

Introduction of OpenCV With Python

23 July 2020

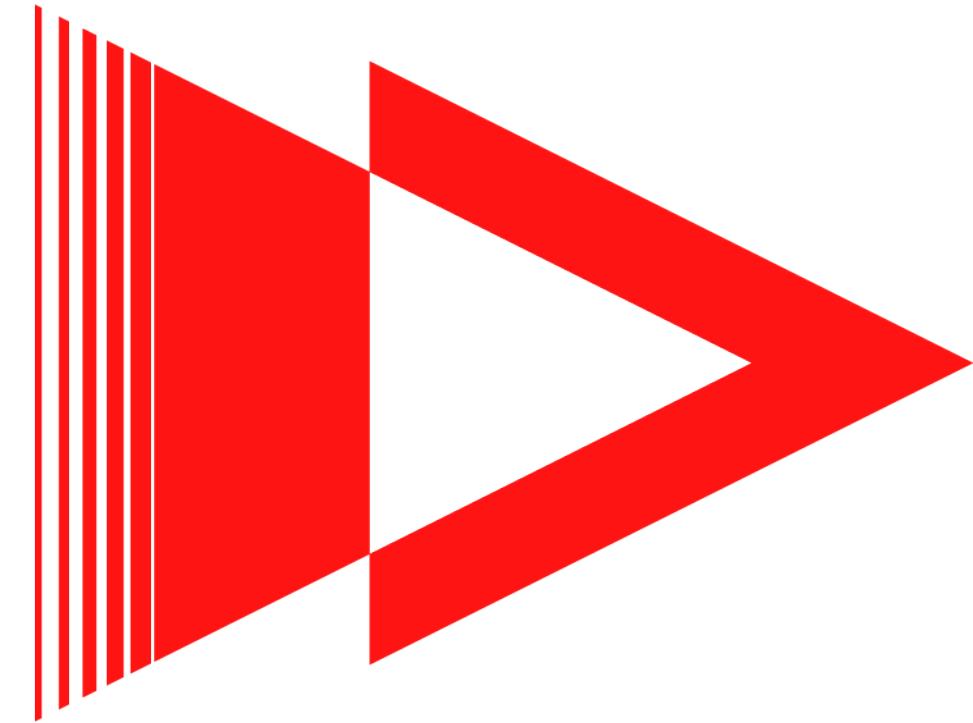
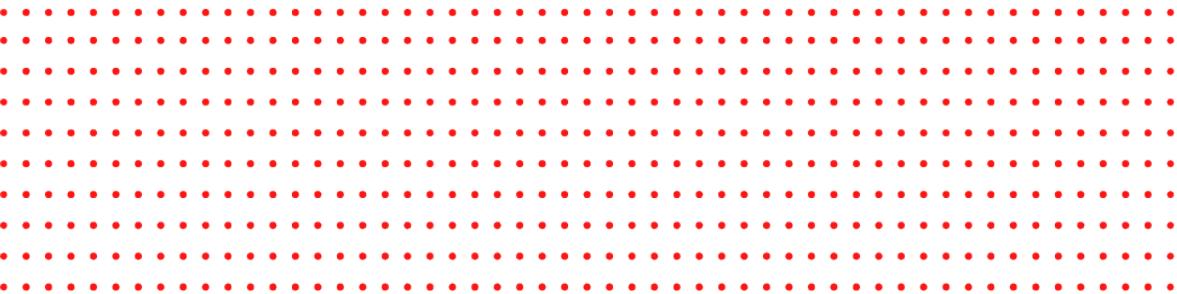
Presented by Red Hsu

