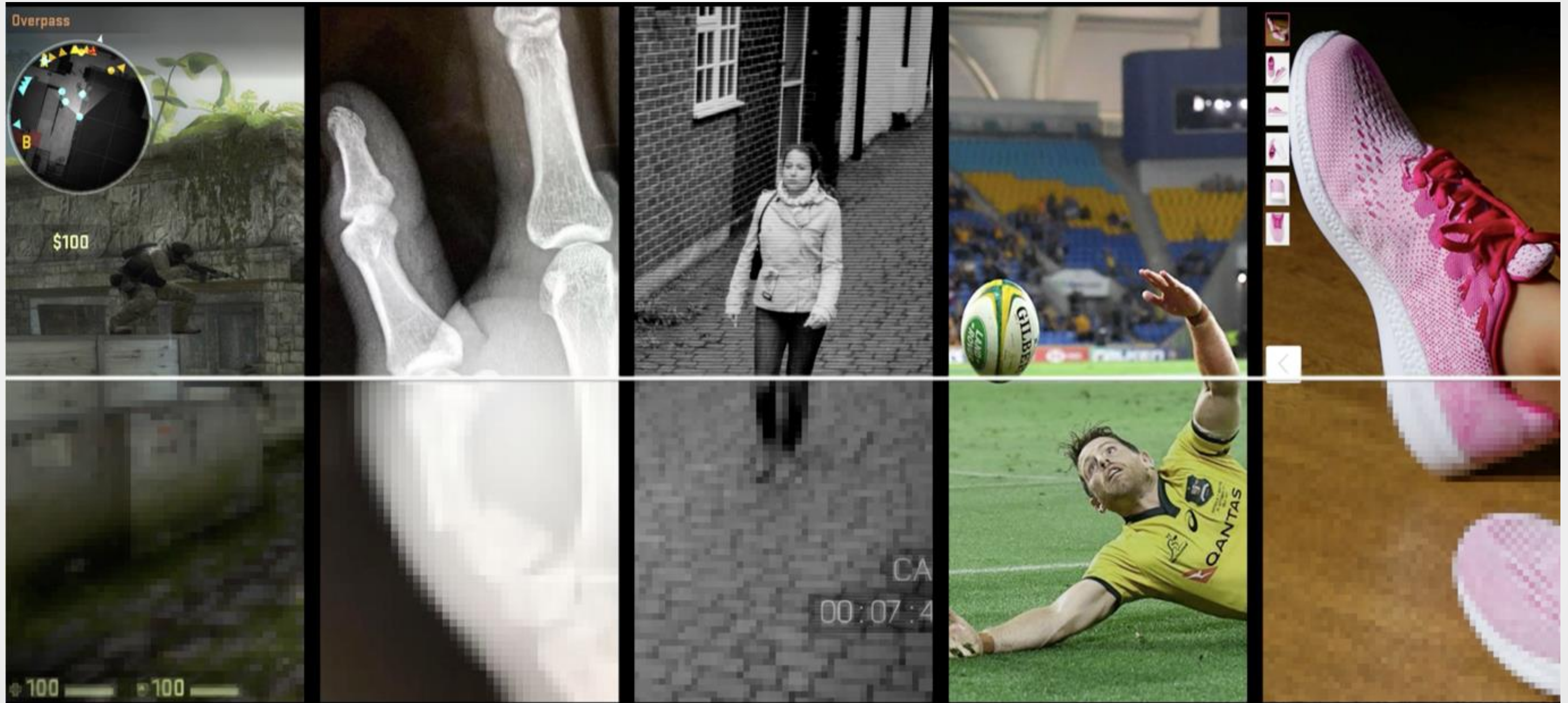
ORBO

AI Auto Enhancement of Low-Quality
Visuals on the Edge to Boost Conversions

Even the best of camera's cannot do justice for image quality in variable conditions



Low resolution & low quality visuals hamper experience resulting in poor conversions



