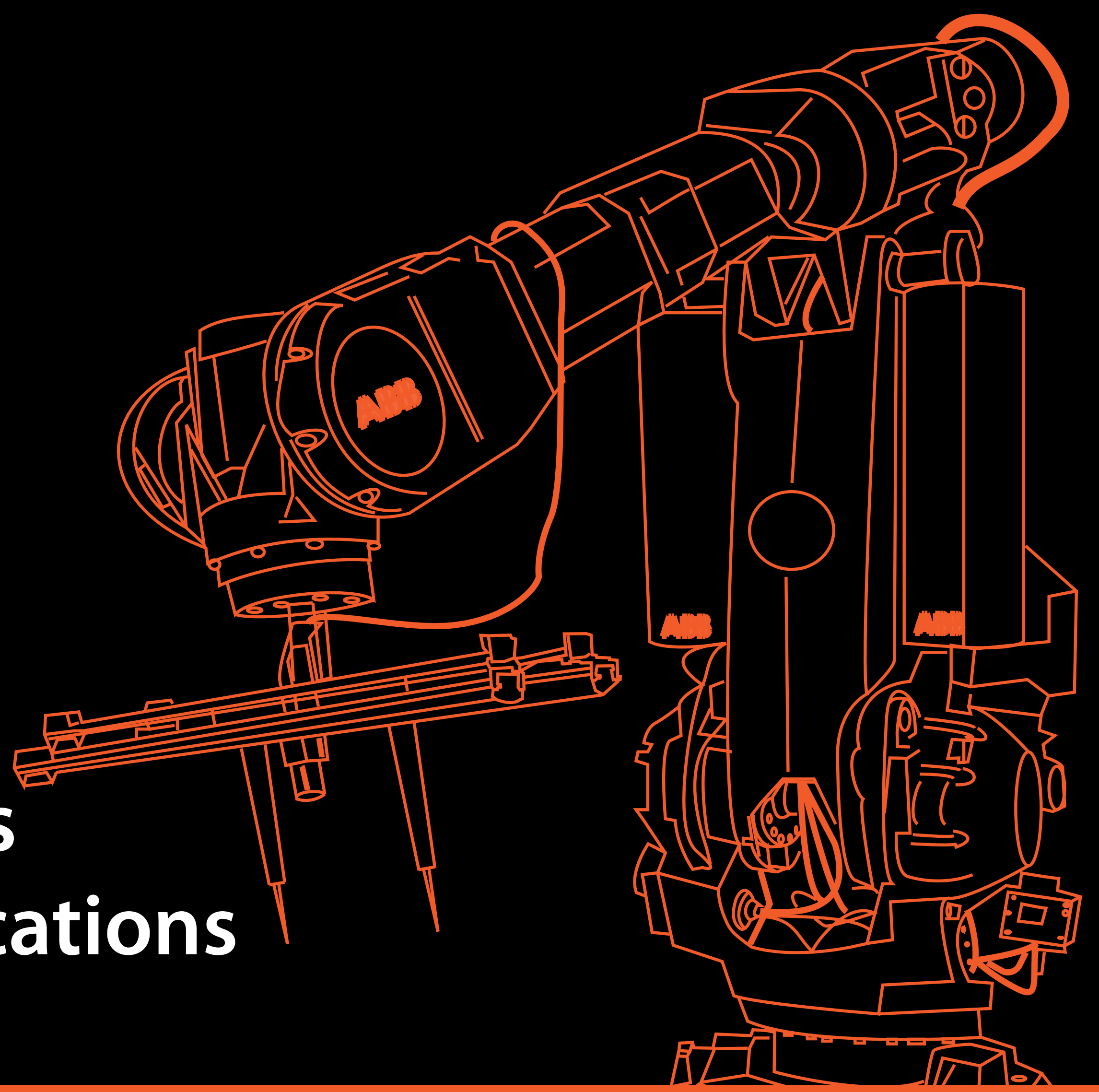


TRUE VIEW

NEW TECHNOLOGY

Vision Guided Robotic Operations
for Automotive Powertrain Applications



CUTS OPERATING COSTS BY UP TO 90% COMPARED
TO CONVENTIONAL MANUAL LABOUR SYSTEMS

FEATURING



Single Camera Technologies

Xi2D™

- Single or Multi camera 2D information in 3 degrees of freedom (x, y, Rz)

