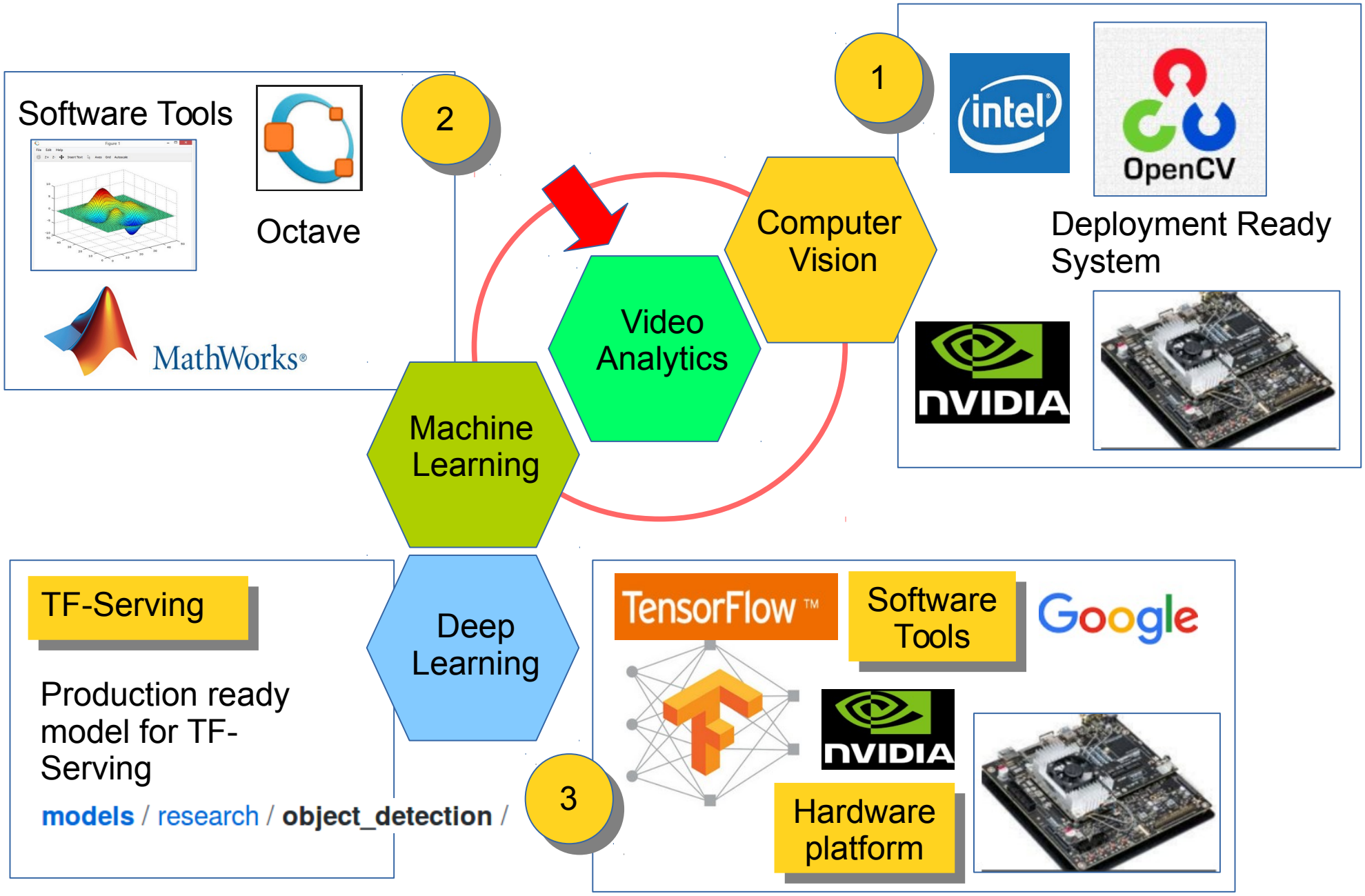
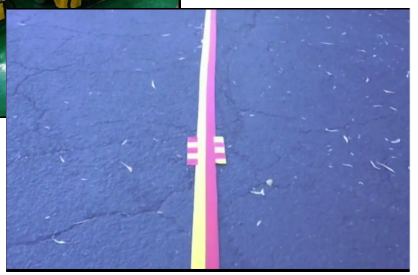
The Scope


