PROPHESEE
METAVISION FOR MACHINES

SOLUTIONS

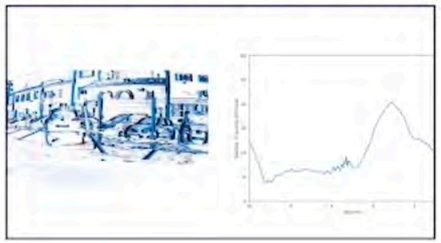
METAVISION

INTELLIGENCE SUITE

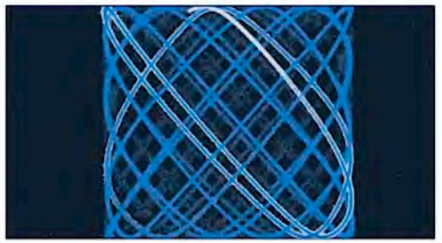
CORE

XYT VISUALIZATION

DATA RATE VISUALIZATION



ULTRA SLOW MOTION

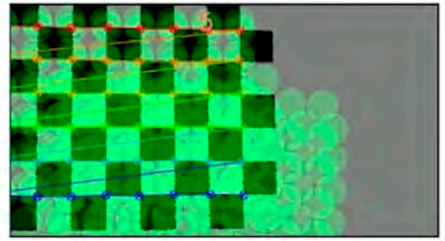


CV

OPTICAL FLOW

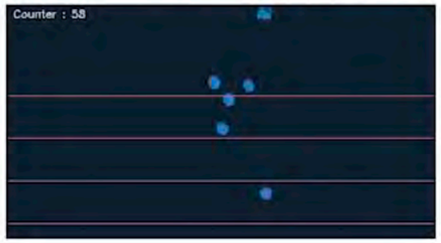
CALIB

CALIBRATION



ANALYTICS

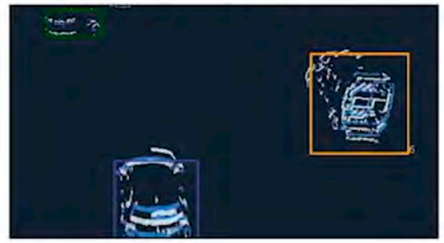
HIGH-SPEED COUNTING



VIBRATION MONITORING

SPATTER MONITORING

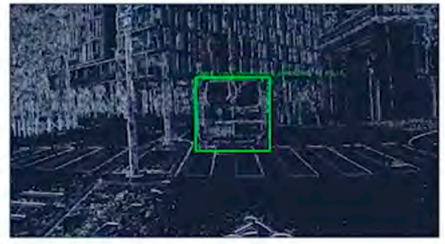
OBJECT TRACKING



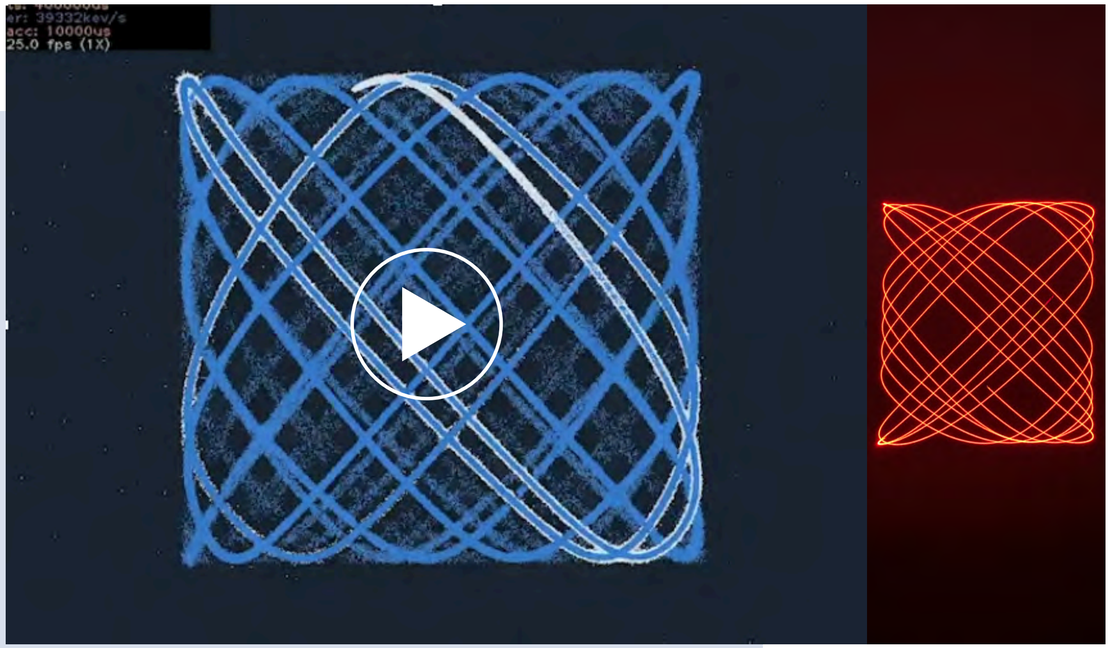
ML

PROFESSIONAL

MACHINE LEARNING



ULTRA SLOW MOTION

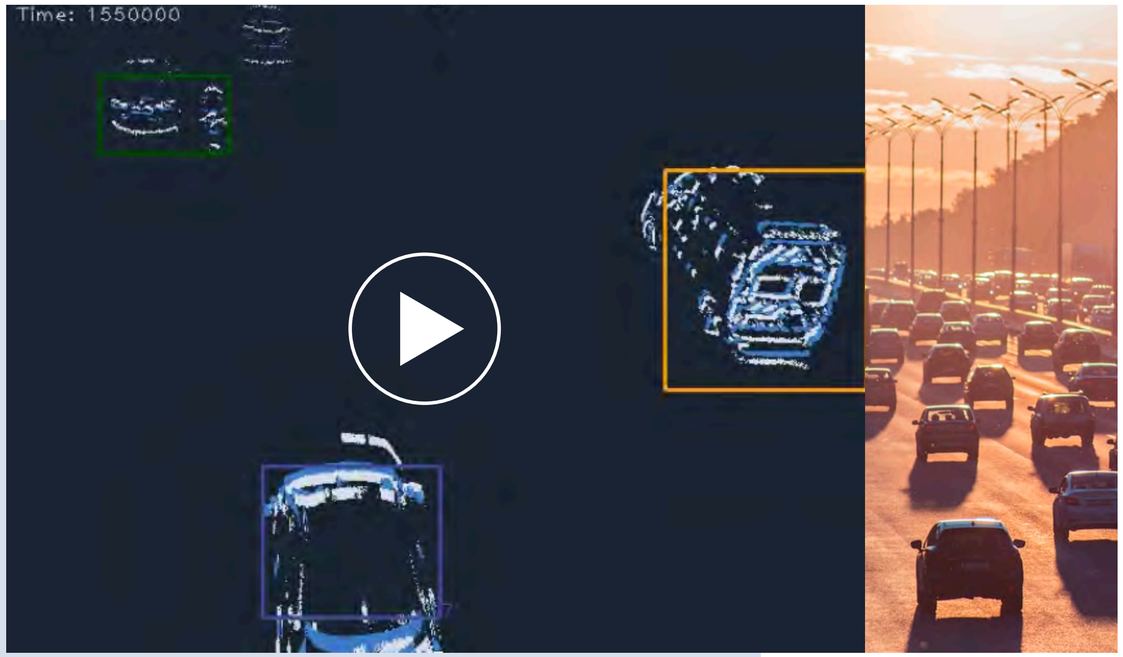


Slow down time, down to the time-resolution equivalent of **over 200,000+ frames per second, live**, while generating orders of magnitude **less data** than traditional approaches.

Understand the **finest motion dynamics** hiding in ultra fast and fleeting events.

Up to **200,000 fps** (time resolution equivalent)