Blurry PC

Medical Imaging-Hardware

Surveillance Camera

SD TV Channel/VOD

E-commerce

Last mile connectivity is broken

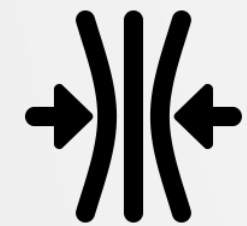
Last mile issues



User bandwidth issues



Buffering / low bitrates breaks the user experience



Compressions limits the visual appeal

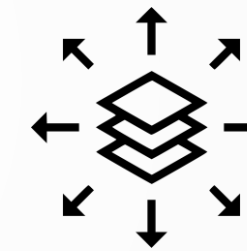


Poor image quality impacts the revenue and conversions

Current solutions are inadequate



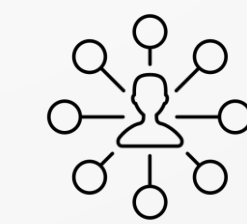
Legacy image processing and ABR is ineffective



CDN's are crucial element but they're on classic compressions



Display Device capabilities are limited



Network infrastructure heavily impact the delivery



ORBO AI

Orbo is bringing you the **visual enhancement stack at the edge** where its IP is creating a domino effect by going beyond the bandwidth, limitations, augmenting over legacy ABR (adaptive bitrate) and enhancing the customer experience.

