PROPHESEE
METAVISION FOR MACHINES

PROPHESEE

METAVISION FOR MACHINES

KEY FIGURES

2010
FIRST PRODUCT

90+
PATENTS
SENSOR
SYSTEM
ALGORITHMS
APPLICATIONS

$127M
RAISED

62
INTERNATIONAL RECOGNITIONS

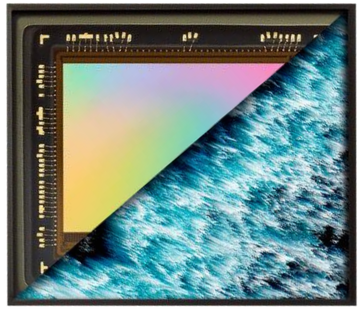
TEAM

120
STRONG

5
OFFICES

PRODUCTS

METAVISION®
SENSORS



METAVISION®
INTELLIGENCE
SOFTWARE

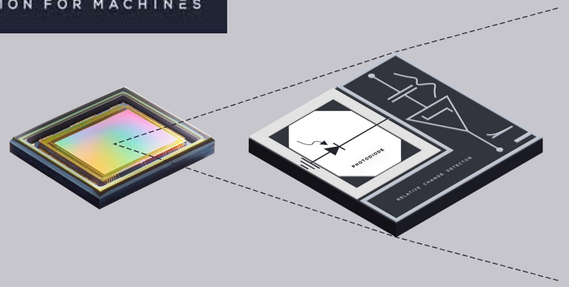
DEVELOPMENT TOOLS

ECOSYSTEM

PARTNERSHIPS ACROSS THE VALUE CHAIN CREATING DE FACTO INDUSTRY STANDARD

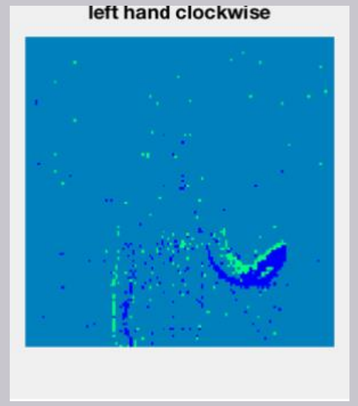
EVENT-BASED VISION - INTELLIGENCE IN EACH PIXEL

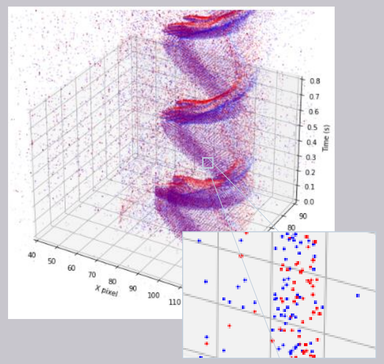
PROPHESEE
METAVISION FOR MACHINES



In Prophesee's Event-Based sensor, **each pixel operates autonomously,** responding to what it sees and detects in the scene.

This pixel level sensing method enables the acquisition of **only** and **all essential motion and change information, continuously and efficiently**.





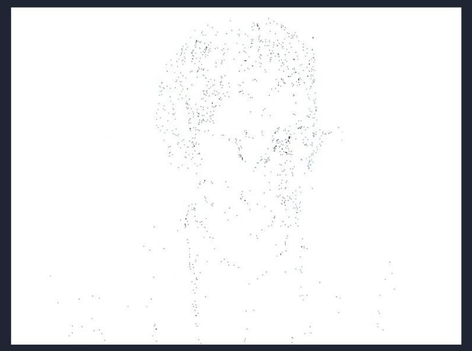
Only essential information for ultra-low power and real-time Machine Vision and AI at the Edge

Image sensors rely on century-old paradigm. Invented by humans, for human consumption.

"We are showing movies to machines, who are not equipped to properly comprehend them".