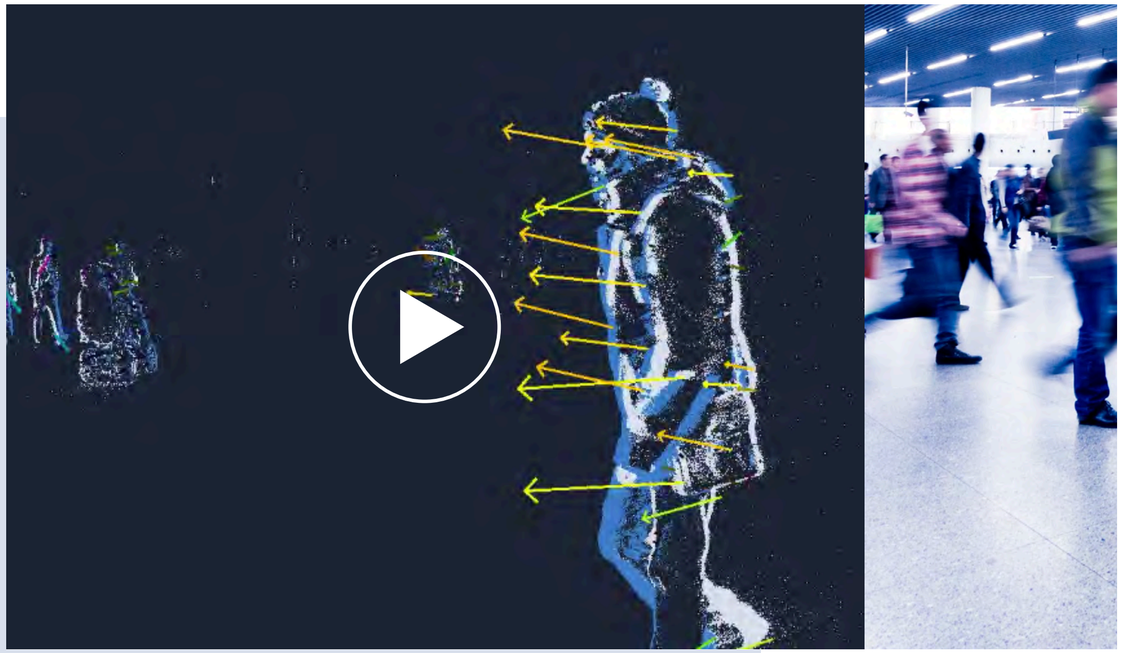
OBJECT TRACKING



Track moving objects in the field of view.
Leverage the **low data-rate and sparse information** provided by event-based sensors to track objects with **low compute power.**

Continuous tracking in time: no more "blind spots" between frame acquisitions
Native segmentation: analyze only motion, ignore the static background

OPTICAL FLOW



Rediscover this fundamental computer vision building block, but with an event twist.

Understand motion much more efficiently, through **continuous pixel-by-pixel tracking and not sequential frame by frame analysis** anymore.

17x less power compared to traditional image-based approaches
Get features **only on moving objects**

HIGH-SPEED COUNTING

Count objects at unprecedented speeds, high accuracy, generating **less data** and **without any motion blur.**

Objects are counted as they pass through the field of view, **triggering each pixel independently** as the object goes by.