ORBO's Visual AI Stack



**Image
Enhancement**



**Image
Extraction**



**Video
Enhancement**



**Medical Image
Enhancement**

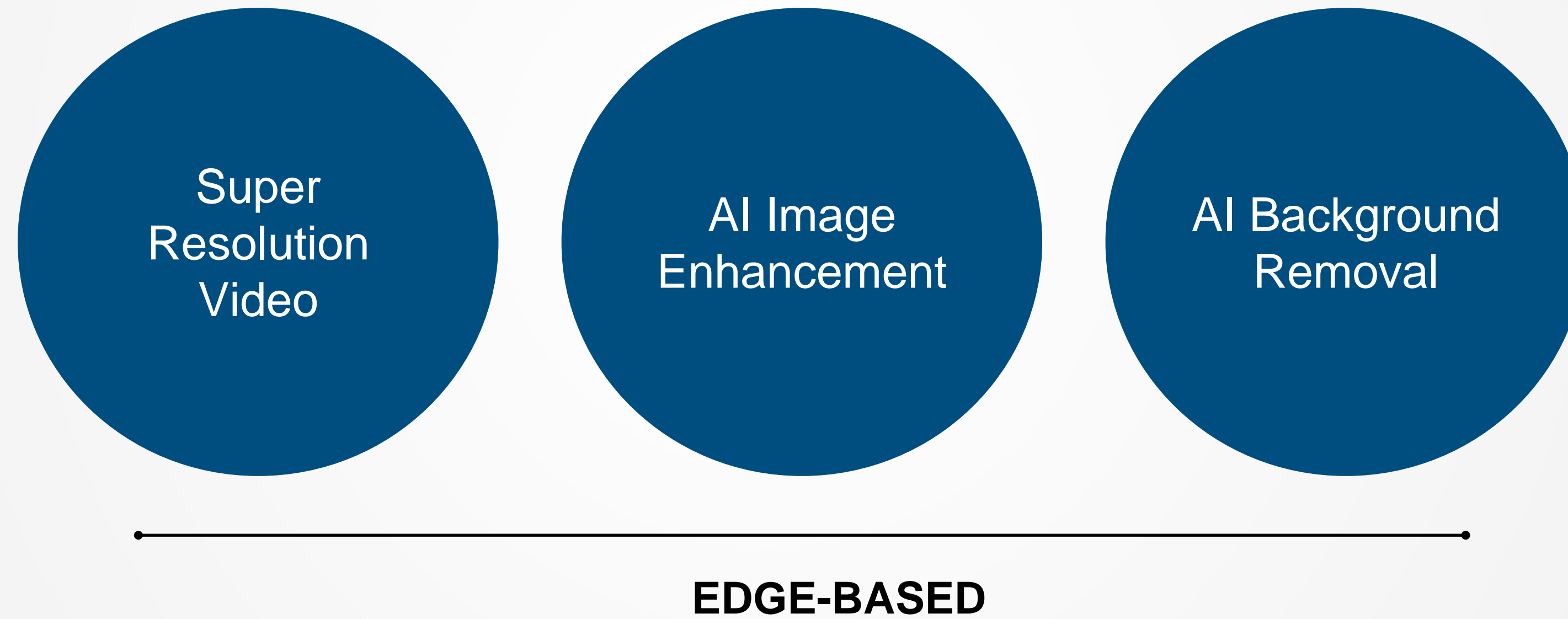


**Document
Enhancement**



**Facial
Recognition**

ORBO's Primary Artificial Intelligence IPs listed on Intel® Network Builders



Super Resolution Video



ORBO's Super Resolution Video converts any low-resolution video to 1080p or 4K in real time.

Additionally, ORBO has built a Visual AQE Monitor for Network Video Optimization using deep learning

Super Resolution Video - Online Gaming



Super Resolution Video - OTT

The screenshot shows the Netflix user interface. At the top, the Netflix logo is on the left, and navigation links for Home, Series, Films, Recently Added, and My List are in the center. On the right, there is a search bar containing 'bird box', a 'CHILDREN' filter, a notification bell, and a user profile icon. Below the navigation is a horizontal row of featured titles: Bird Box, YOU, MOWGLI: LEGEND OF THE JUNGLE, SEX EDUCATION, HOW IT ENDS, and BLACK MIRROR: BANDERSNATCH. The main content area displays the movie 'BIRD BOX' with the text 'A NETFLIX FILM' above the title. Below the title, it shows the year '2018', a rating of '16+', and a duration of '2h 4m'. A progress bar indicates '92 of 124m' watched. There are buttons for 'RESUME', '+ MY LIST', and thumbs up/down icons. A 'Select Resolution' menu is open, showing options: '144p', '240p', '360p', '540p', and 'Watch in HD with ORBO SR 1080p'. The video player shows a close-up of a woman's face with the subtitle 'You have to do every single thing I say or we will not make it.' At the bottom, there are navigation tabs for 'OVERVIEW', 'TRAILERS & MORE', 'MORE LIKE THIS', and 'DETAILS'.

