The Scope

Software Tools

Octave

MathWorks®

Computer Vision

Video Analytics

Machine Learning

Deep Learning

1

2

3

Deployment Ready System

intel

OpenCV

NVIDIA

TF-Serving

Production ready model for TF-Serving

models / research / object_detection /
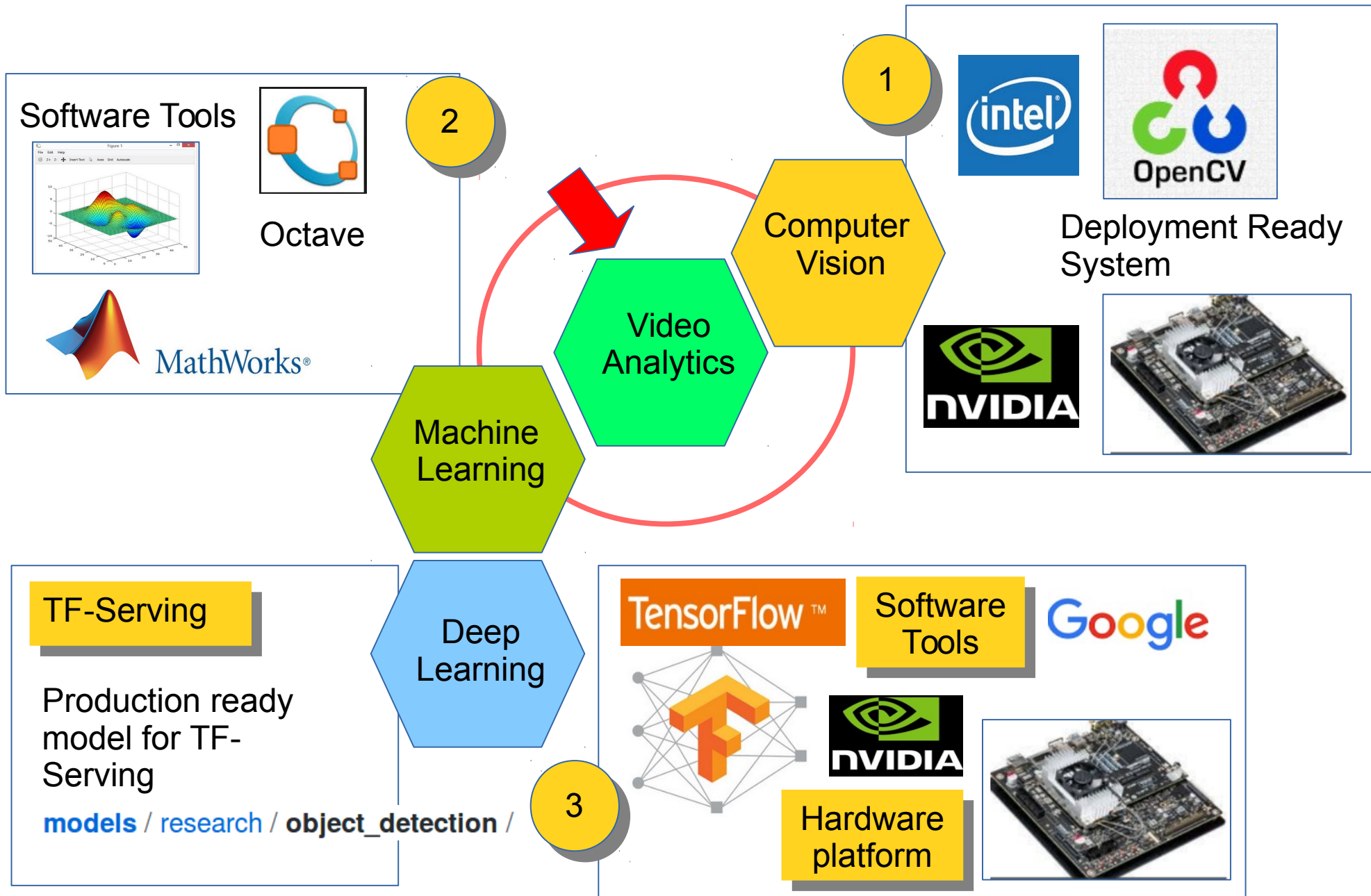
TensorFlow ™