Software Tools
Octave
MathWorks
2
1
intel
OpenCV
Deployment Ready System
Computer Vision
Video Analytics
Machine Learning
NVIDIA
Deep Learning
TF-Serving
Production ready model for TF-Serving
models / research / object_detection /
3
TensorFlow ™
Software Tools
Google
NVIDIA
Hardware platform

Objective Is To Build Video Search Engine

1



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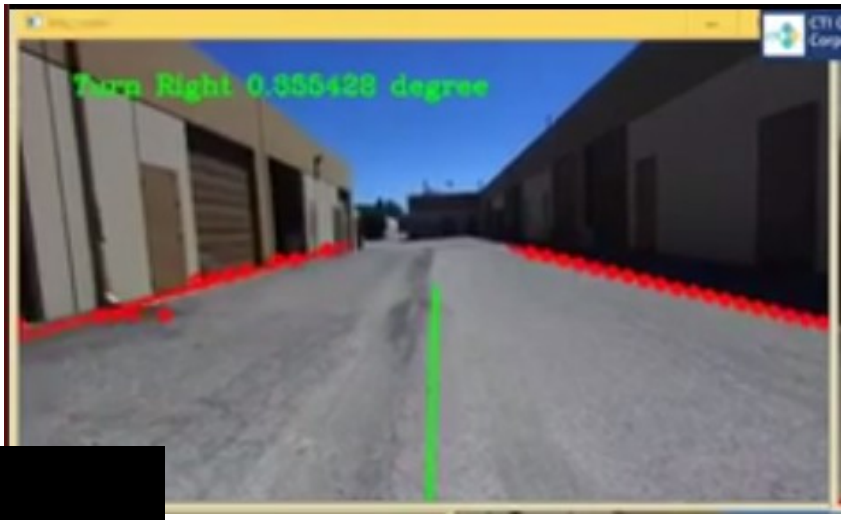
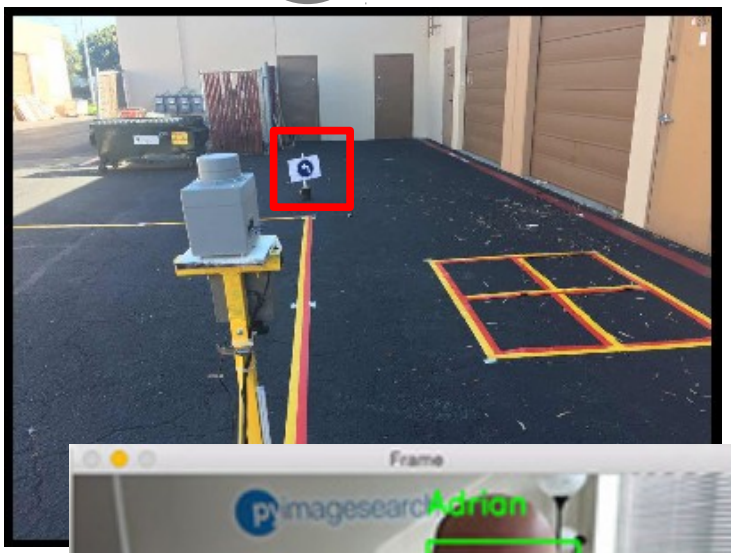
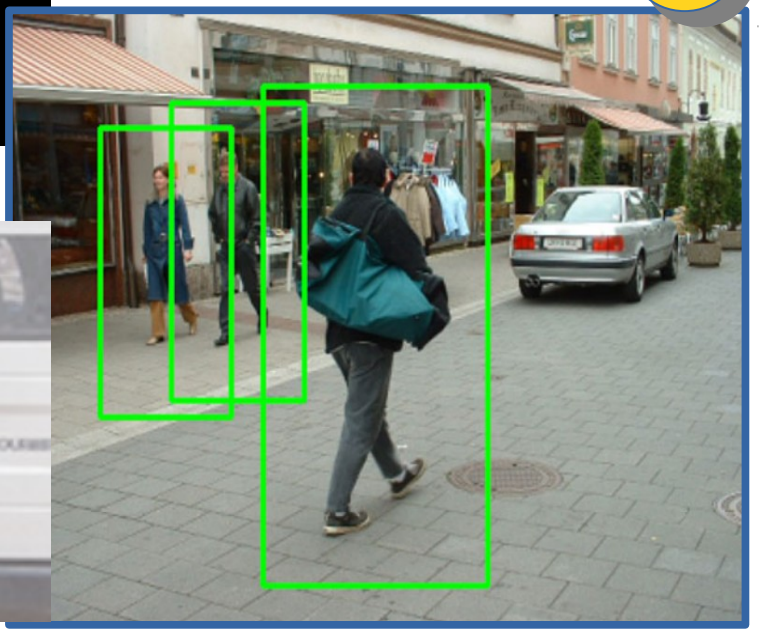
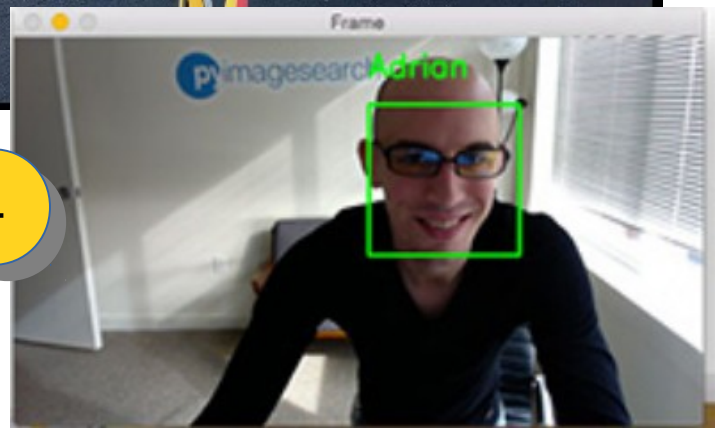