IDM2.5D™

- Single Camera information in 4 degrees of freedom (x, y, z, Rz)

SC3D™

- Single camera 3D information in full six degrees of freedom for rigid parts (x, y, z, Rx, Ry, Rz)

Highlights

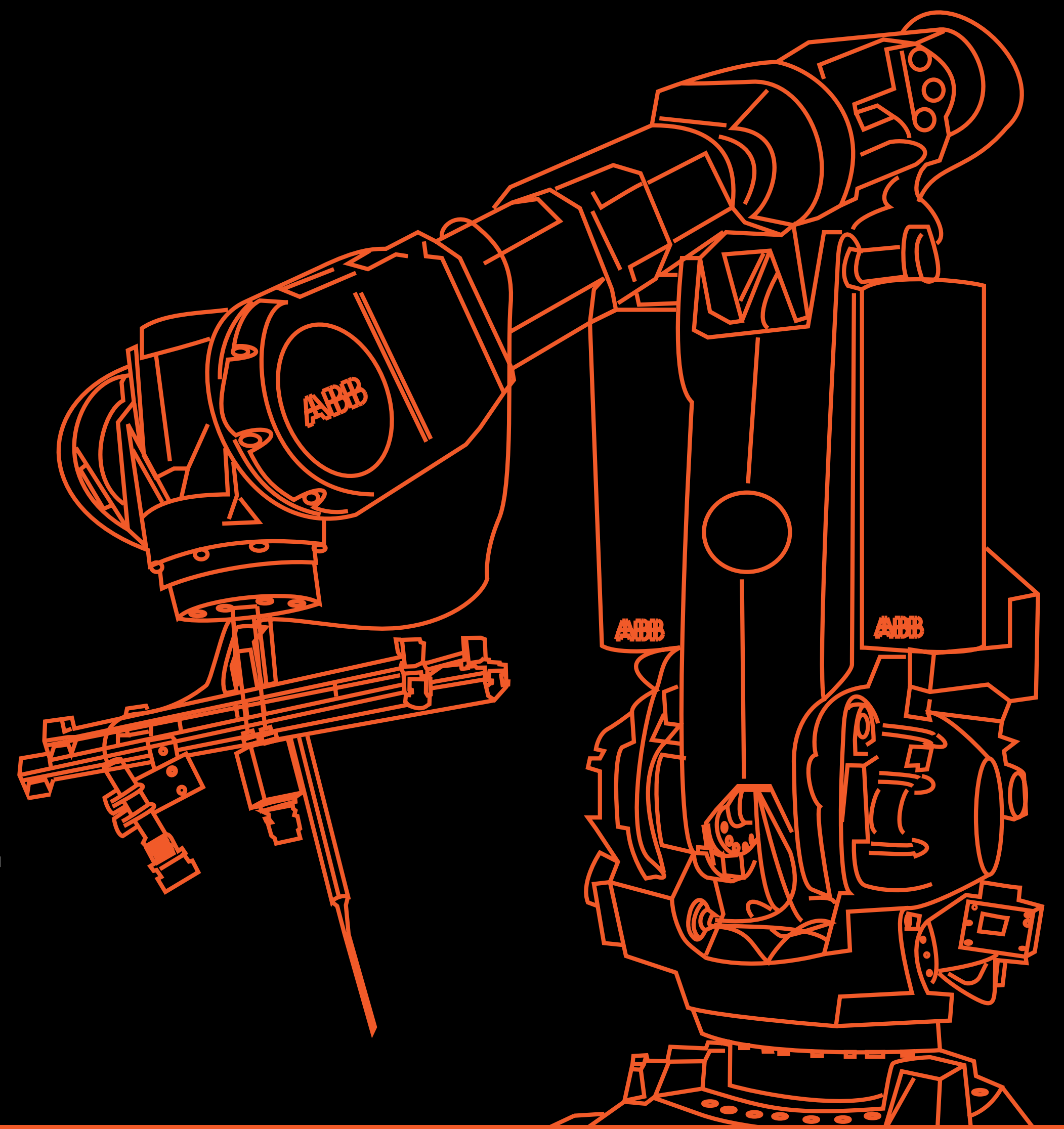
- Resilient to noise and imperfect object appearance through advanced feature qualification technology
- Efficient use of space on end-of-arm-tooling units
- Extremely fast training and calibration cycles
- Simplified Integration and recovery
- Plug & Play incorporation of eVF
- Typical for Automotive & General Industry Material Handling and Assembly