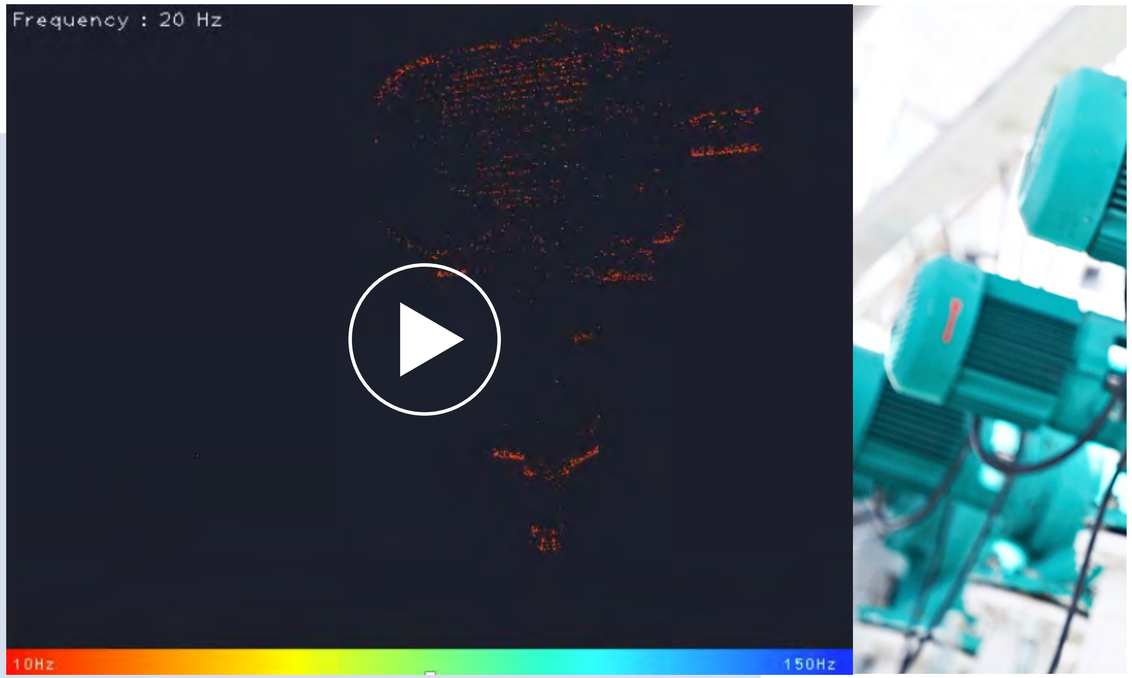
>1,000 Obj/s. Throughput
>99.5% Accuracy @1,000 Obj/s.

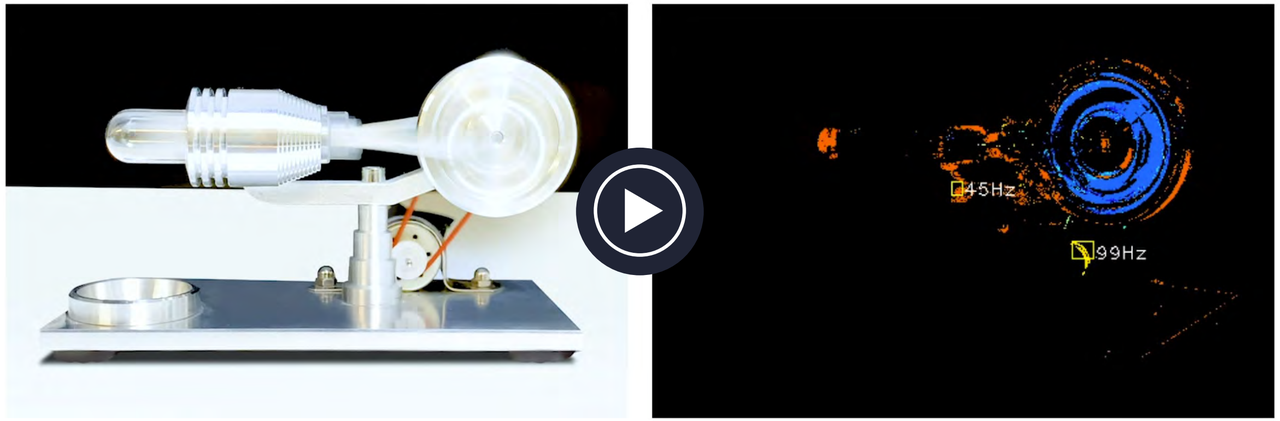
VIBRATION MONITORING

Monitor vibration frequencies continuously, remotely, **with pixel precision**, by tracking the temporal evolution of every pixel in a scene.

For each event, the pixel coordinates, the polarity of the change and the exact timestamp are recorded, thus providing a **global, continuous understanding of vibration patterns.**

From **1Hz to kHz** range
1 Pixel Accuracy
1 sensor = **300,000+** independant measuring points





Typical use cases: Motion monitoring, Vibration monitoring, Frequency analysis for predictive maintenance

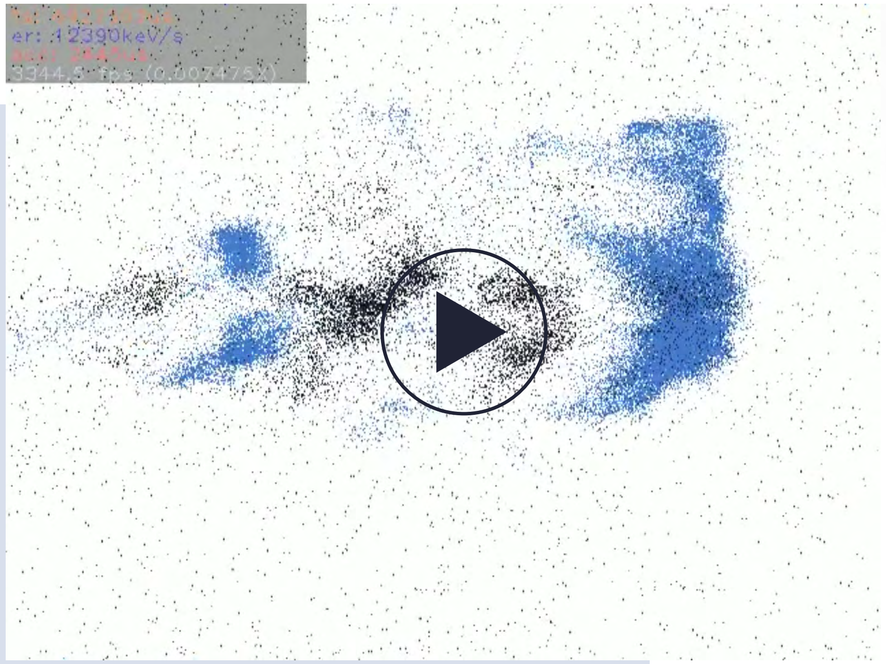
HIGH-SPEED PLUME MONITORING (Aerosols-Spray)

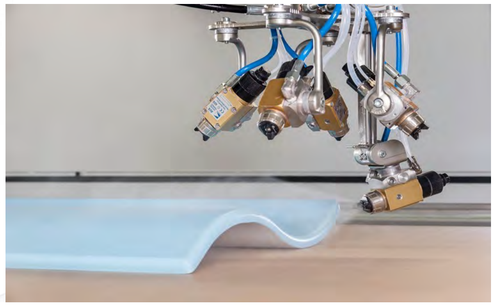
ULTRA-SLOW MOTION

OPTICAL FLOW

Real time analysis and monitoring of spray dispensing of fluids.