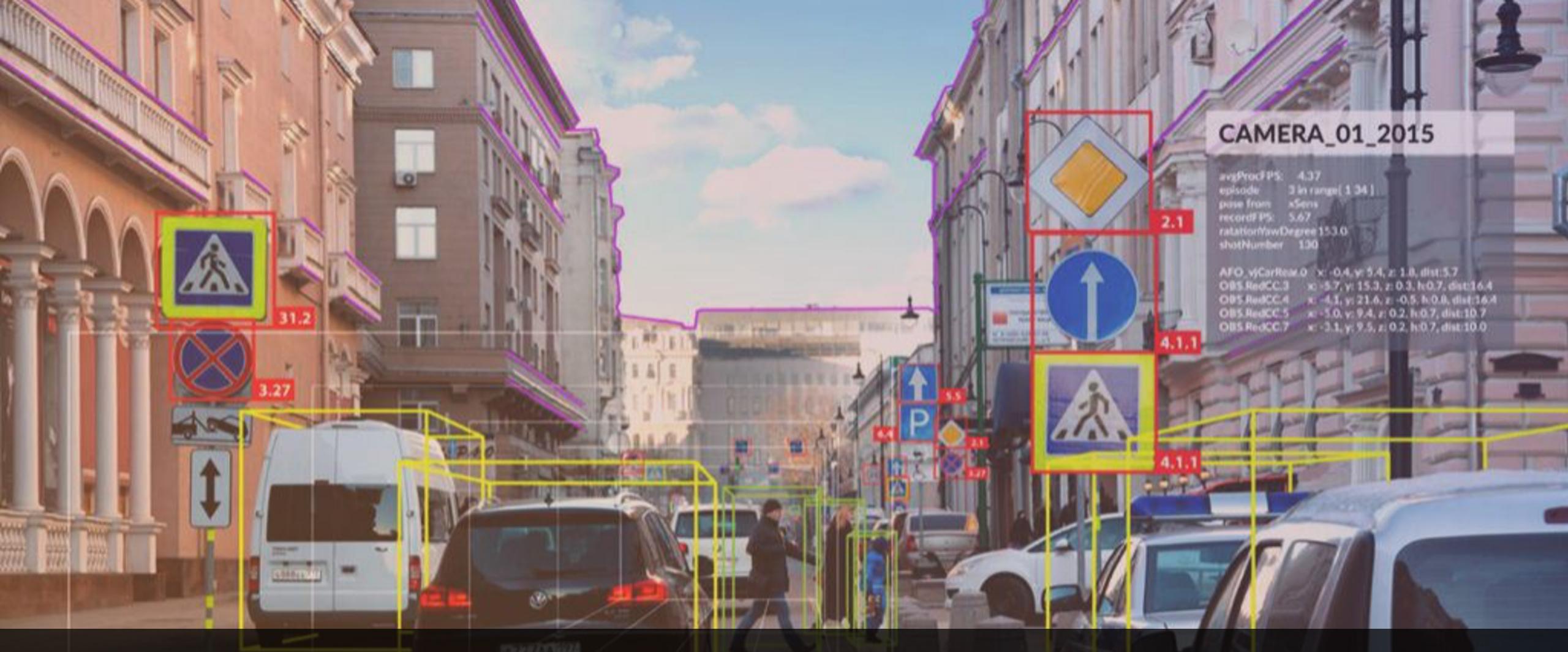


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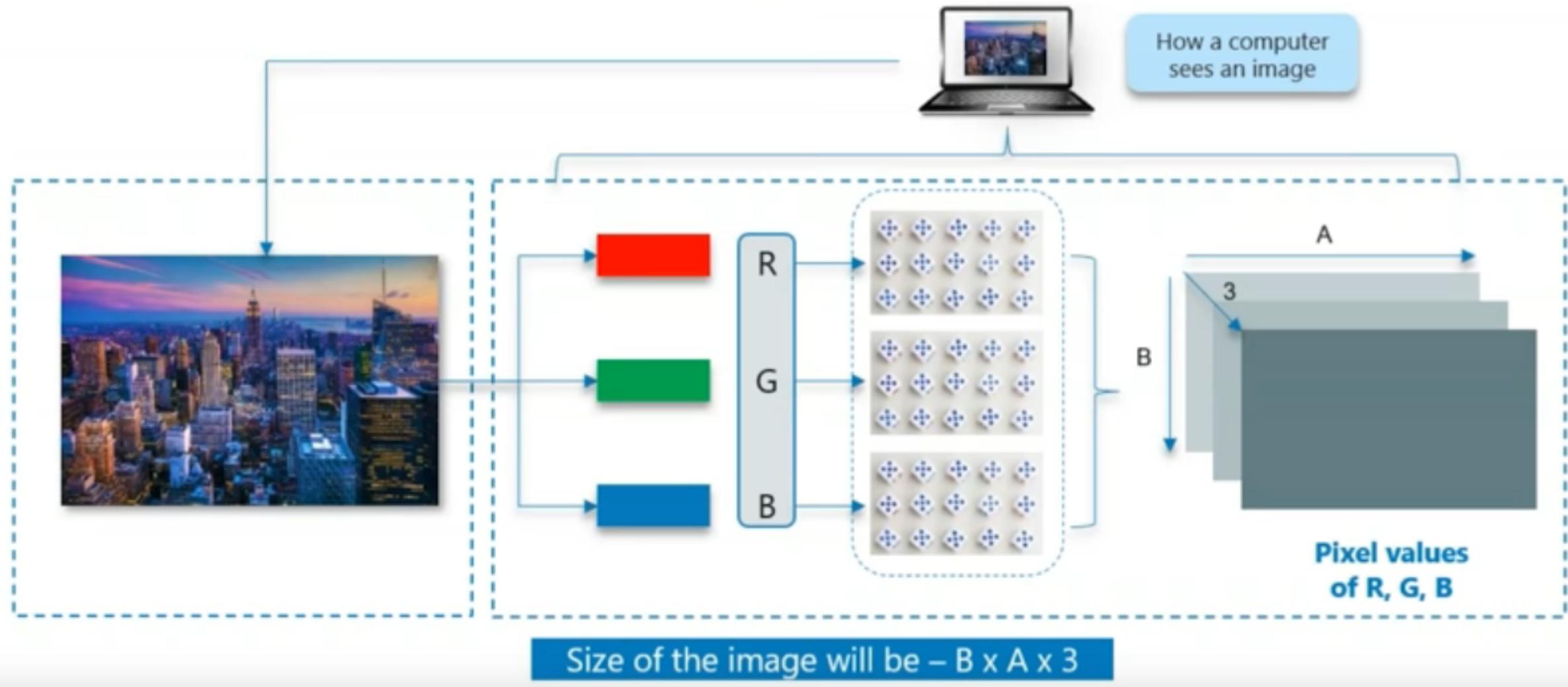
OpenCV





What is Computer Vision

How computer reads an image

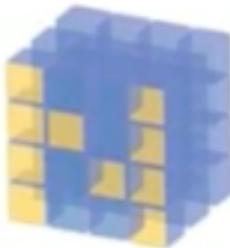


What is Open CV

- Open source Computer Vision library
- Originally developed by Intel
- Has more than 2500 optimized algorithms
- C / C++ / Python / JAVA API
- Cross Platform