Enhancing video conference solutions such as Webex at the edge

Traditional CDN



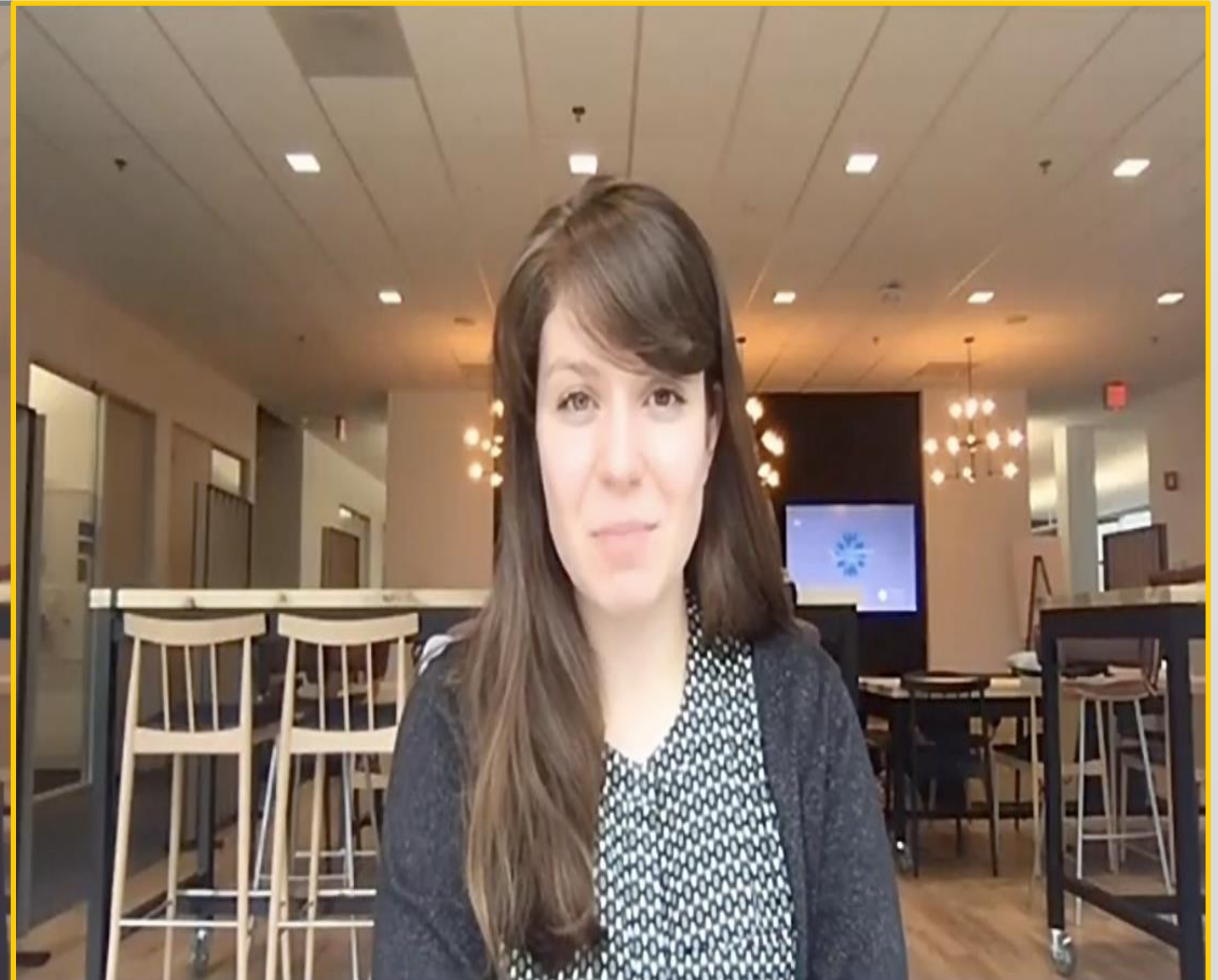
Real time video enhancement on MEC CDN



Video Codec Comparison - AV1 Codec Vs ORBO SR

Traditional CDN

Real time video enhancement on MEC CDN



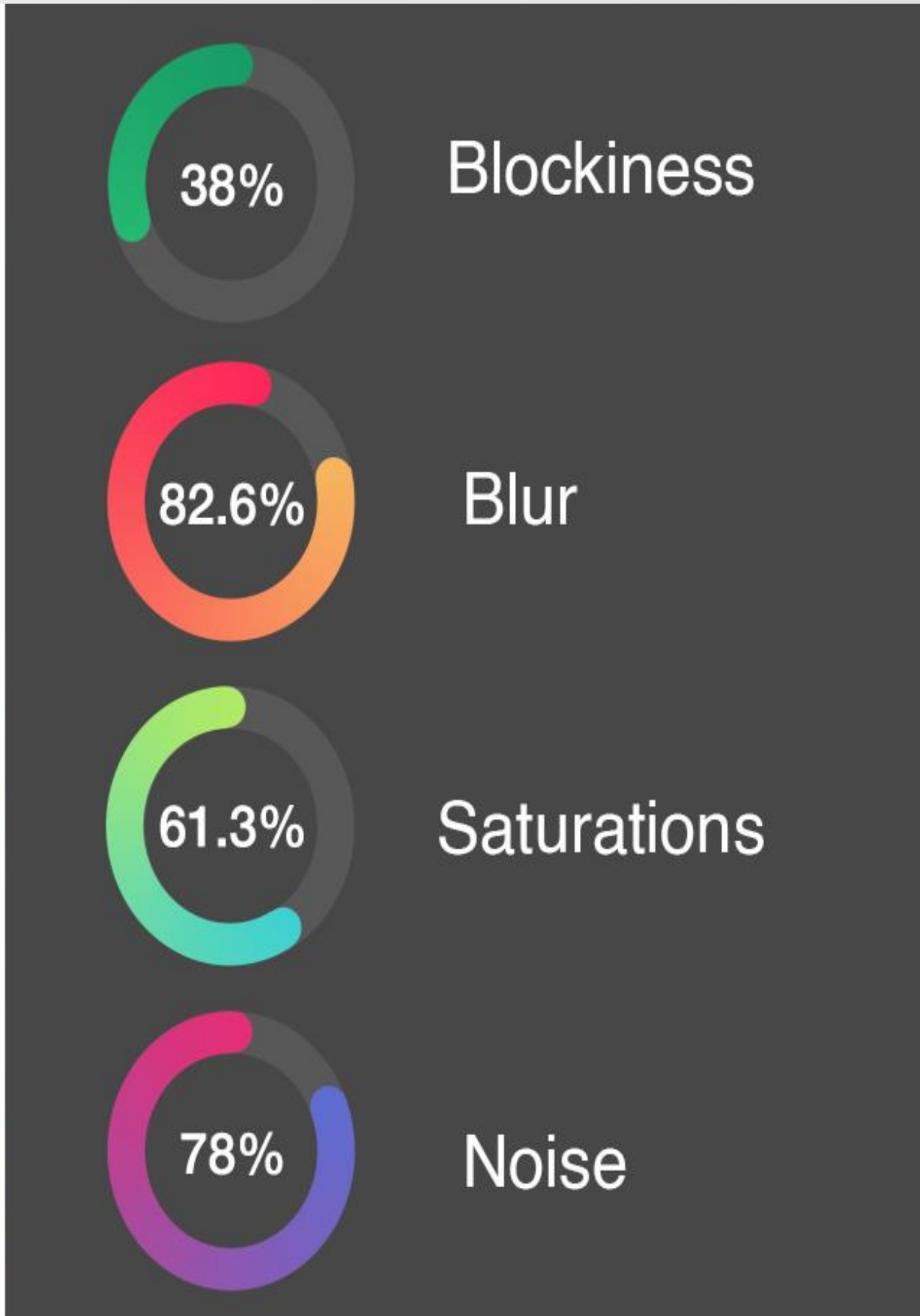
Video AIQ Monitor at the edge

Orbo has built an edge-based Visual inferencing and Enhancement solution for Network Video Optimization using deep learning that has a wide range of applications in areas like IPTV, 5G, CDN, Smart Cities & Surveillance across industries.

The screenshot displays the Orbo Video AIQ Monitor interface, which is divided into several functional panels:

- Video Analysis Panel (Left):** Shows a video frame of a truck with a crane. The text "Blockiness : 87.5 %" is displayed in red at the top left, and "Detected :Blockiness : 87.5 %" is displayed in white at the bottom left.
- Upload Image File Panel (Top Middle):** Includes a "Choose File" button, the text "no file selected", and an "Upload" button.
- Track core usage Panel (Middle):** Features a toggle switch labeled "Track core usage" which is currently turned on. Below it is a line graph showing the usage of four cores: core_1 (blue), core_2 (orange), core_3 (cyan), and core_4 (green). The y-axis ranges from 0 to 100, and the x-axis shows timestamps from 23:31:51 to 23:32:51. All four cores show low, stable usage levels around 35-40%.
- Video file playback Panel (Top Right):** Contains control buttons for "START (AI HW)", "PAUSE", "START (CPU)", and "STOP". A mouse cursor is hovering over the "START (CPU)" button.
- Performance - frames/sec Panel (Bottom Right):** Shows a line graph of performance in frames per second. The y-axis ranges from 0 to 150. The x-axis shows timestamps from 23:29:26 to 23:30:27. The performance starts at 0, rises to approximately 65 frames/sec by 23:29:36, and then remains constant at that level until 23:30:27.