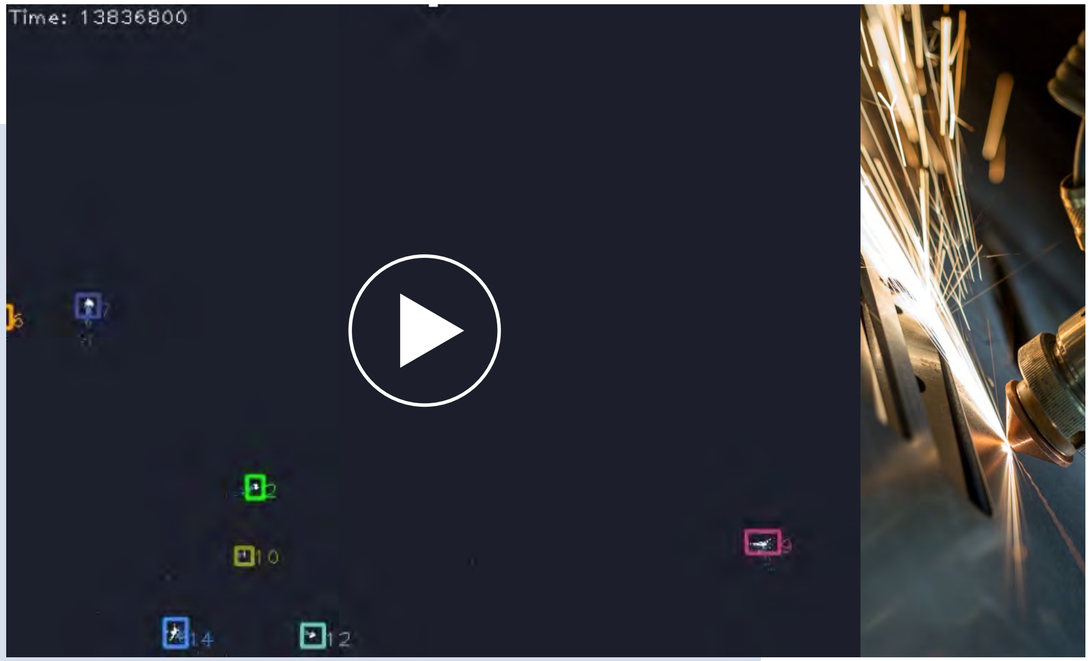
Ultra slow-motion view (200.000 equiv. f/s) for homogeneity and optical flow for direction and velocity of plume & PIV.





Typical use cases: *Dispensing uniformity & Coverage control, Quality & efficiency of dispersion, Fluid dynamics analysis for inline process monitoring*

SPATTER MONITORING



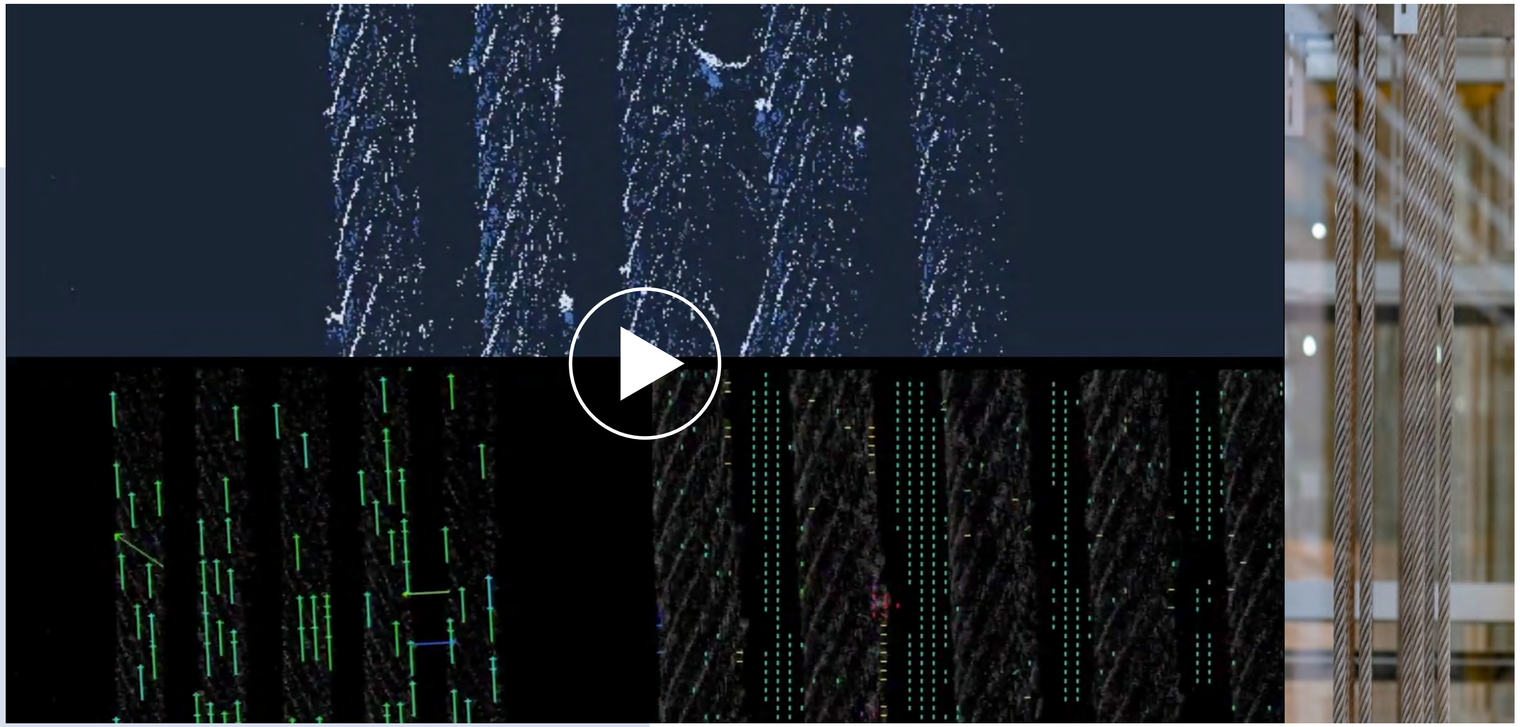
Track small particles (typ. size 10pixels) with spatter-like motion.