What is Open CV - Python

OpenCV-Python is a library of Python designed to solve computer vision problems



NumPy

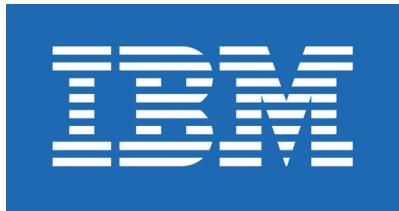


SciPy2015



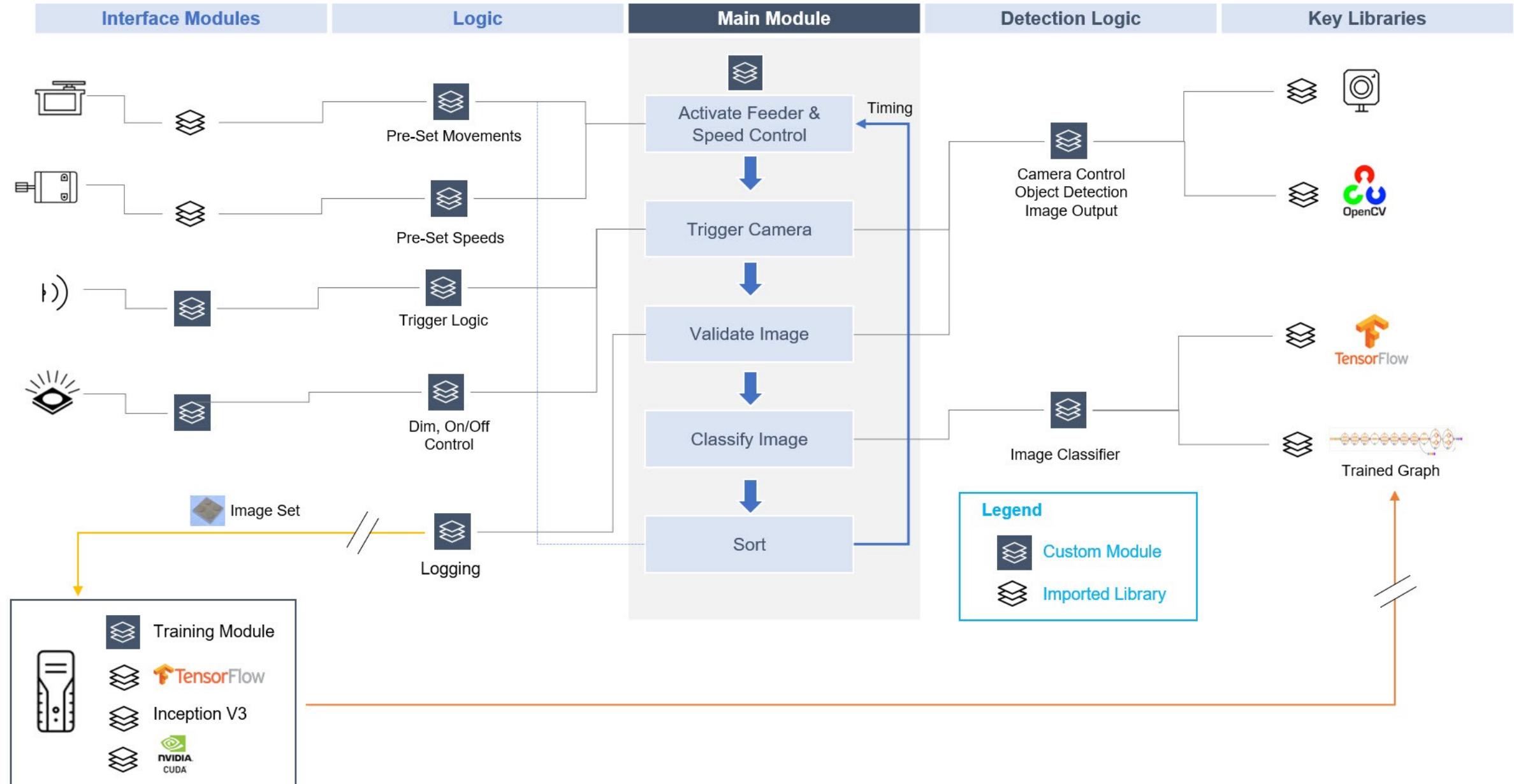
All the OpenCV array structures are converted to and from NumPy arrays

Users

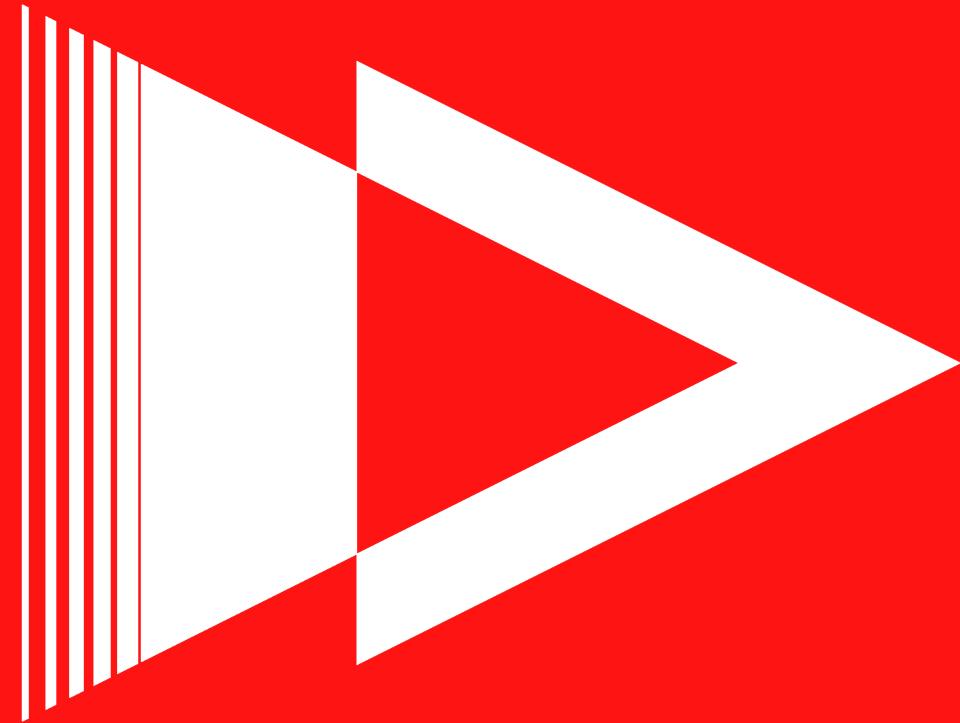
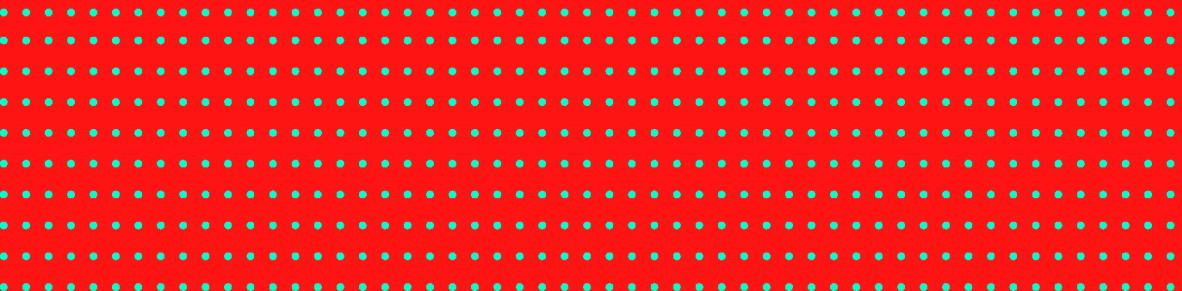