3





4

5

To Prepare For Interview (1)

OpenCV 2.1 Cheat Sheet (C++)

The OpenCV C++ reference manual is here:
http://opencv.willowgarage.com/documentation/cpp/.
*Use **Quick Search** to find descriptions of the particular functions and classes*

Image Processsing

Filtering

filter2D()	Non-separable linear filter
sepFilter2D()	Separable linear filter
boxFilter(), GaussianBlur(), medianBlur(), bilateralFilter()	Smooth the image with one of the linear or non-linear filters
Sobel(), Scharr()	Compute the spatial image derivatives
Laplacian()	compute Laplacian: $\Delta I = \frac{\partial^2 I}{\partial x^2} + \frac{\partial^2 I}{\partial y^2}$
erode(), dilate()	Erode or dilate the image

Key OpenCV Classes

Point_	Template 2D point class
Point3_	Template 3D point class
Size_	Template size (width, height) class
Vec	Template short vector class
Scalar	4-element vector
Rect	Rectangle
Range	Integer value range
Mat	2D dense array (used as both a matrix or an image)
MatND	Multi-dimensional dense array
SparseMat	Multi-dimensional sparse array
Ptr	Template smart pointer class

Set Up OpenCV

http://docs.opencv.org/2.4/doc/tutorials/introduction/table_of_content_introduction/table_of_content_introduction.html

How to set up openCV

http://docs.opencv.org/2.4/doc/tutorials/introduction/linux_install/linux_install.html#linux-installation

Title: *Installation in Linux*

Compatibility: > OpenCV 2.0

Author: Ana Huamán

We will learn how to setup OpenCV in your computer!

How to compile and build

http://docs.opencv.org/2.4/doc/tutorials/introduction/linux_gcc_cmake/linux_gcc_cmake.html#linux-gcc-usage

Title: *Using OpenCV with gcc and CMake*

Compatibility: > OpenCV 2.0

Author: Ana Huamán

We will learn how to compile your first project

Using Eclipse

http://docs.opencv.org/2.4/doc/tutorials/introduction/linux_eclipse/linux_eclipse.html#linux-eclipse-usage