TRUE VIEW

NEW TECHNOLOGY

Vision Guided Robotic Operations for
Automotive Body Applications



ELIMINATE EXPENSIVE PRECISION FIXTURES AND
GUAGES OF LEGACY AUTOMOTIVE SYSTEMS

FEATURING



**Multi Camera &
Structured Light Technologies**

SR3D™

- Surround 3D imaging combines information from multiple cameras viewing large parts from different viewpoints (e.g. car bodies)
- 3D position of parts in full six degrees of freedom

SL3D™

- Uses structured light (e.g. laser) stripes to scan part surface
- Provides the 3D position of rigid parts with smooth, featureless surfaces, in full six degrees of freedom.

Highlights

- Plug & Play incorporation into eVF
- Simplified intergration and recovery

Typical Applications

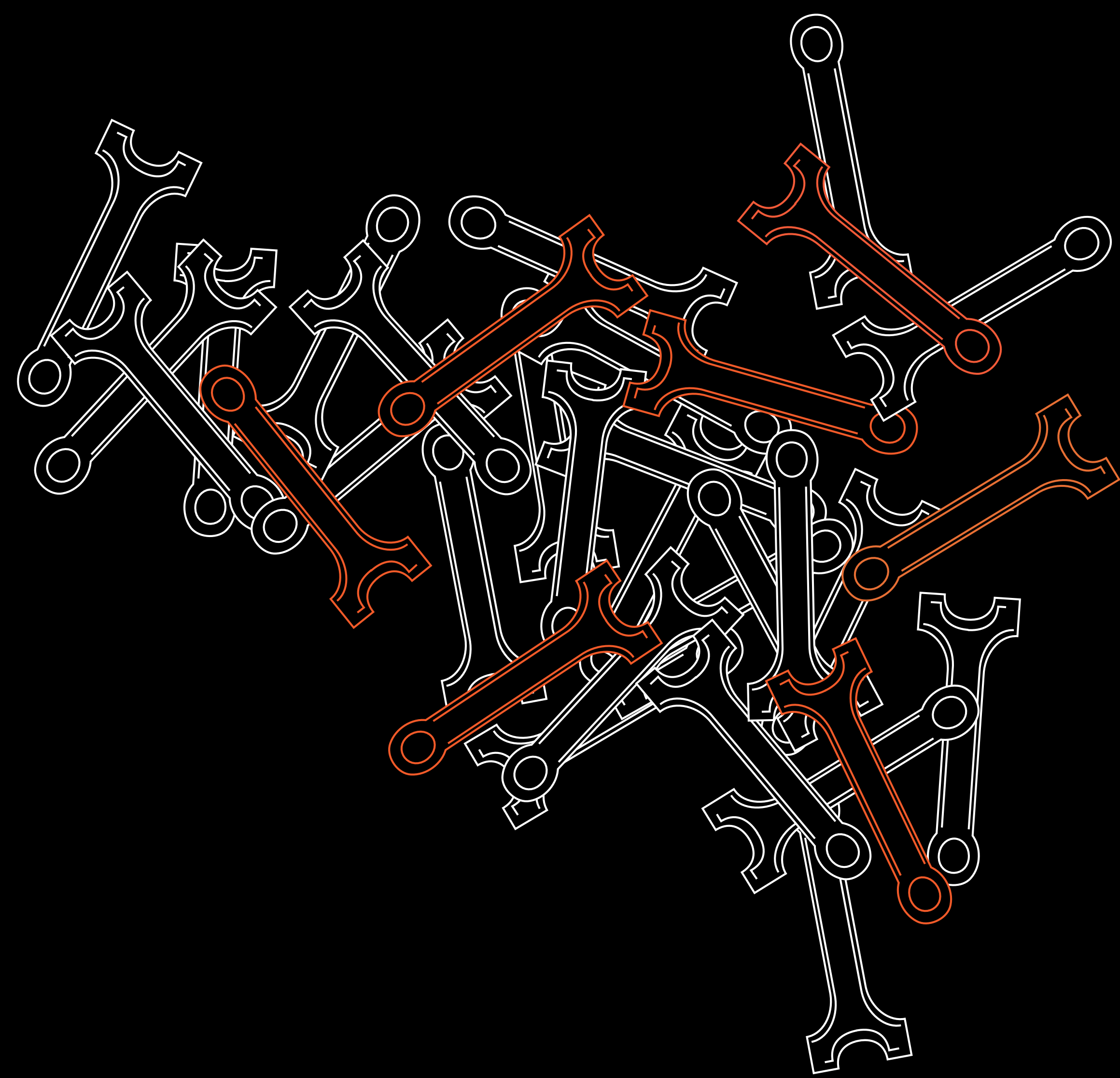
- seam sealing
- foam injection
- dispensing & spraying
- location of large objects