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Institute of
Technology

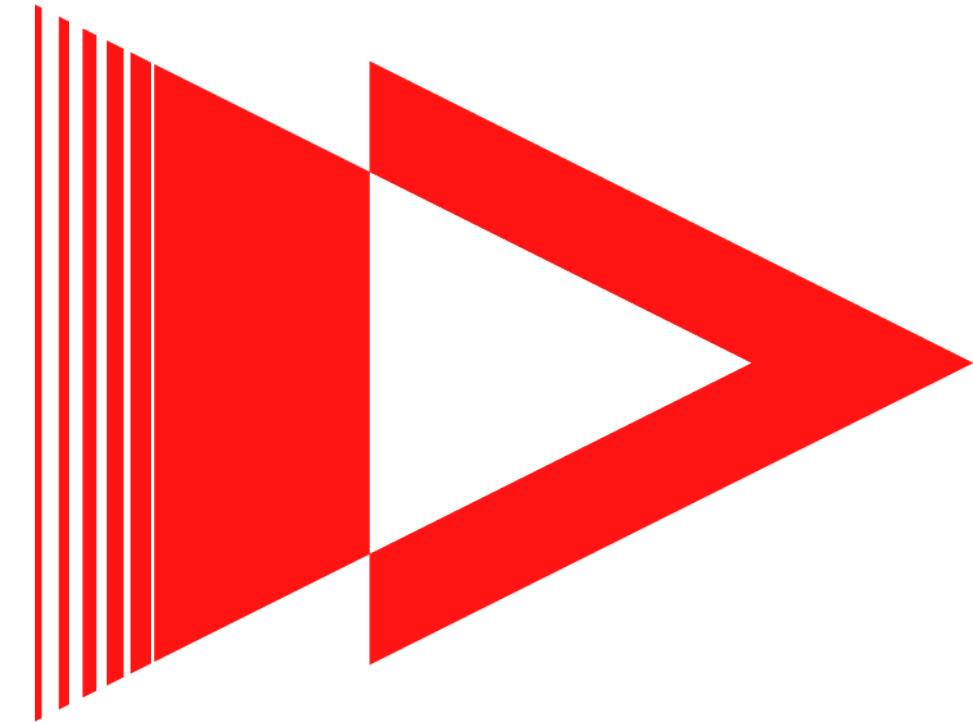
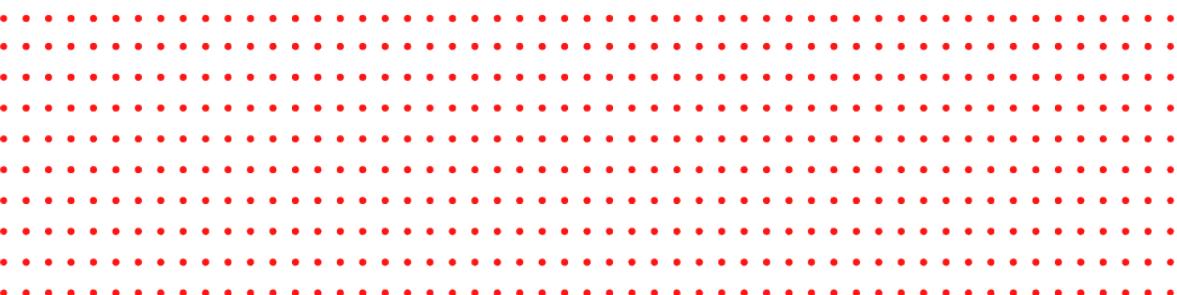
Applications



Yep, let's LAB



OpenCV 資源



Resources

Resources

- Homepage: <https://opencv.org>
- Docs: <https://docs.opencv.org/master/>
- Q&A forum: <http://answers.opencv.org>
- Issue tracking: <https://github.com/opencv/opencv/issues>

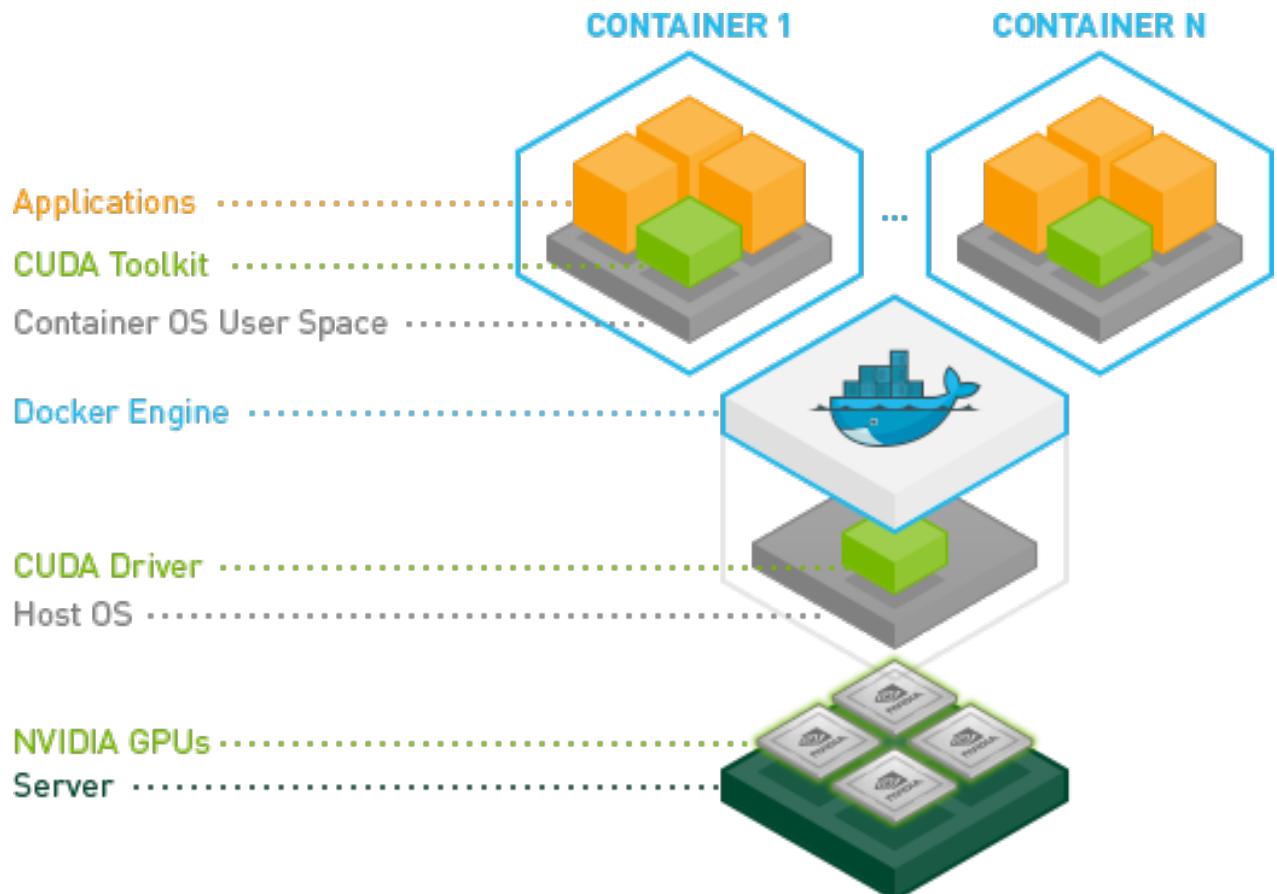
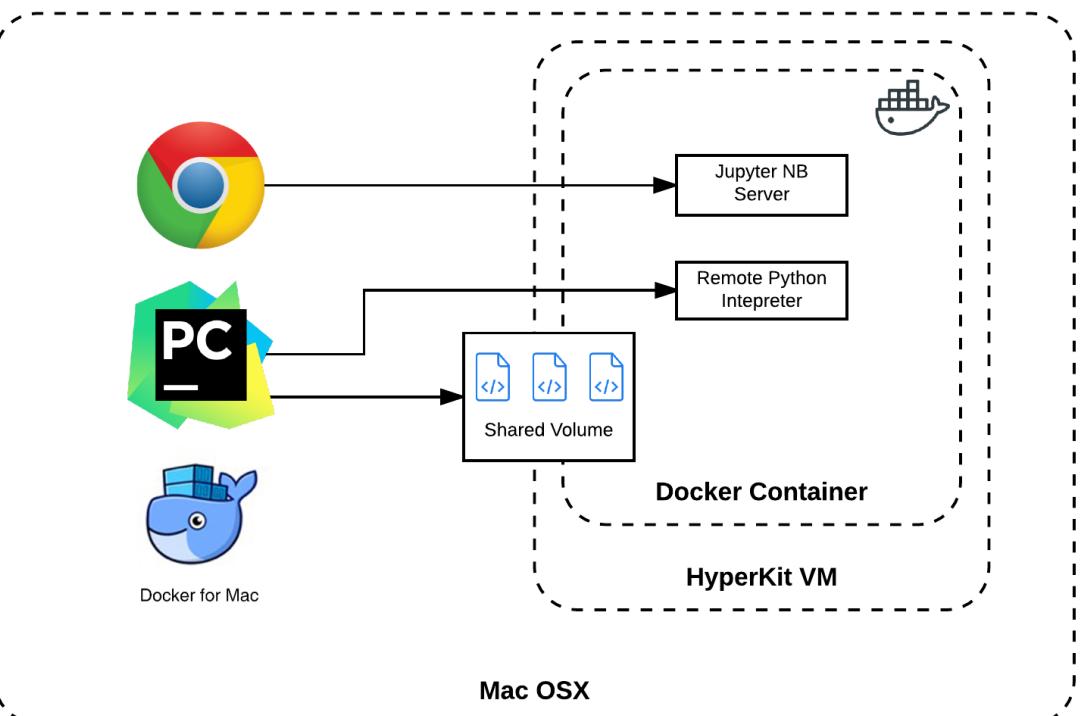
Contributing