Thanks to the **high time resolution** and **dynamic range** of our Event-Based Vision sensor, small particles can be tracked in the most difficult and demanding environment.

Up to **200k fps rendering** (5 µs time resolution)
Simulatenous XYT tracking of all particles

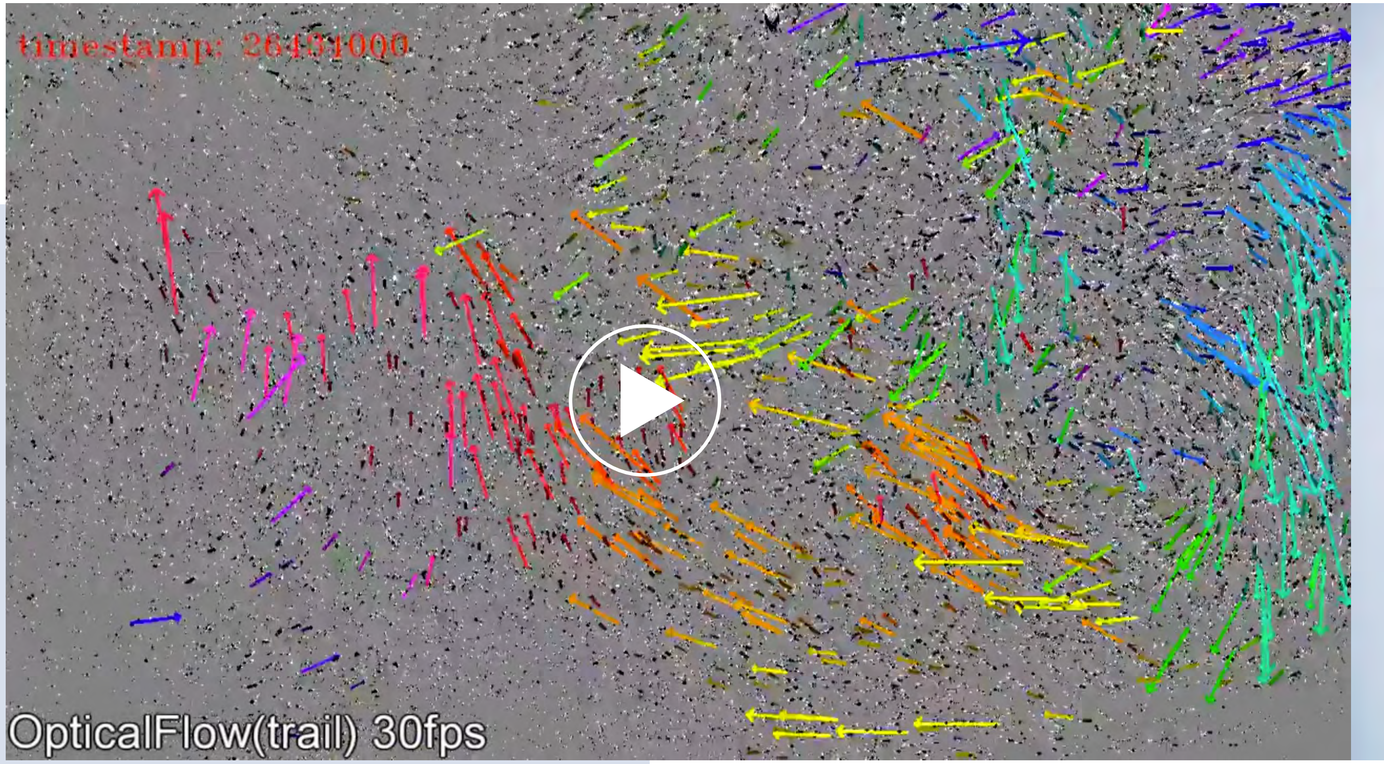
Typical use cases: Traditional miling, laser & process monitoring, Quality prediction