TRUE VIEW

NEW TECHNOLOGY

Intelligent Material Handling for
Automotive and General Industries



USE VISUAL INTELLIGENCE TO AUTOMATE OPERATIONS,
WHICH PREVIOUSLY REQUIRED THE USE OF SKILLED LABOUR

FEATURING



Random Bin Picking Technologies

RBP™

- *Robust Object Recognition*, uses advanced geometric pattern matching to identify potential parts
- *Intelligent Candidate Selection*, selects best candidates based on part position, overlap, interference and match confidence
- *Dynamic Path Planning*, to plan a collision free path to pick parts
- *Dynamic Grasp Planning*, to grasp parts in a stable and safe manner

Typical Applications

Handling of random parts such as :

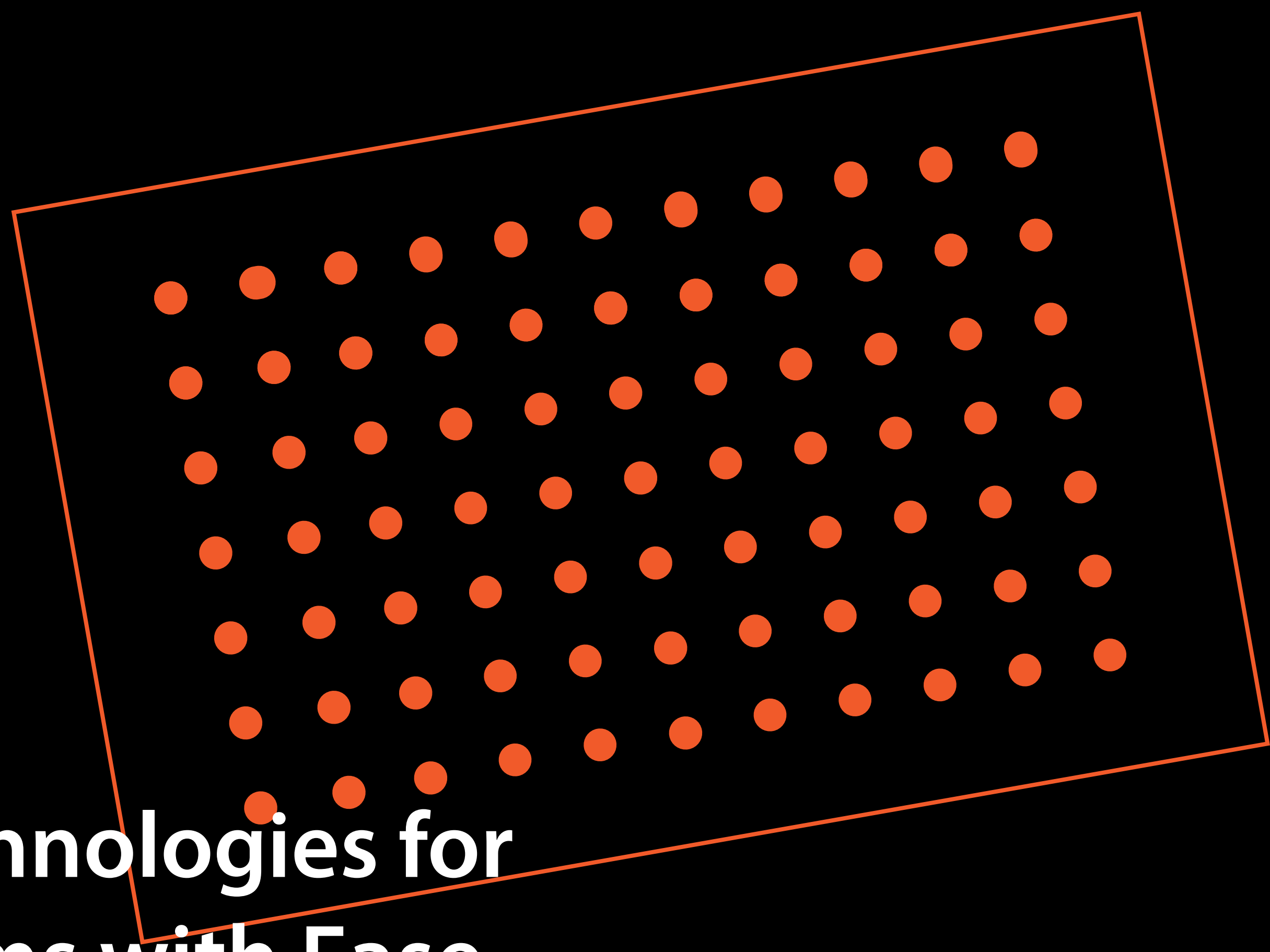
- Forgings
- Castings
- Stampings
- Plastics



TRUE VIEW

NEW TECHNOLOGY

Automatic Training and Testing Technologies for
Developing and Maintaining Systems with Ease.



USE AUTOMATED TECHNOLOGIES TO RUN THE LABORIOUS TASKS
OF SETUP AND TESTING IN LESS TIME, WITH LESS EFFORT.

FEATURING



Automatic Configuration Technologies

AutoCal™

- *Automatic Camera to Machine Calibration*, cuts time from hours to just minutes, and runs in even in areas inaccessible to humans.

AccuTest™

- *Rapid, accurate validation*, to test the reliability of a system before and during field deployment.

AutoTrain™

- *Automatic part measurement*, to introduce new parts to systems without CAD models or manual measurements.

Highlights

- Standard components within eVF
- Automated for ease of use & training
- A scalable & supportable VGR system.