Please read the [contribution guidelines](#) before starting work on a pull request.

Build-in modules

Module	Functionality
Core	Core data structures, data types, and memory management
Imgproc	Image filtering, geometric image transformations, structure, and shape analysis
Highgui	GUI, reading and writing images and video
Video	Motion analysis and object tracking in video
Calib3d	Camera calibration and 3D reconstruction from multiple views
Features2d	Feature extraction, description, and matching
Objdetect	Object detection using cascade and histogram-of-gradient classifiers
ML	Statistical models and classification algorithms for use in computer vision applications
Flann	Fast Library for Approximate Nearest Neighbors—fast searches in high-dimensional (feature) spaces
GPU	Parallelization of selected algorithms for fast execution on GPUs
Stitching	Warping, blending, and bundle adjustment for image stitching
Nonfree	Implementations of algorithms that are patented in some countries

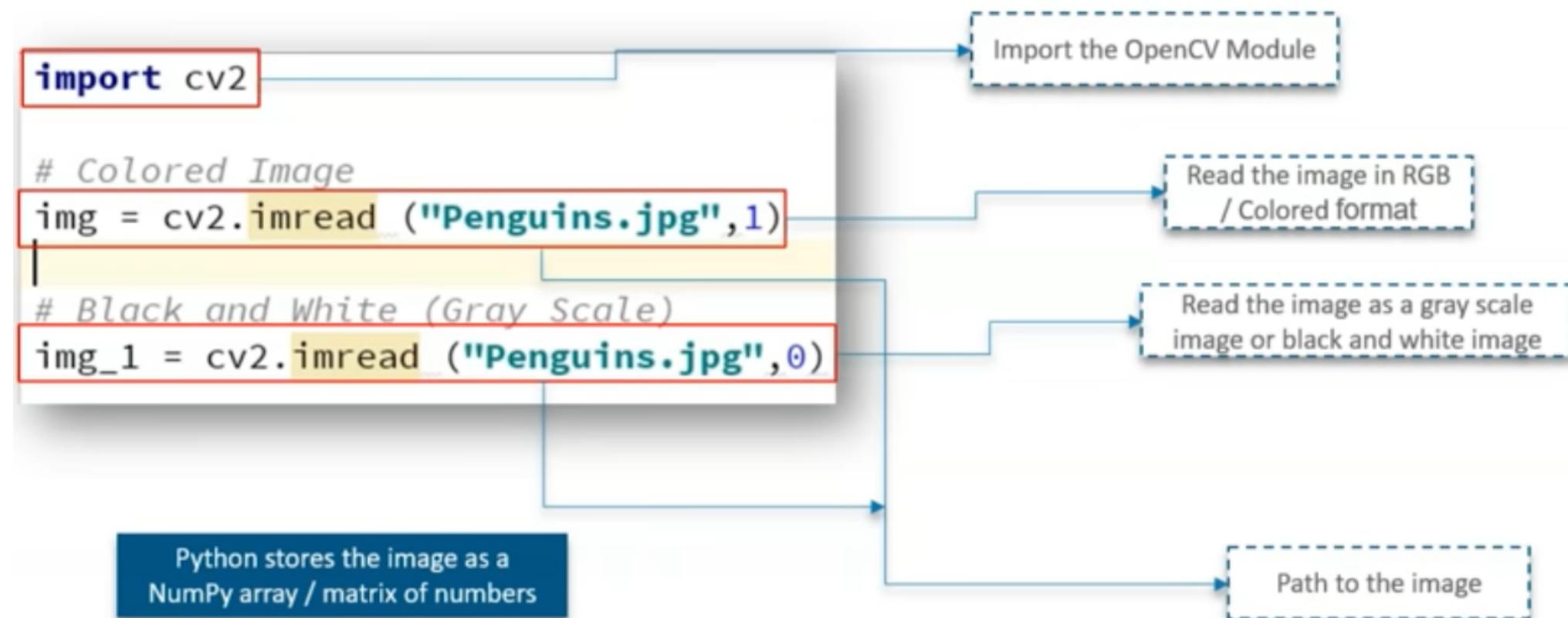
Anaconda & Jupyter hub



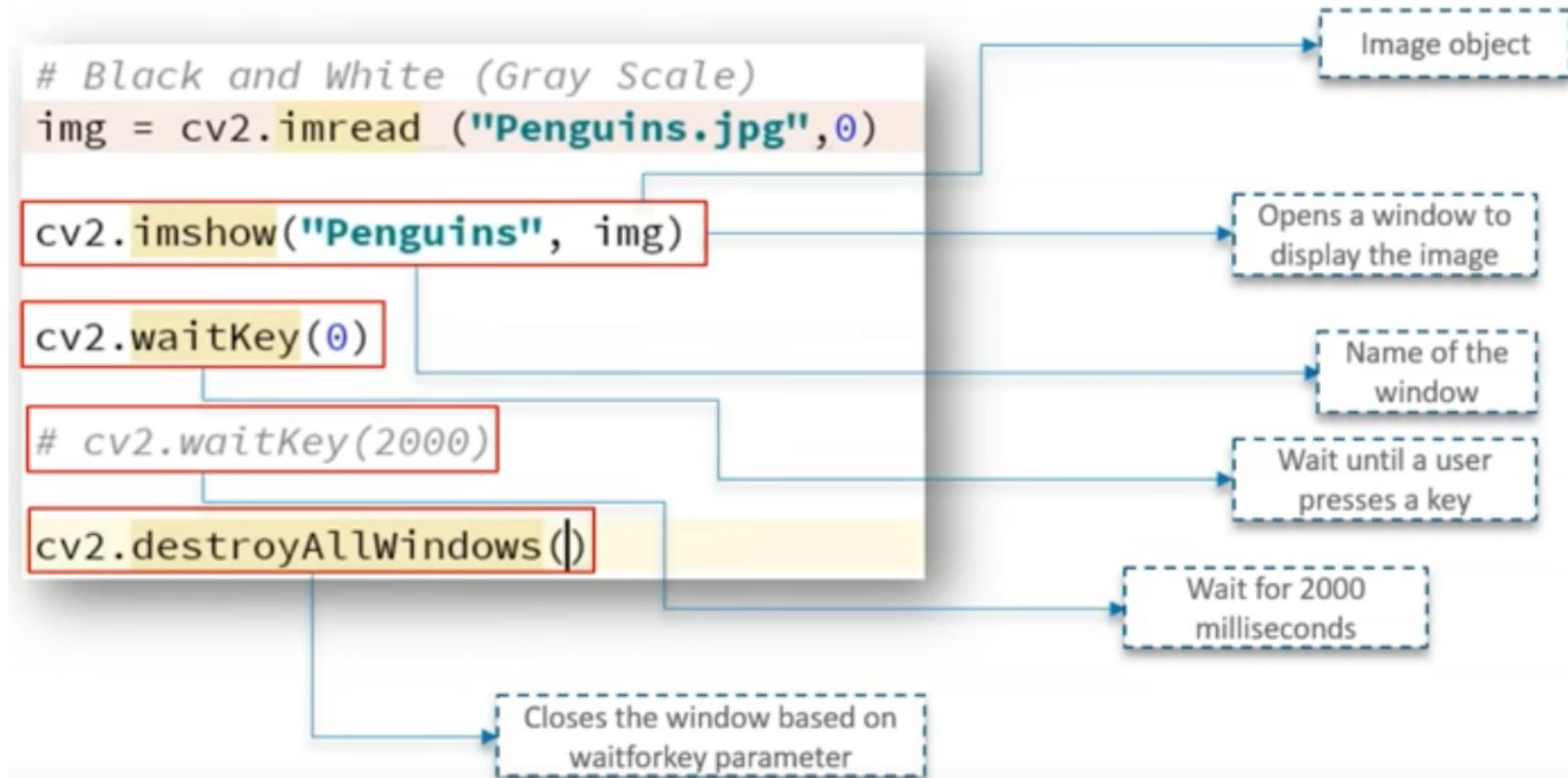
Basic Operation

- Load Images Using Open CV
- Images Shape / Resolution
- Display the image
- Resizing the image
- https://docs.opencv.org/master/d5/d98/tutorial_m at_operations.html

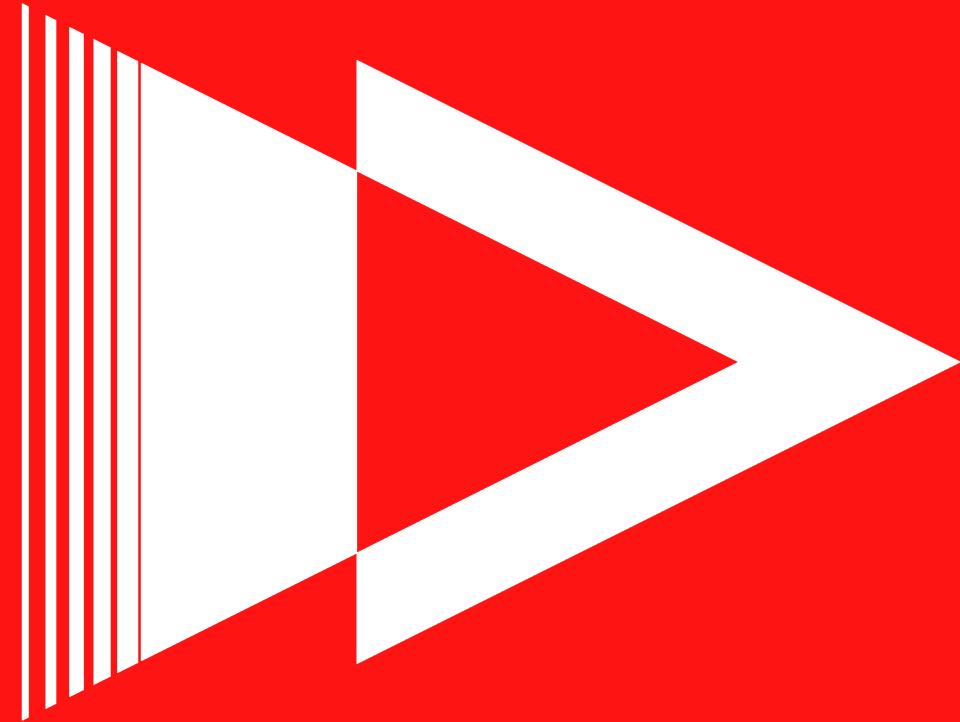
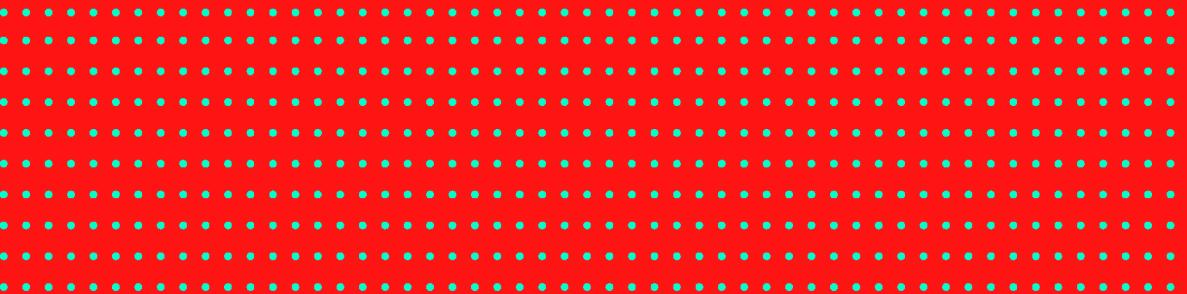
Loading Images Using OpenCV