Software Tools

Google

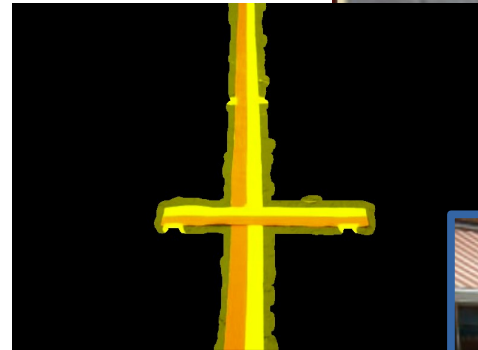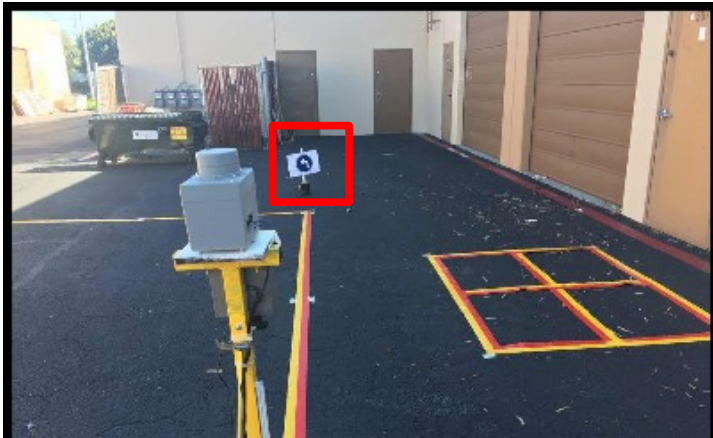NVIDIA
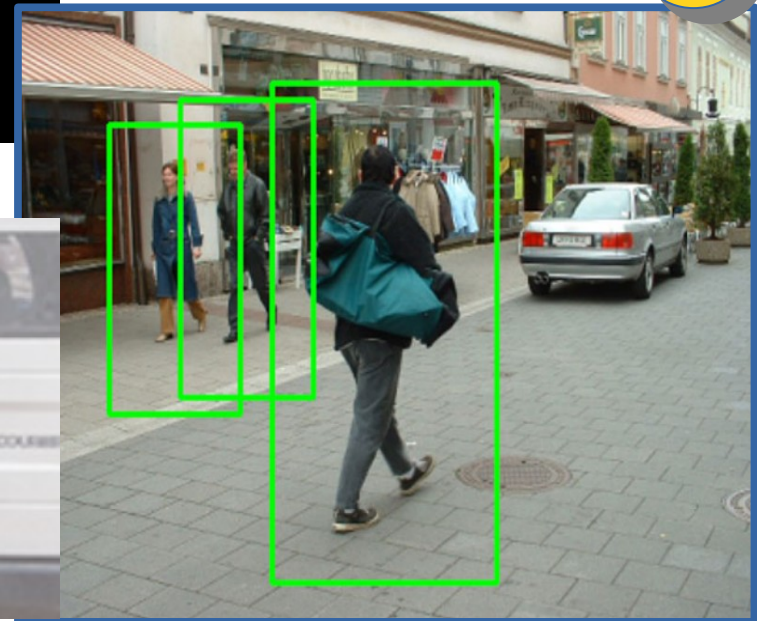
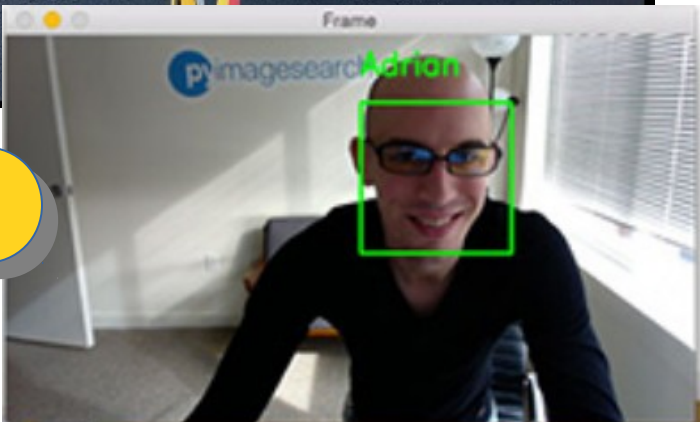Hardware platform

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Objective Is To Build Video Search Engine

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(),	Smooth the image with one of the linear
GaussianBlur(),	or non-linear filters
medianBlur(),	
bilateralFilter()	
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

Harry Li, Ph.D. SJSU, CMPE 297, F2016