Analyse Video Quality Degradation analytics at a network level



AI Image Enhancement at the edge can transform customer experience

Orbo Super ZOOM



Original product Image



Customer can clearly see the details of the product in enhanced ZOOM.

Optimise the volume of visuals and their quality at the edge vis-a-vis traditional CDNs

Traditional CDN



MEC CDN



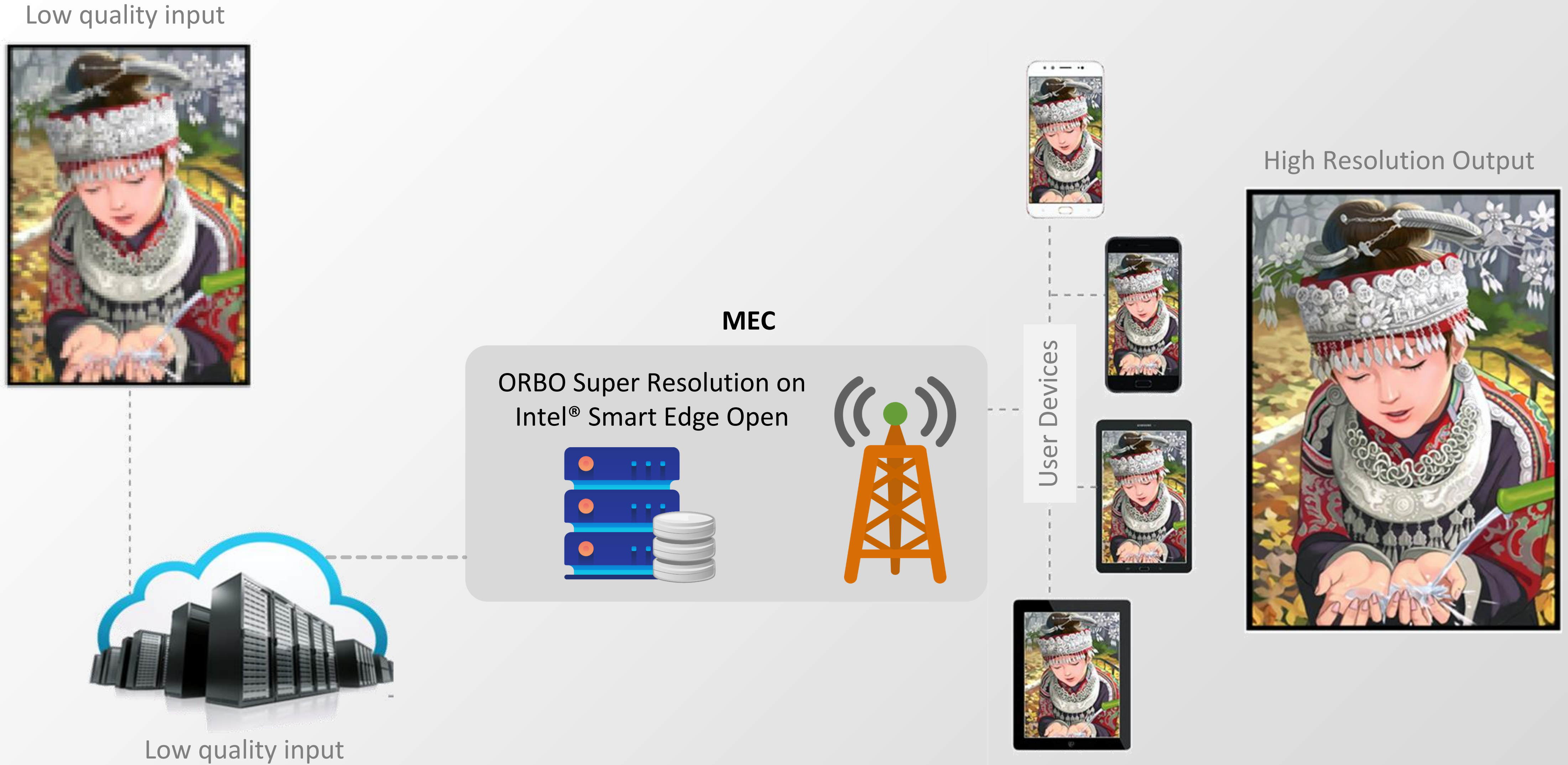
AI Background Removal at the edge can reduce cost significantly while increasing the speed of product listing on e-commerce marketplaces