FRAME - BASED

- "Beautiful" pictures for human consumption
- Fixed amount of data: redundancy and high-power consumption
- Sequential static pictures (10-30ms typical time resolution)
- Clock-driven (pre-defined frame rate)
- Needs exposure times (motion blur)
- Limited dynamic range (60dB), high dependency on lighting



10-1000x
Less data

1,000x
Faster

10-100x
Less power

EVENT - BASED

- Essential motion information for edge computer vision and AI
- Amount of data adapts with scene, minimizing power consumption
- Time-continuous contrast detection events (1µs time resolution)
- Scene-driven (adaptive asynchronous pixel operation)
- No exposure time (blur free)
- High dynamic range (>120dB), no dependency on lighting conditions

PRODUCT EVOLUTION OVERVIEW

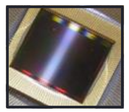
Five sensor generations, 100+ computer vision & AI algos, 1,000+ customers, 10,000+ inventors' community

The most advanced company in its capability to optimize and industrialize an event-based sensor

Vertical business model: hardware + software contribute to a comprehensive product portfolio

SONY | PROPHESEE

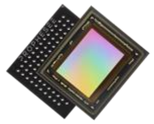
SENSING (HARDWARE)



GEN 1 QVGA

30µm
180nm CMOS

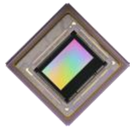
2014



GEN 3 VGA

15µm
180nm CIS

2018



GEN 4/IMX636 HD

4.86µm
3D stack: 90nm CIS (BSI) on 40nm CMOS

2021

GEN X/320 QVGA

6.3µm
3D stack: 65nm CIS (BSI) on 40nm CMOS

2023

GEN Y

Tape-out in 2024

2024

INTELLIGENCE (SOFTWARE)

2020

Metavision® SDK

First Commercial Launch

OpenEB

Open-Source Offer to Inventors and Researchers Community

2022

Metavision® SDK 3.0

100+ Algorithms of Computer Vision and AI, Datasets, Application Examples
NIPS, CVPR

Metavision® SDK 4.3

High power efficiency (~30 mW)
Robust performance (>1,000 Hz pose estimation)