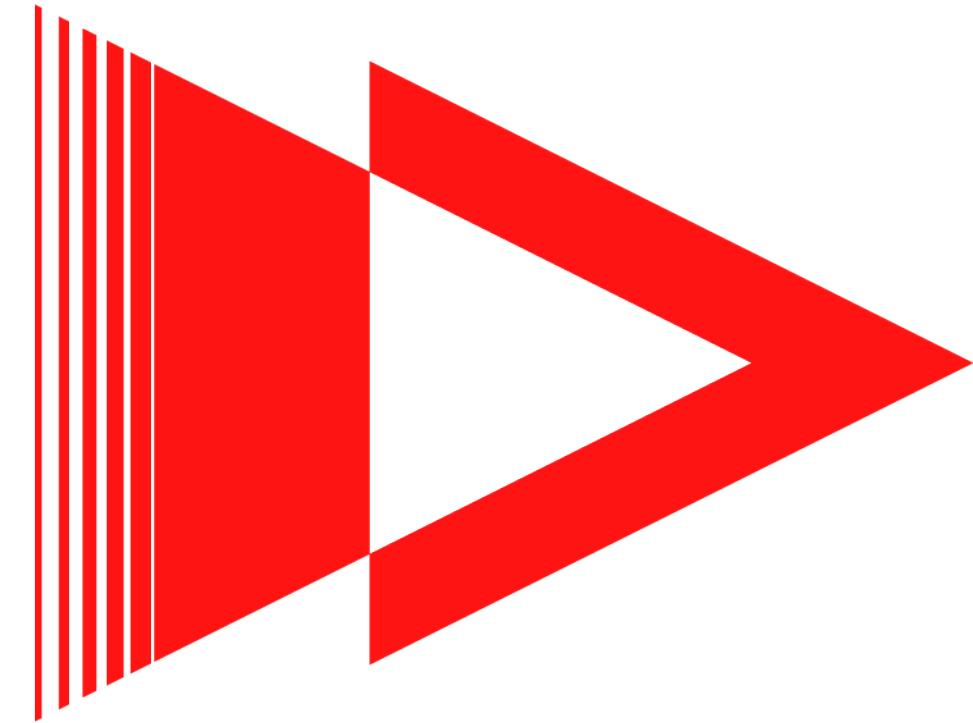
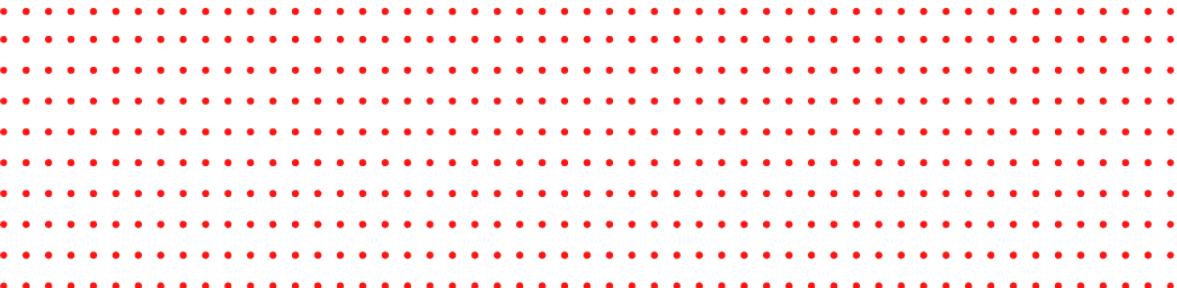
Display