Within seconds isolate the product or person from the background with AI & Deep Learning.

Save man-hours and cost to list products faster on e-commerce and retail.

Revolutionizing delivery using Intel® Smart Edge Open in 5G



ORBO AI Solutions are adopted across large industries

01



Cisco WebEx

Working with Cisco to enhance the video quality of WebEx

02



Mumbai Metro

ORBO is working with Mumbai Metro to provide touchless entry & exit to passengers traveling via metro

03



GE Healthcare

Enhancing the 4D ultrasound imagery of fetus scans and reconstructing a 3D rendered image to more human like appearance

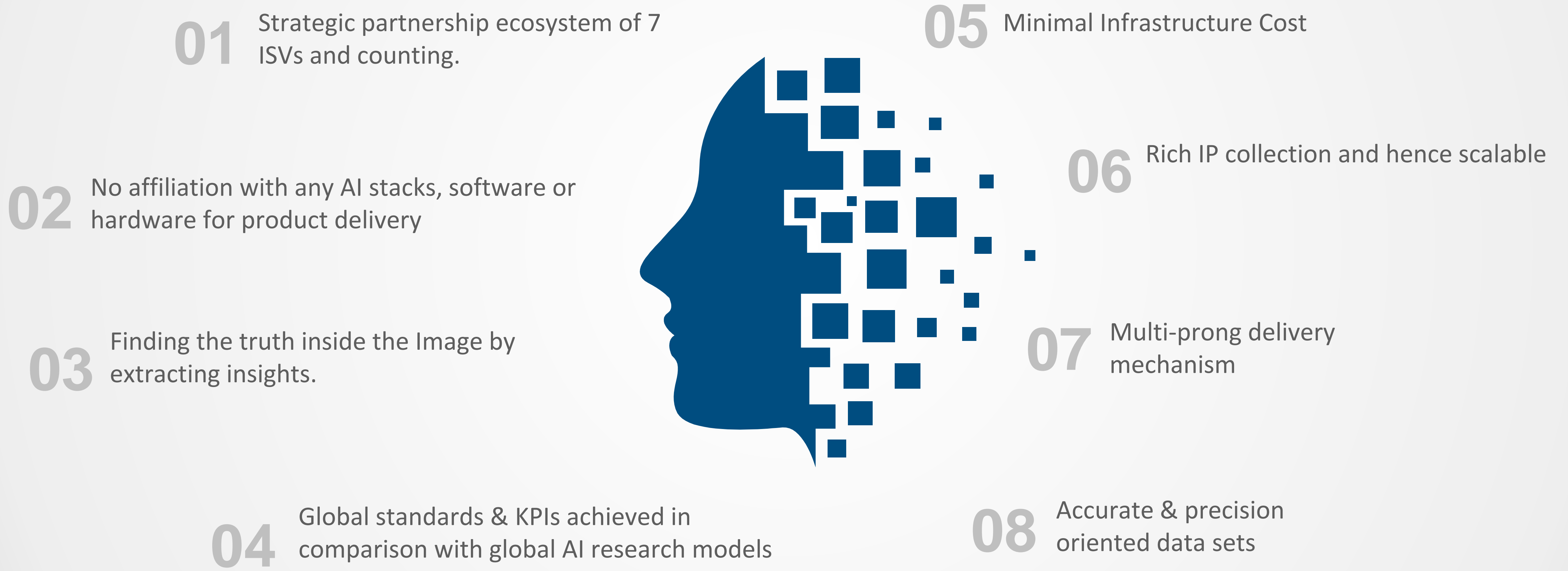
04



Medicine Data Extraction and enhancement (OCR)