10,000+ COMMUNITY MEMBERS

Metavision® Intelligence and OpenEB users

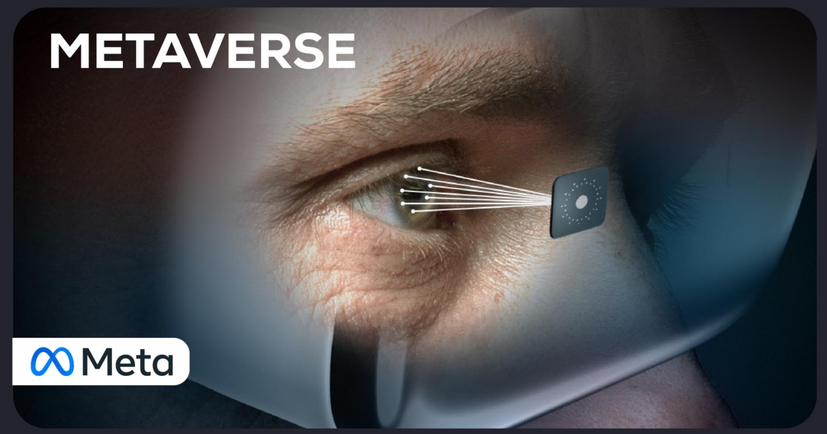
1,600+

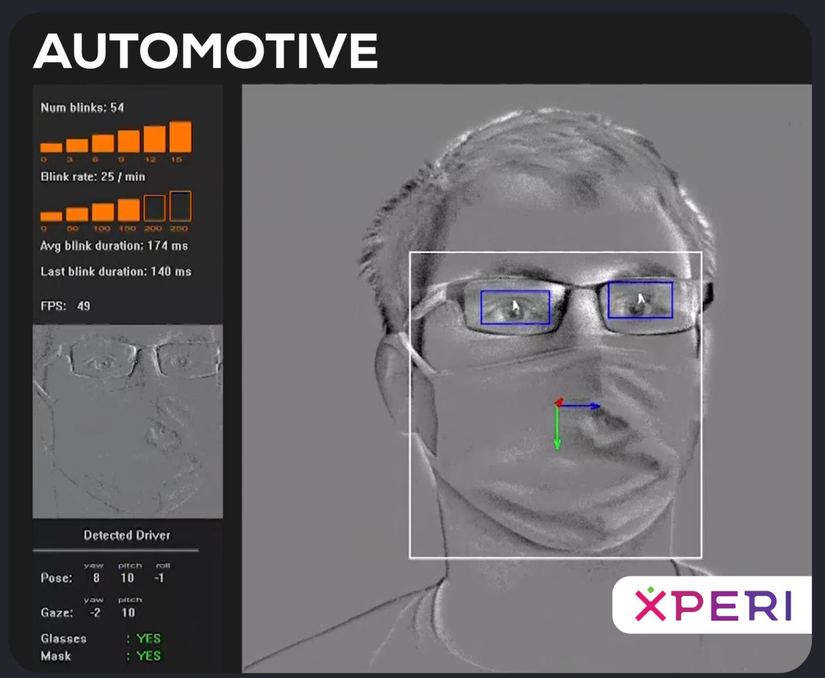
EVKs sold

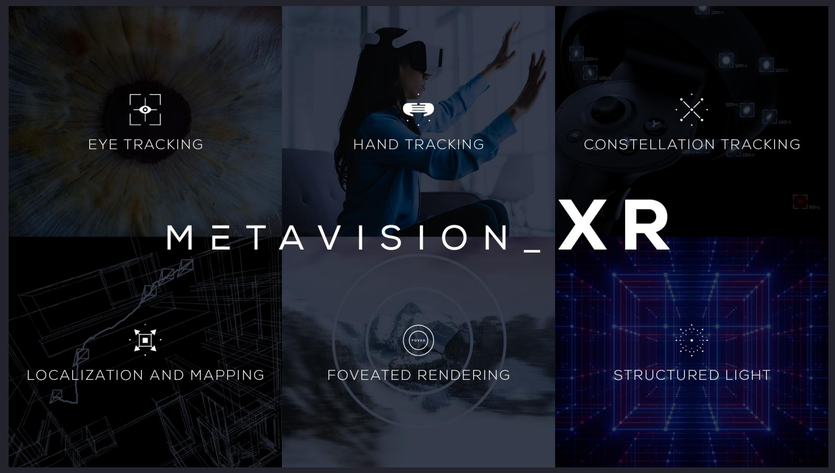
5

International Awards for Metavision® Intelligence Suite

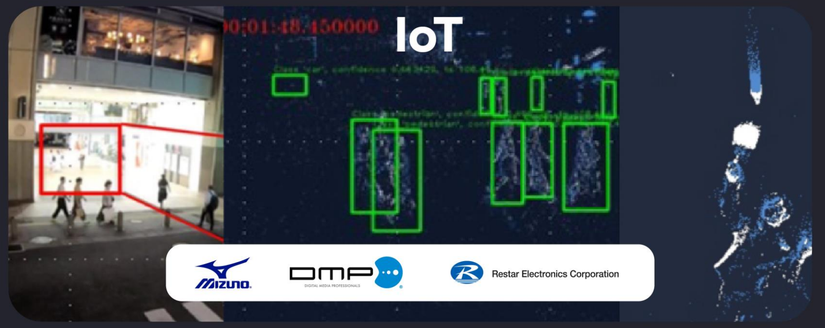
BLUR
DEBLUR
MOBILE


METAVERSE
Meta

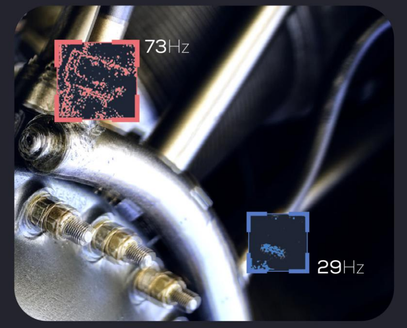

AUTOMOTIVE
Num blinks: 54
Blink rate: 25 / min
Avg blink duration: 174 ms
Last blink duration: 140 ms
FPS: 49
Detected Driver
Pose: 8 10 -1
Gaze: -2 10
Glasses : YES
Mask : YES
XPERI


EYE TRACKING
HAND TRACKING
CONSTELLATION TRACKING
METAVISION_XR
LOCALIZATION AND MAPPING
FOVEATED RENDERING
STRUCTURED LIGHT

IMAGO
CenturyArks
LUCID
VISION LABS


IoT
Mizuno
omron
Restar Electronics Corporation

INDUSTRIAL
25 YEARS MTEC
DATALOGIC

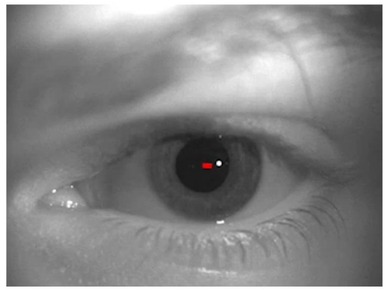

73Hz
29Hz

MOBILE CAMERA

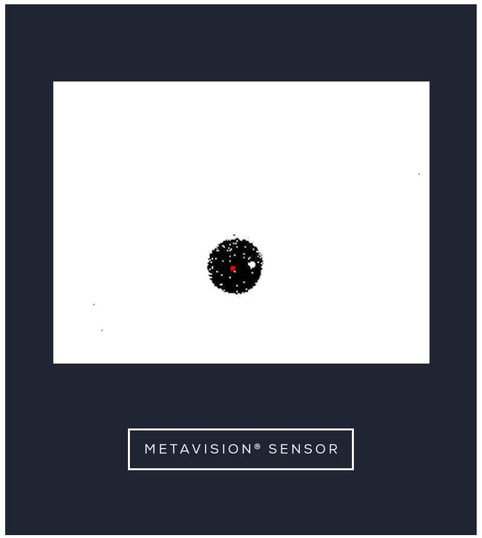
PROPHESEE

EMERGING

UNLOCK TRUE IMMERSIVE EXPERIENCE FOR XR



FRAME-BASED SENSOR



EYE TRACKING

–– ULTRA FAST EYE TRACKING AT 1KHZ

- **Non-verbal emotional communication**
- **Seamless navigation** in menus
- **Foveated rendering** to unlock next-gen XR system performance (resolution – fps – autonomy…)

GESTURE CONTROL

–– 3D HAND TRACKING AT LOW LATENCY

- High dynamic, real immersion experience
- Natural and accurate interaction without handle (click, grab, virtual keyboard…)
- Physical interaction and nonverbal communication between virtual humans

ZINN labs™ Meta ultraleap TCL PROPHESEE

LOW LATENCY AND WIDE DYNAMIC RANGE FOR HIGHER SAFETY IN ADAS AND AD

In Cabin: Driver Monitoring System

XPERI PEGATRON

- Robust performance **under extreme lighting**
- Especially useful for **detecting drowsiness that mainly happens at night**
- Provides **in-cabin privacy**

Exterior: ADAS (Complementary or Replacing Lidar)

