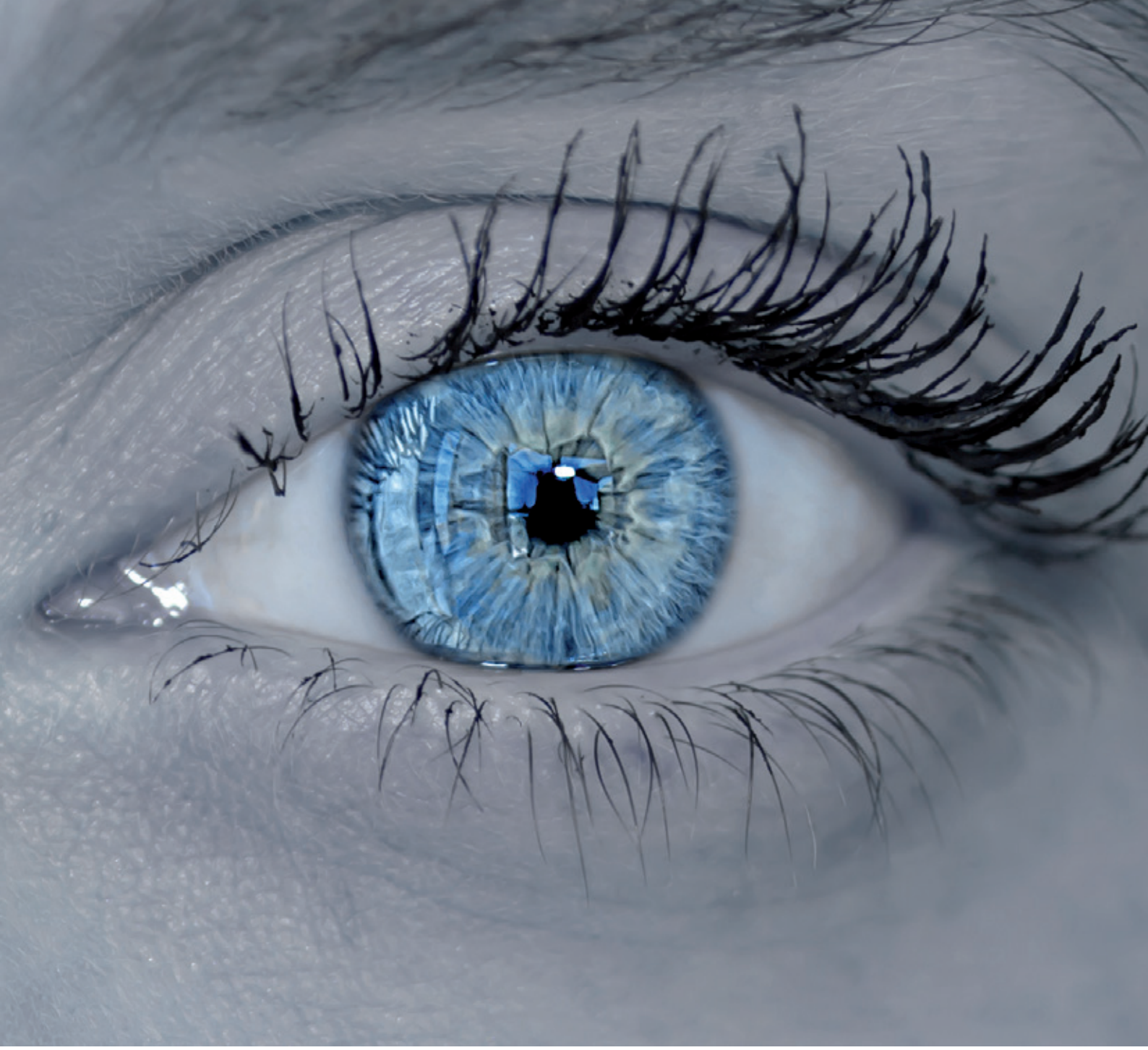


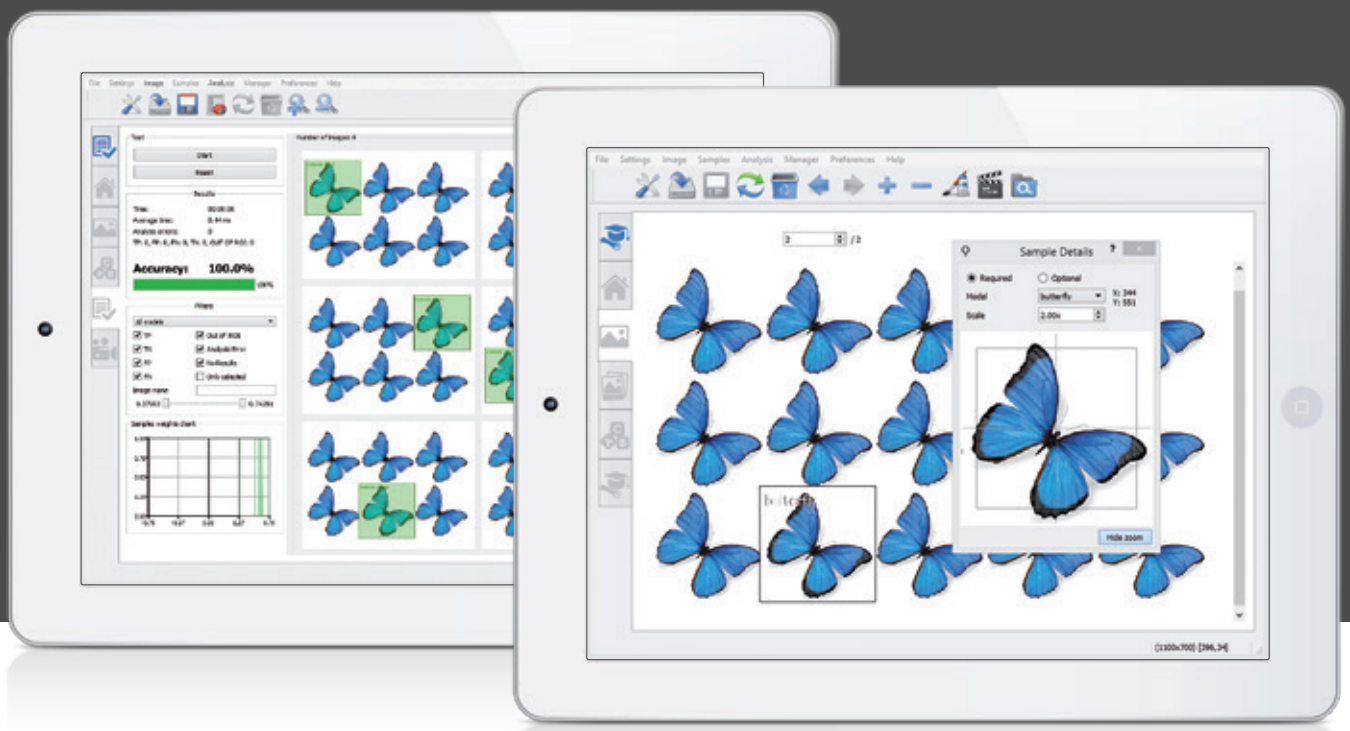
SQUEEZE BRAINS

INSIDE ARTIFICIAL INTELLIGENCE

Retina

Object detection

New horizons in the artificial vision



Machine learning-based imaging system for object detection

WHAT IS RETINA?

- RETINA is a C/C++ library based on artificial intelligence for digital image processing.
- It analyzes the images with a generic algorithm, which is not dedicated to any specific task.
- It has the ability to learn and recognize objects in an image.
- The training is carried out through a supervised procedure (SVL) that uses a set of images.
- No configuration parameters are needed: as a matter of fact parameters are the images used for the training.

CHARACTERISTICS

- It is a visual Perception system.
- Generic analysis not dedicated to any specific task.
- No configuration parameters needed.
- It learns by Training.
- Supervised learning (SVL) with human-machine interaction.
- Multi-models management.
- Scale management
- Collaborating/competing models management.
- Models perturbations management.
- Tolerance to: perspective, focus change, light change, image contrast, noise, shape deformation.
- Support for multi thread and multi core processing.