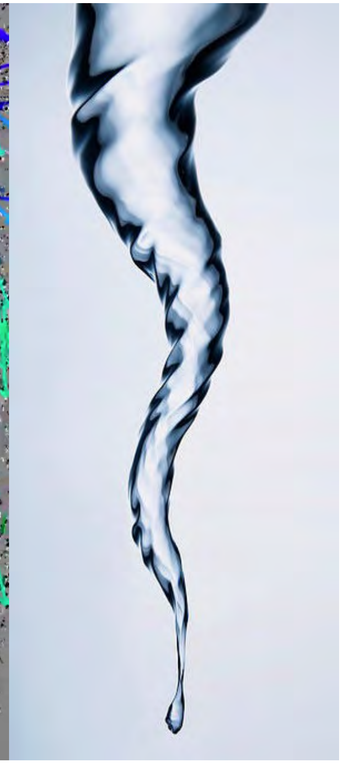
CABLE VELOCITY & SLIPPING MONITORING



Typical use cases: *Yarn quality control, Cable manufacturing monitoring*

VELOCITY &
FLUID DYNAMICS MONITORING

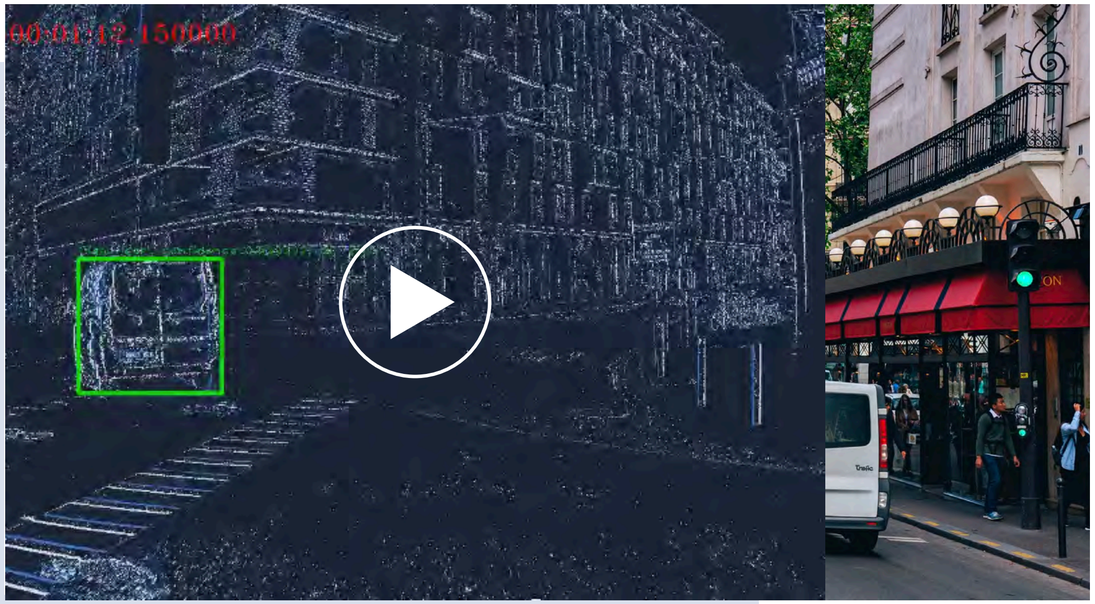




Typical use cases: Fluid dynamics monitoring, Continous process monitoring of liquid flow

INFERENCE

MACHINE LEARNING
– INFERENCE



Unlock the potential of Event-Based machine learning, with a set of dedicated tools providing everything you need to start execution of **Deep Neural Network (DNN) with events.**

Leverage our **pretrained automotive model written in pytorch**, and experiment **live detection & tracking** using our c++ pipeline. Use our comprehensive python library to design your own networks.

Pretrained network trained on a 15h and 25M labels automotive dataset

Live detection and tracking **@100Hz**

COMING SOON

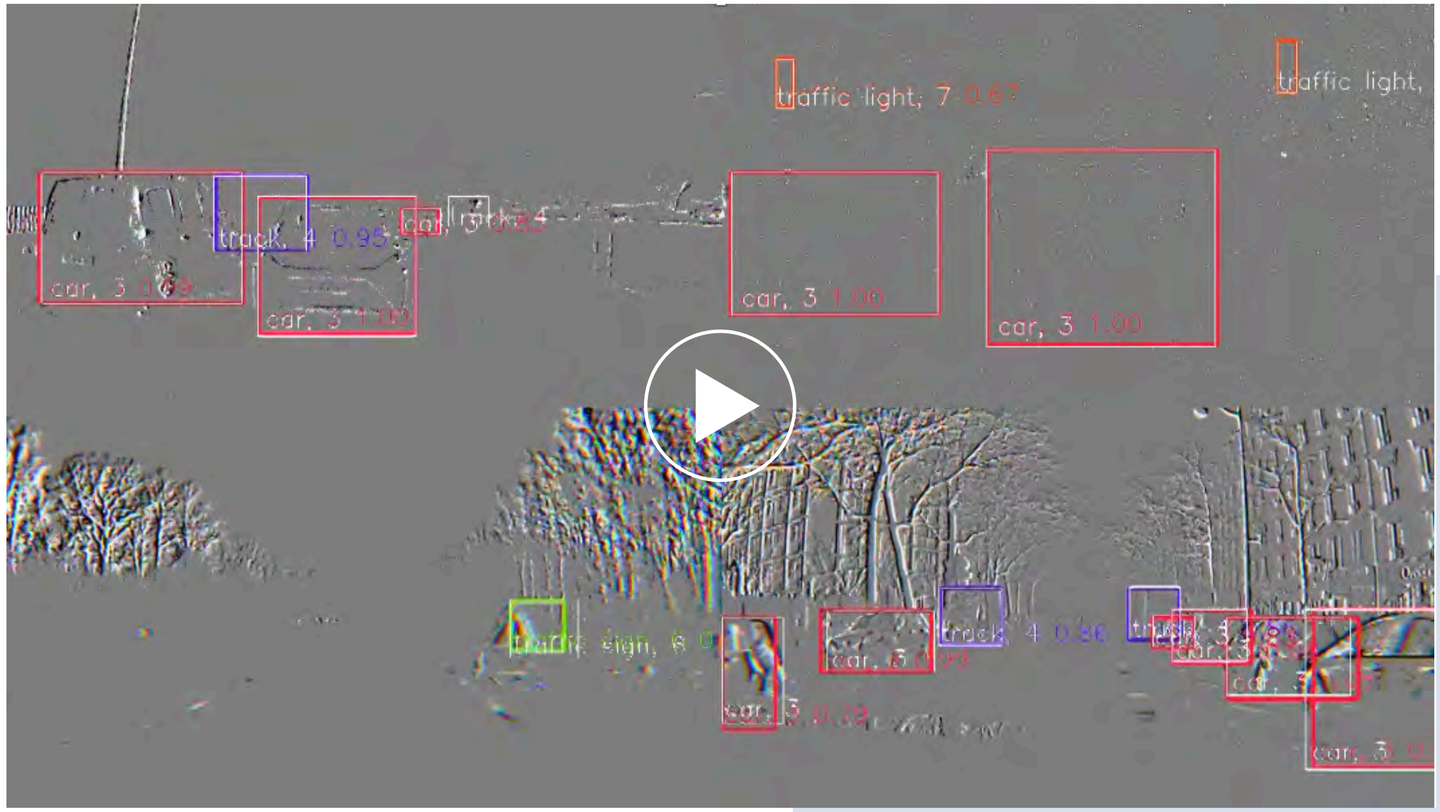
PROFESSIONAL

TRAINING

MACHINE LEARNING – *TRAINING*

Train your own Object Detection application with our ready-to use training framework. Explore Event-Based Tensor representation, and train network topology suited for event-based Data

4 pre-built tensor representation
Automated HDF5 dataset generation
Comprehensive training toolbox, including pretrained network, dataset, and more



COMING SOON

PROFESSIONAL

SIMULATOR

EVENT SIMULATOR

Bridge frame-based and event-based worlds with our events- simulator.
Generate synthetic data to augment your dataset, and partially reuse existing references.