Orbo's visual extraction and enhancement capabilities are instrumental in bringing standard to supply chain of Pharma industry

What sets ORBO apart



ORBO on a growth trajectory



Strategic partnerships



Cisco has partnered with ORBO for its network slicing enhancement and interception of data



ORBO is delighted to partner Microsoft to provide AI-powered Document Enhancement to help customers of Microsoft improve the quality of their scanned documents.



Intel has selected ORBO for its prestigious Maker Lab platform to build 5G AI based imaging capabilities on their next generation chipsets



GE and ORBO are collectively working to enhance PET / CT Scan imaging technology to reduce the radiation exposure by 50% and drive quality to older GE machines.

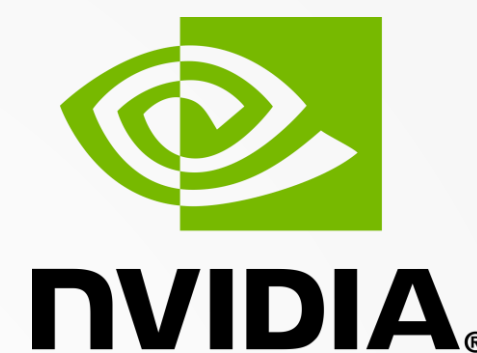
IP Validations so far



Microsoft Cognitive Services & Azure Approved startup



Part of FbStart from Facebook, with a backing of USD \$40k



nVidia Inception Program Member-AI and Deep learning



Global Coin partner for Document Enhancement



Winner of Japan's prestigious research AI championship



Winner of Global Startup Challenge in China



Winner of Viacom18's vStep Program and Paid pilot



Winner of OTIS global Innovation challenge

ORBO AI - Core team



Manoj Shinde

Chief Do'er, ORBO.AI

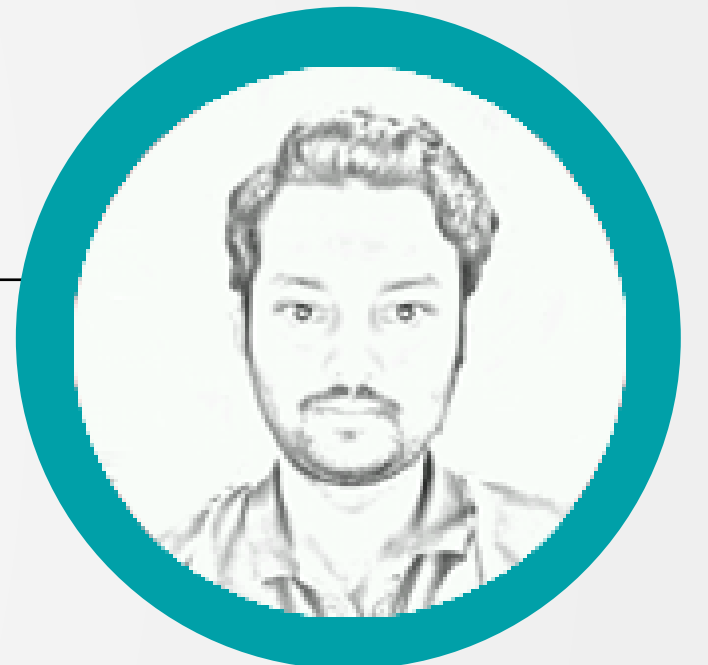
Built a first visual IoT wall Adiverse and an augmented reality platform in 2009 as a Head of Innovation for Adidas



Abhit Sinha

Co-Founder, ORBO.AI

Deep Learning Expert



Danish Jamil

Co-founder, ORBO.AI

AI Scientist



Vinod Dham

Investor & Board Member

Industry veteran and father of Pentium Micro Processors

Thank you !



Extracting truth inside images



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