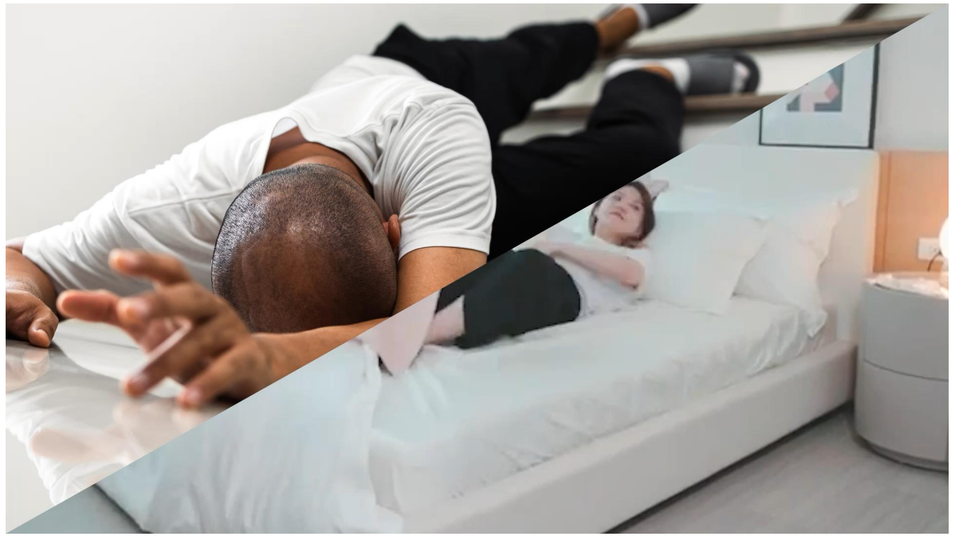
BOSCH RENAULT BYD

In Daylight	In Night time		In Adverse Conditions	
+60% Faster Reaction Time	**3.6x** Better Detection Capability	**+300%** Faster Reaction Time	**8x** Detection	**+500%** Additional Reaction Time

PROPHESEE

EMERGING

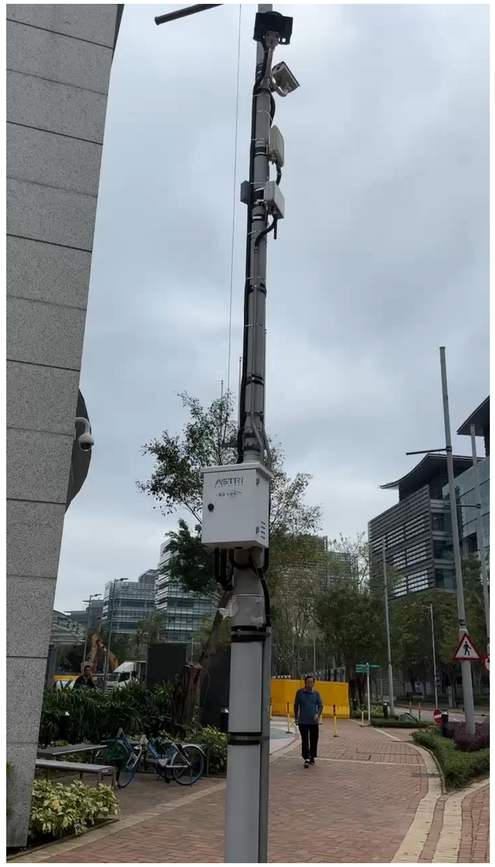
ULTRA-LOW POWER ALWAYS-ON EDGE VISION FOR SMART HOME AND SMART CITIES



FALL DETECTION

–– PRIVACY BY DESIGN

- A strong and quickly expanding pipeline in elderly care / smart home across major countries in Asia
- Can achieve <1% false alarm rate (much improved from current solutions)
- Strong privacy protection by design
- High robustness to fast motion / lighting condition and environment (eg water vapor)



TRAFFIC MONITORING

–– HIGH DYNAMIC RANGE

- Low light detection and tracking
- Privacy protection
- Real time edge computing – no need for central data storage, drastically reducing computing load

YUN X MEDIATEK ASTRI AMD PROPHESEE

Qualcomm SONY

THANK YOU

www.prophesee.ai