INDUSTRIAL

e.g. object detection, object classification, defects recognition

- Robot vision
- Automation
- Quality control
- Sorting machines

SECURITY

e.g. pedestrian, people counter

- Video Surveillance
- AV Image Processing

AUTOMOTIVE

e.g. pedestrian, traffic signals recognition

- ADAS
Advanced Driver Assistance Systems
- Intelligent Rearview Monitoring Systems
- Driver Monitoring System
- Autonomous Driving

TRAFFIC

e.g. vehicle classification, vehicle counting

- Toll collection
- Congestion detection
- Traffic monitoring
- Parking management

SQUEEZE BRAINS
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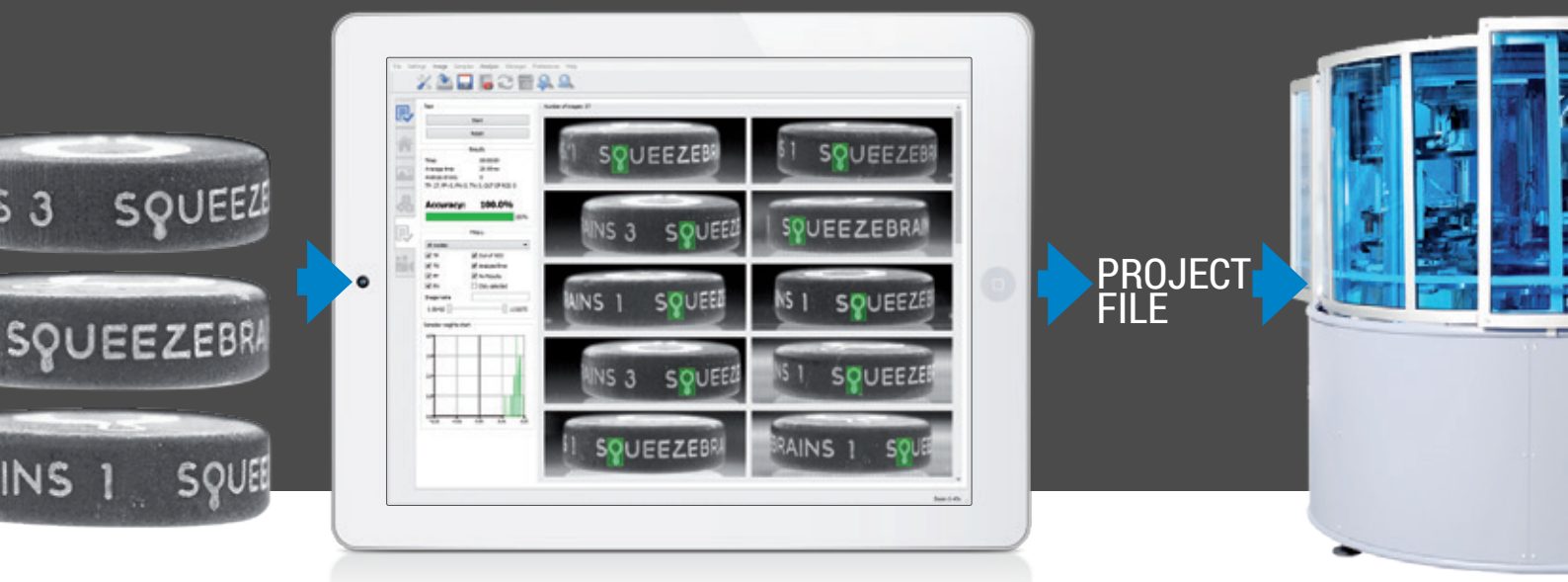

API

- C interface
- Easy to integrate in your software
- Minimal integration: add code for elaboration and use the GUI for learning
- Full integration: develop your own GUI for learning
- Image formats supported: pgm, ppm, bmp, png, tiff, jpeg
- BW and color image elaboration

GUI

- Configuring of models
- Labeling assistant
- Managing both images for learning and ones for test
- Executing learning of models (SVL)
- Testing the learning of the models
- Profiling results
- Exporting of results (csv, pdf)

SYSTEM REQUIREMENTS

- Library for x86 and ARM architecture
- Does not require dedicated hardware (no GPU)
- SO: Windows, Linux, Android
- Balances RAM/HD according to data base size

GPU

Don't you have a GPU?
Don't worry, you don't need it!

HOW TO TRAIN RETINA

- The operator creates a set of images, which is representative of models variability
- The operator manually selects at least one sample for each model
- The operator starts the interactive SVL procedure
- RETINA is trained and ready to be used

YOU TEACH... RETINA LEARNS

The operator defines the target: the SVL works in order to achieve it

SEGMENTATION

Never so easy if you use the perception!

USE CASES

- Object recognition
- Selector
- Sorting
- Defects classification
- OCR

EMBEDDED

Porting on embedded systems is possible

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