Title: *Using OpenCV with Eclipse (plugin CDT)*

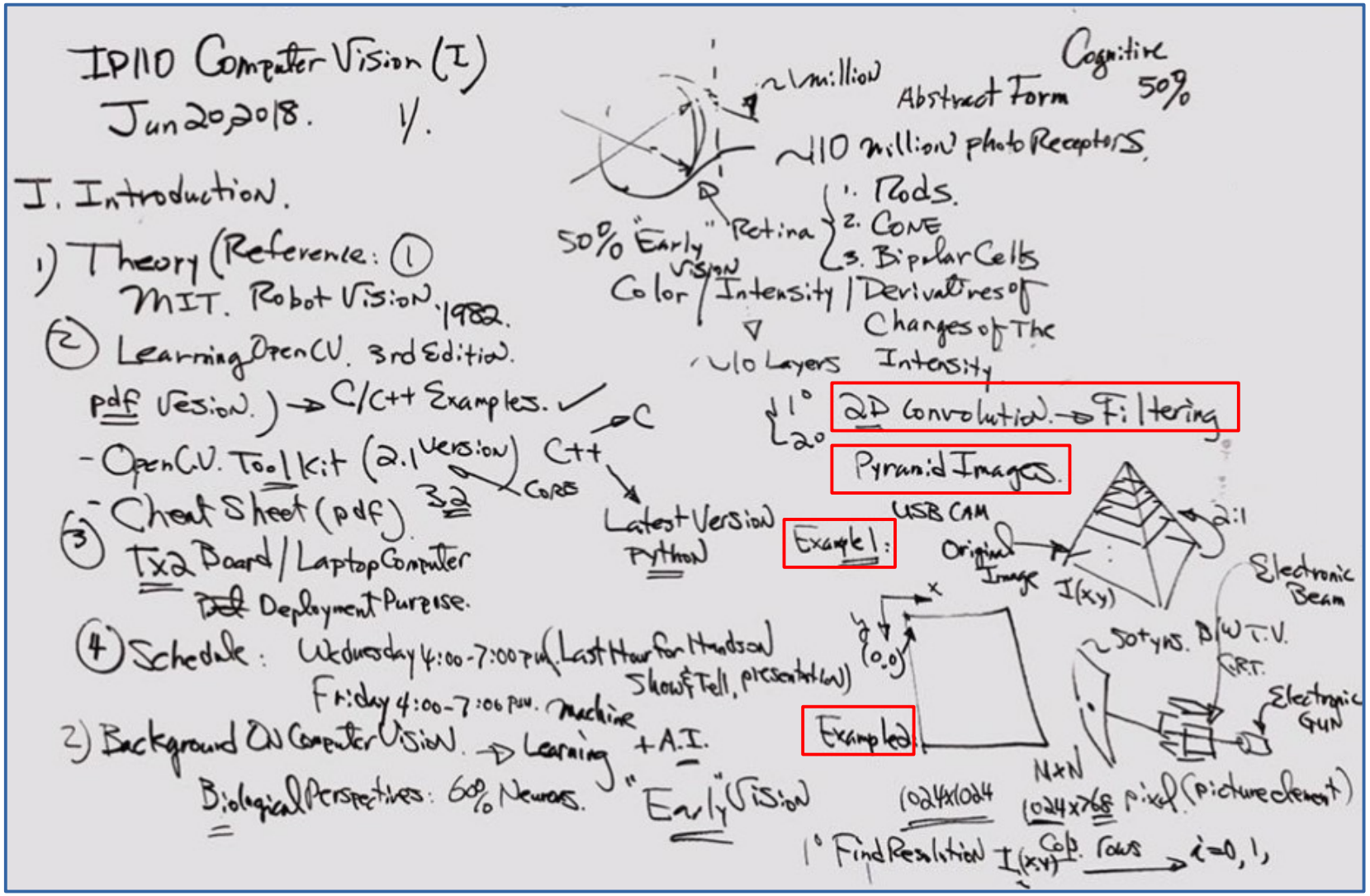
Compatibility: > OpenCV 2.0

Author: Ana Huamán

Optional but better

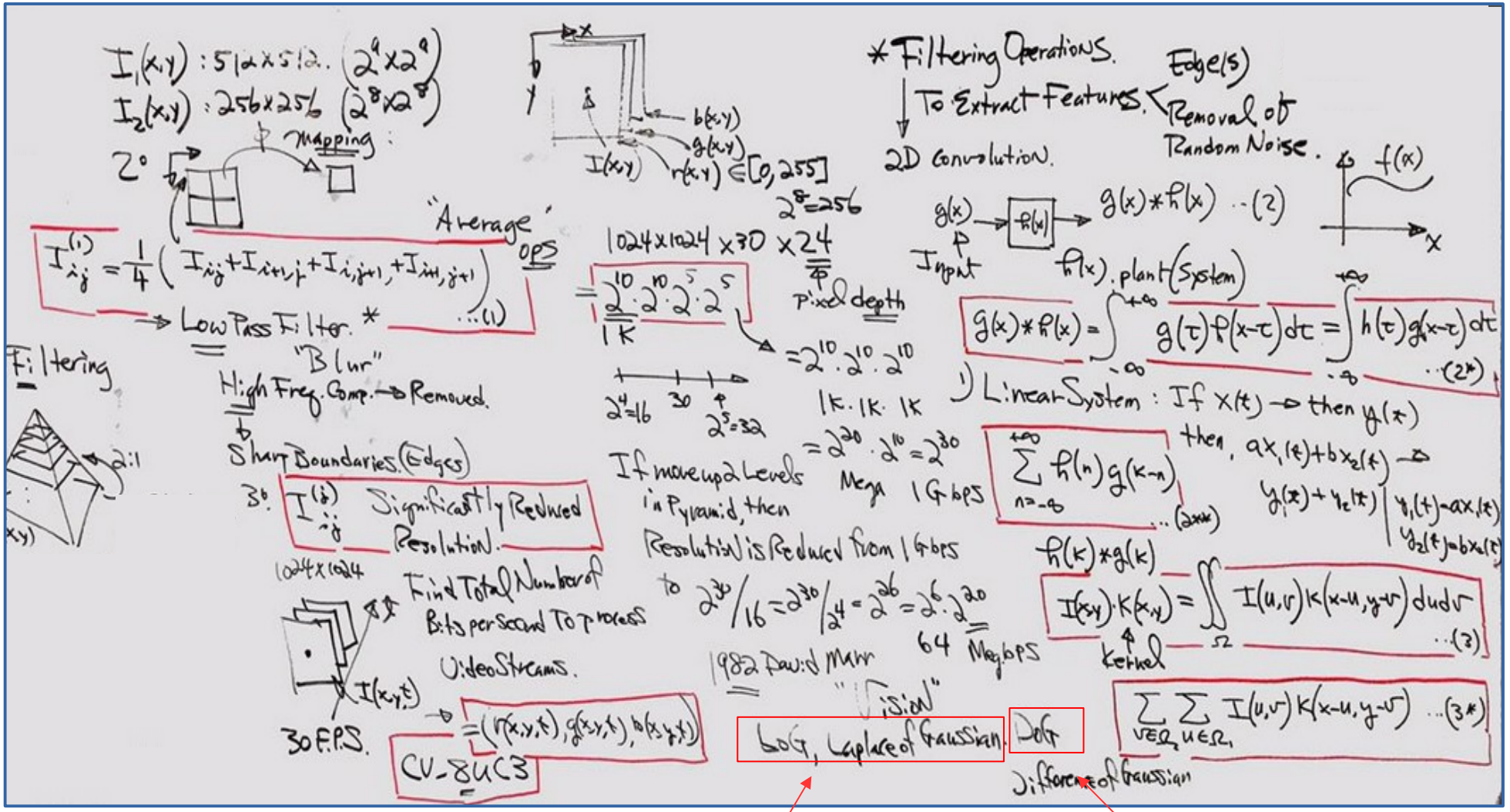
Introduction 6-18-18

https://github.com/hualili/opencv/tree/master/IP110-Summer18



1. how and why is the image coordinate defined in such as a way? 2. CRT display device? 3. What is pyramid image? Calculation of pyramid resolution?

Pyramid And Convolution 6-18-18



4. How to form pyramid image? And why is it LPF (low pass filter)? 5. Convolution definition?

LoG(x,y; mu, sigma)
Laplace of Gaussian

DoG(x,y; mu1,mu2, sigma1,sigma2)
Difference of Gaussian

Convolution Example And Kernel Concept 6-18-18