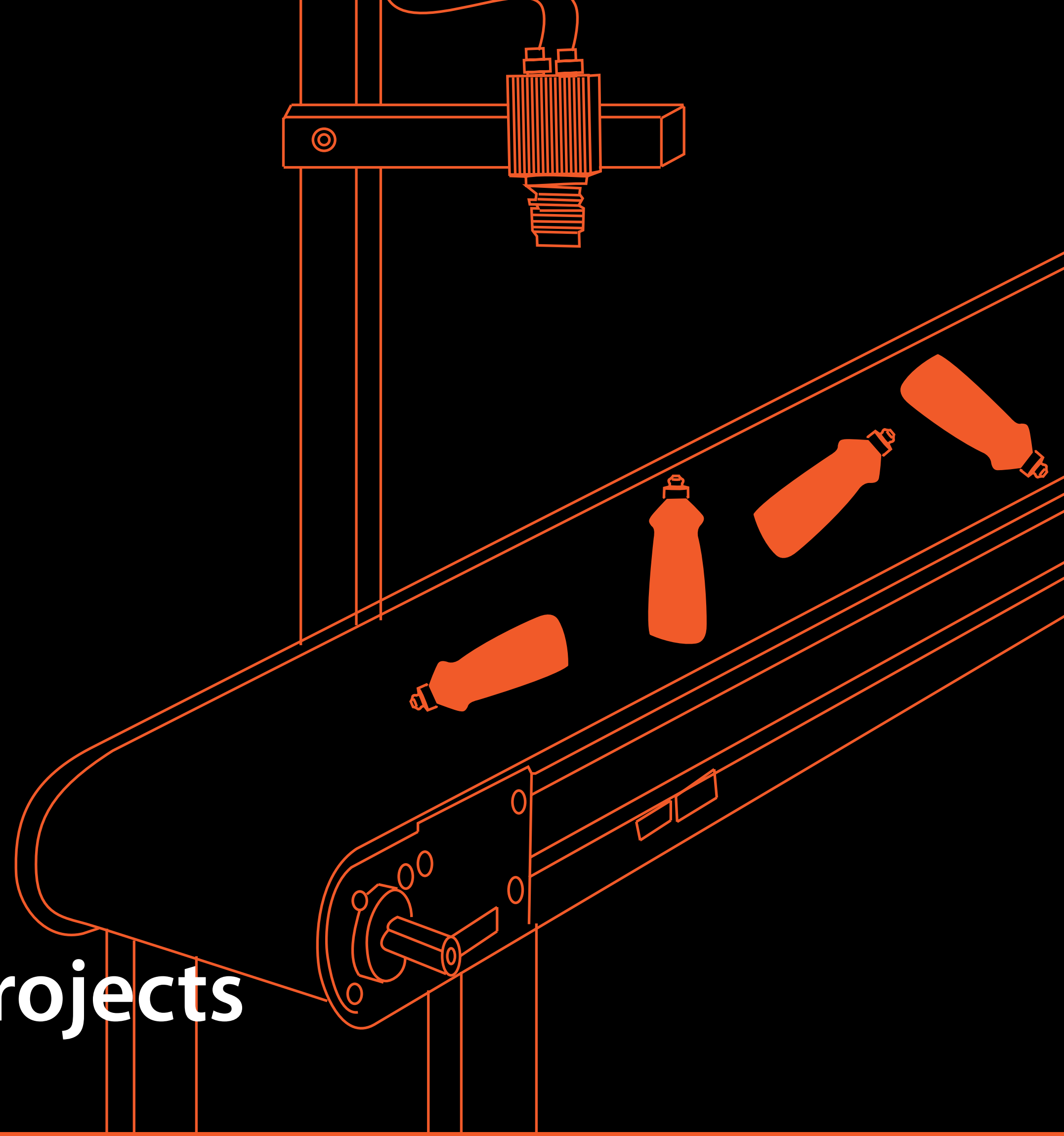
Available on all vision guided robot applications.



TRUE VIEW

NEW TECHNOLOGY

Combine Vision and Robots for
Multiple Feature Dynamic Inspection Projects



USE THE SAME DEVELOPMENT PLATFORM FOR ALL PROJECTS,
EVEN FOR NON-GUIDANCE VISION.

FEATURING



Machine Vision Inspection

Imaging Library

- *Capture and Process images*, for pattern recognition, edge detection, measurements, feature recognition, calibration, code reading and more.
- *Develop with eVF technologies*, to create a fully integrated systems.

Highlights

- Allows customers with VGR applications to fully standardize with eVF for ALL their vision needs.

Typical Applications

- Barcode reading
- Part inspection
- Defect detection
- Part verification