Then let's LAB



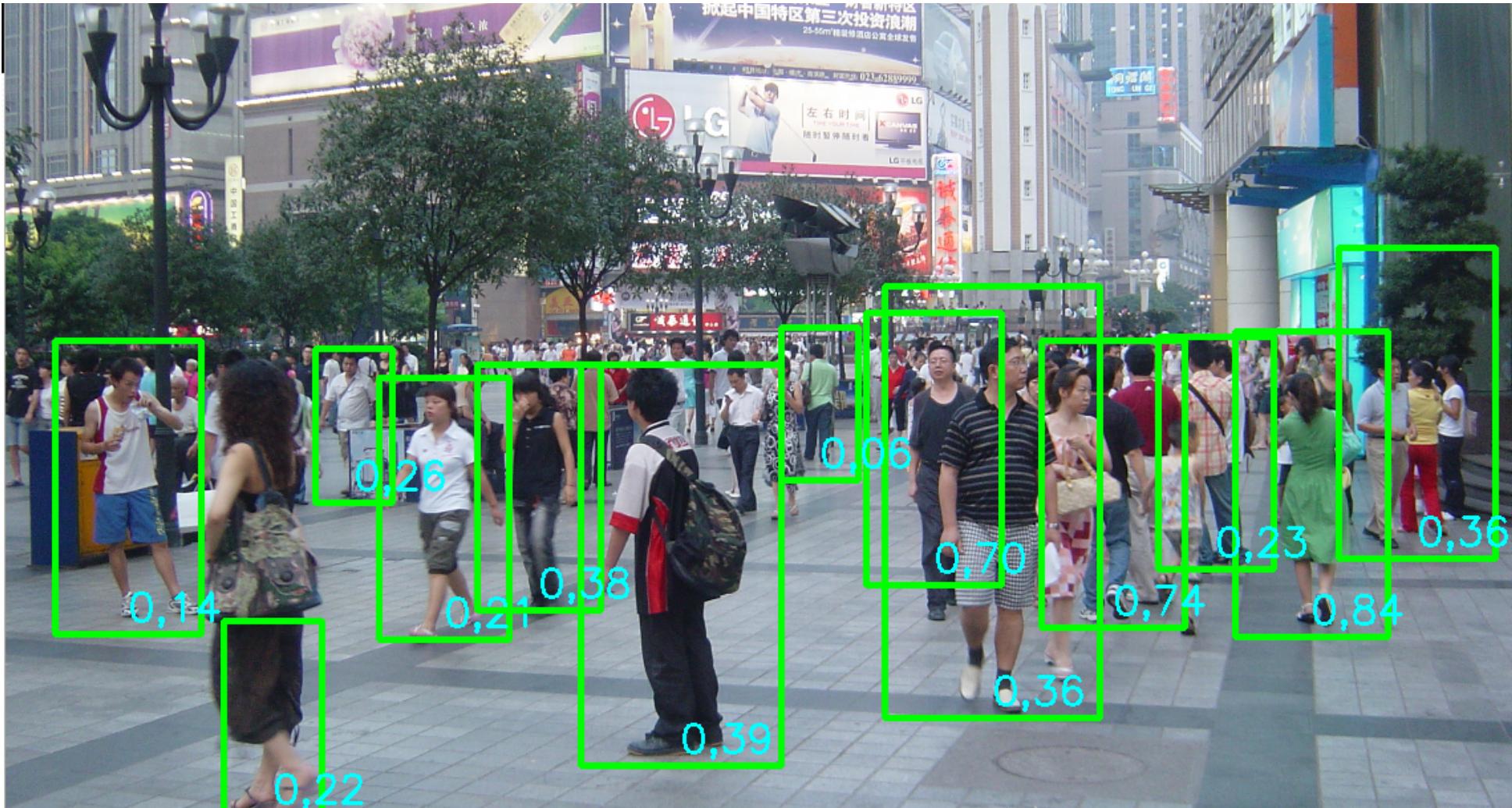
OpenCV and DL



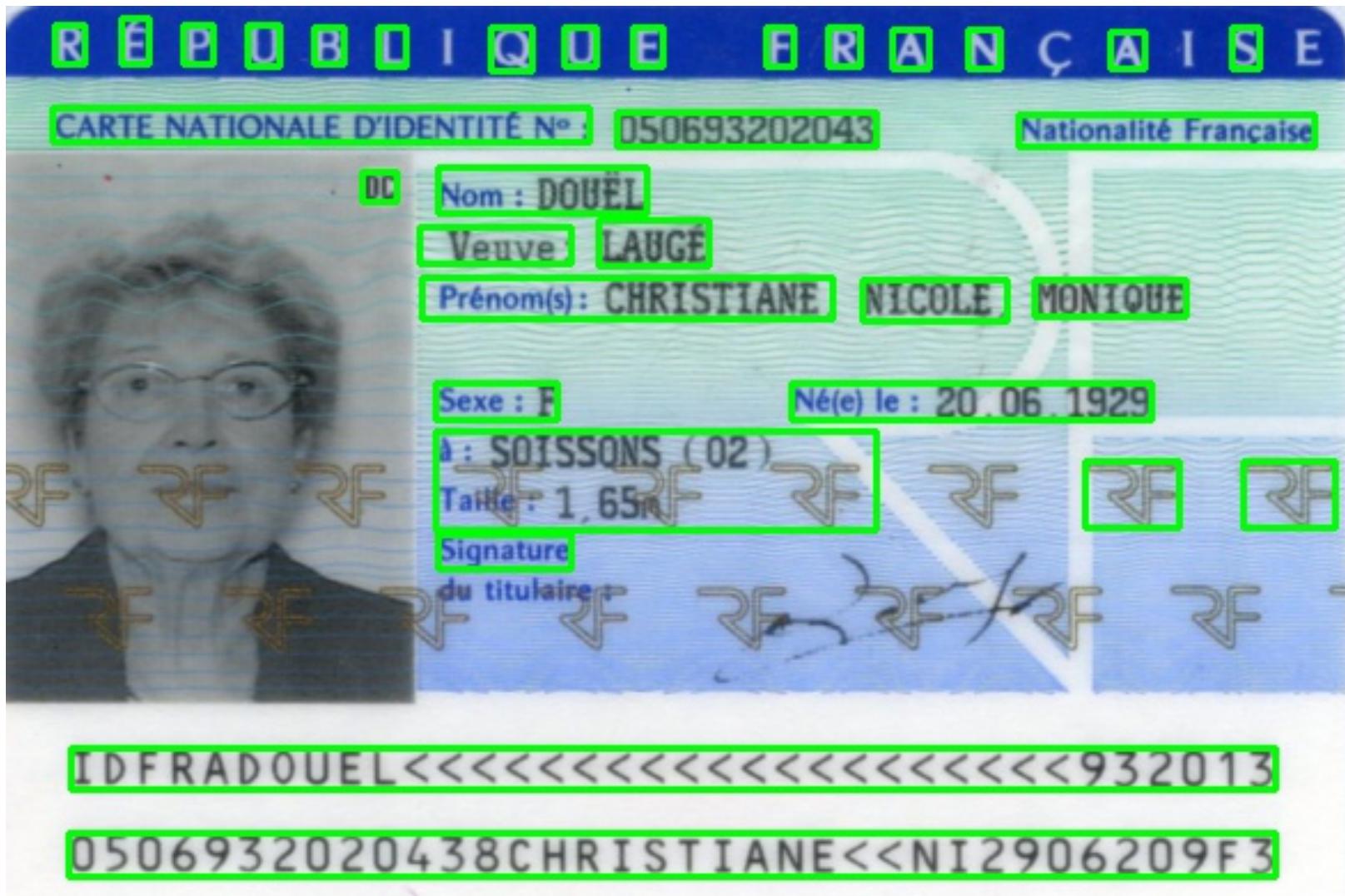
OpenCV with Self-driving car



OpenCV in Object-detection



OpenCV in OCR



Thank you

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