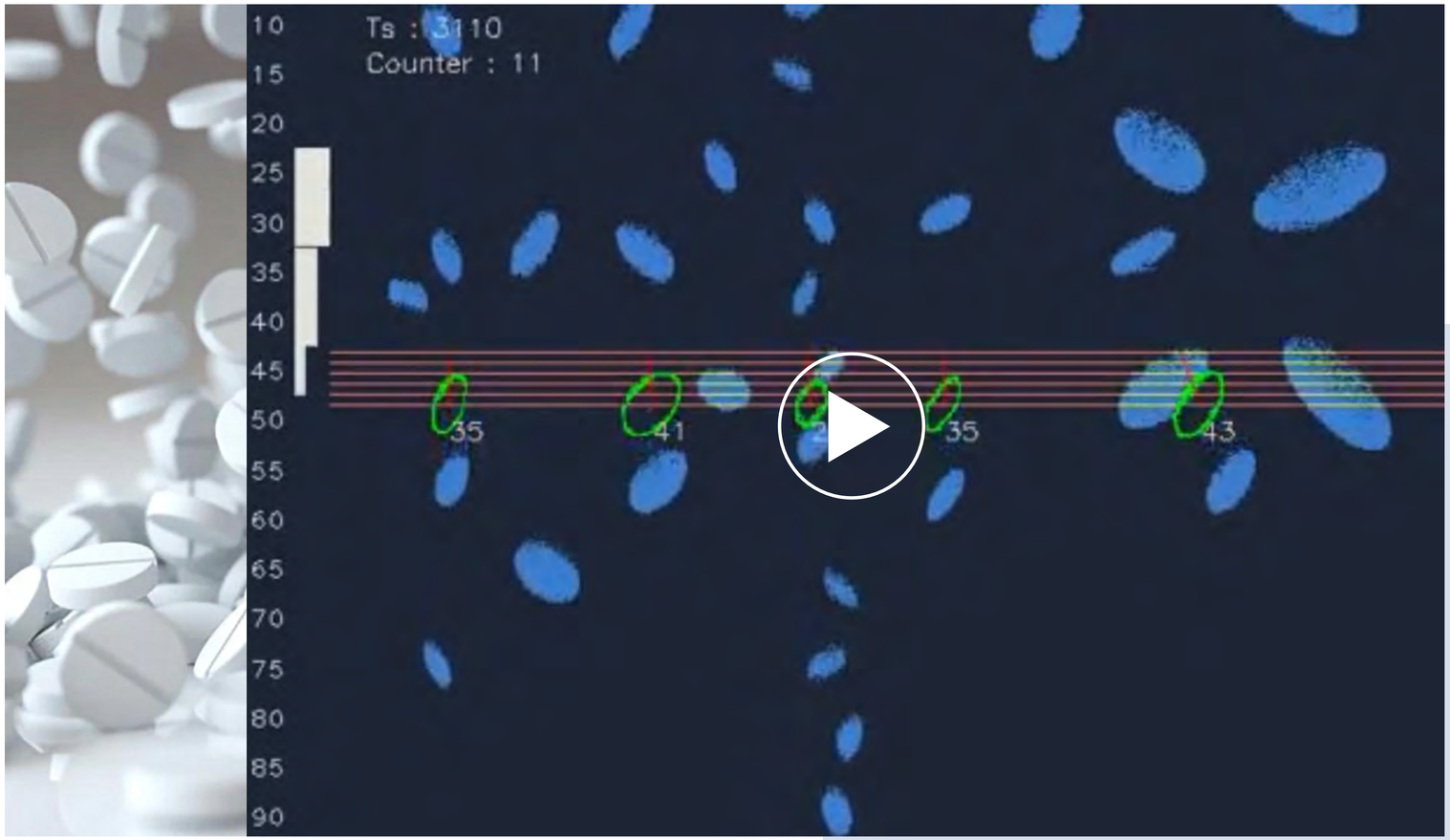
Off the shelf, ready to use Event simulator

COMING SOON

PARTICLE/OBJECT SIZE MONITORING

Control, count and measure the size of objects moving at very high speed in a channel or a conveyor.
Get **instantaneous quality statistics** in your production line, to control your process.

Up to 500 000 pix/s speed
99% counting precision



Typical use cases: High speed counting, Batch homogeneity & Gauging

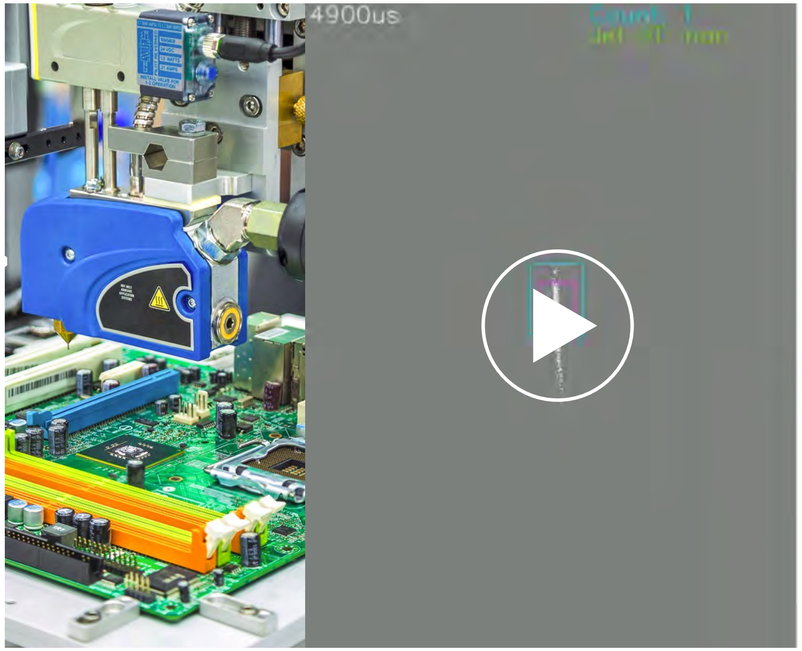
COMING SOON

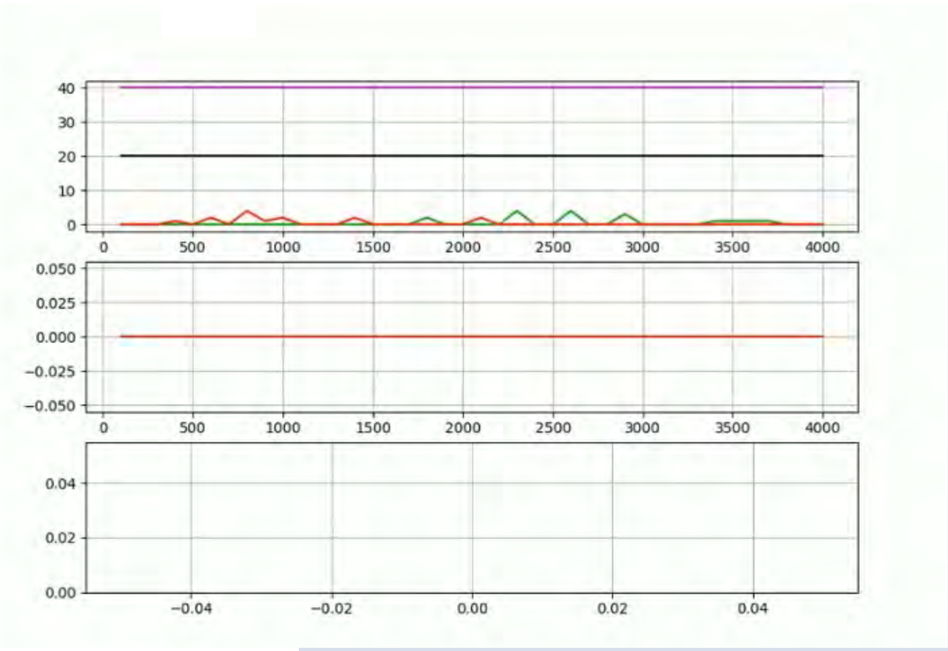
JET MONITORING

Control the quality of your liquid dispensing industrial applications **in real time**, **improve the cadence** and **facilitate the maintenance.**

Detect and count high speed jets, with unparalleled accuracy

Up to 500 Hz jet dispensing
Generate alarms automatically when error occur on dispenser





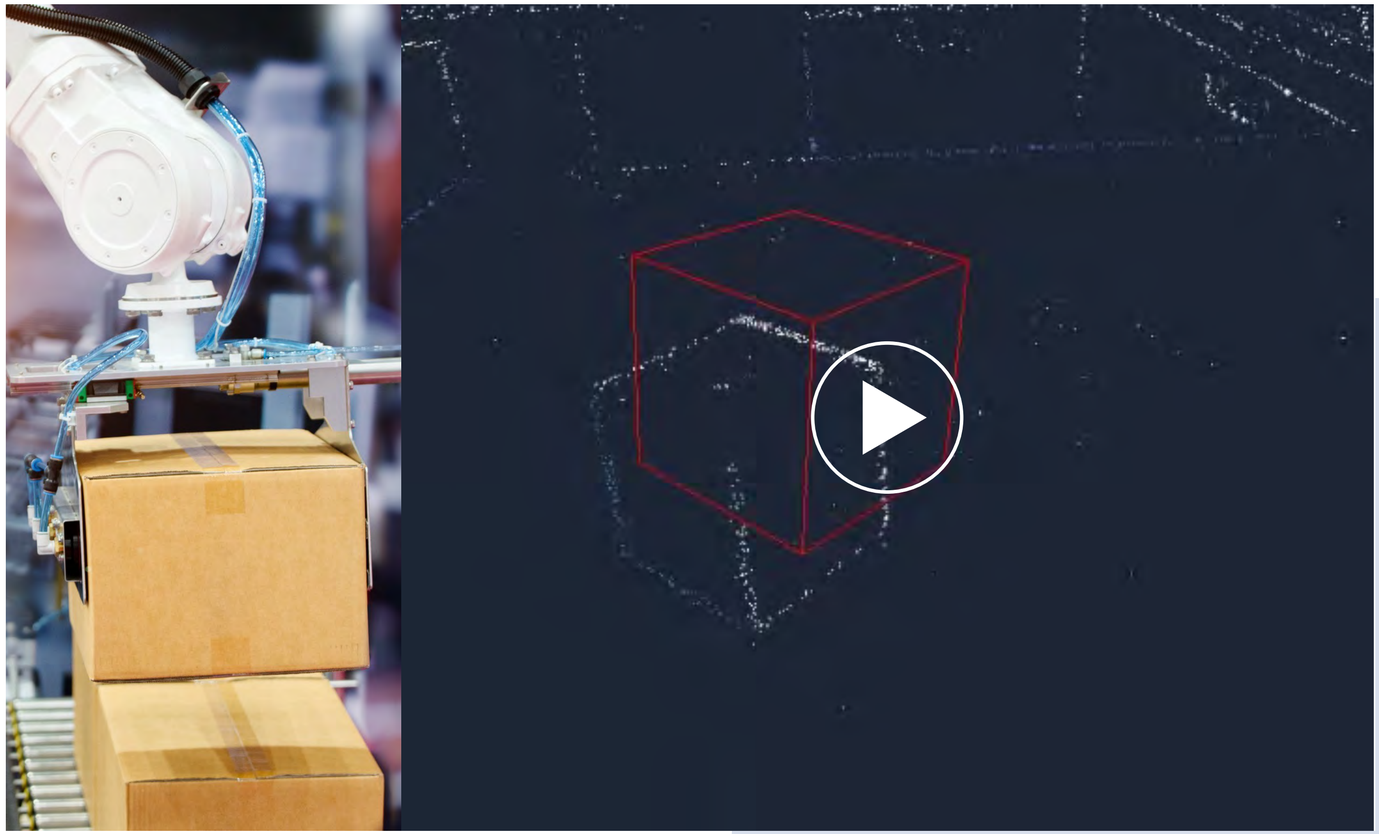
Typical use cases: Trajectory & consistency for inline process monitoring

COMING SOON

EDGELET TRACKING

Track 3D edges and/or Fiducial markers for your AR/VR application. Benefit from the high temporal resolution of Events to increase accuracy and robustness of your edge tracking application

Automated 3D object detection, with geometrical prior
3D object real-time tracking



Typical use cases: *High speed location, Guiding and fitting for pick & place*

THANK YOU

www.prophesee.ai

THANK YOU

WeChat

ID: Prophesee_China