Computer Science Research Computer Vision Computer Science Education

What are some good computer vision libraries?

This question previously had details. They are now in a comment.

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6 Answers

Mrad Chams, Software Engineer

Answered Jun 15

I would recommend the SOD CV library for all modern computer vision tasks. It is easily embeddable in your apps, cross-platform and does not depend on any third-party libraries to compile and run.

SOD is an embedded, modern cross-platform **computer vision** and machine learning software library that expose a set of APIs for **deep-learning**, **advanced media analysis & processing** including **real-time, multi-class object detection** and model training on embedded systems with limited computational resource and IoT devices.

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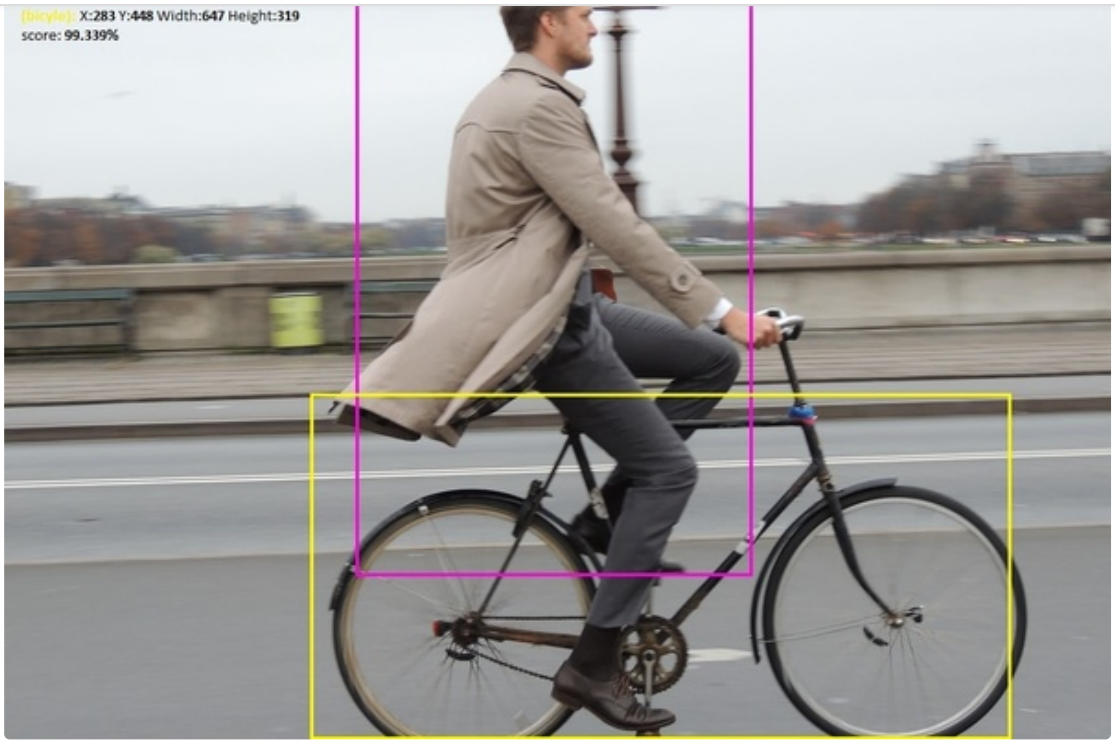

*Multi-class object detection on the host CPU (**no GPU involved**).*

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Last Asked May 17, 2016
Edits

Real-Time, single-class face detection.

SOD was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in open source as well commercial products.

SOD implements state-of-the-art computer vision algorithms found to be mandatory in real world application areas including but not limited to:

- Mobile Robotics.
- Genetics.
- Scene & Content Analysis.

- Augmented/ Virtual Reality.
- Human–Computer Interaction.
- Biometrics.
- Gesture Recognition.

Let's name a few algorithms implemented in SOD:

- Hilditch Thinning .
- Hough Lines detection .
- Canny Edge detection .
- Connected Component Labeling .
- Sobel operator , Otsu's binarization and over 100 image/frame processing & analysis interfaces.

SOD includes a comprehensive set of both classic and state-of-the-art deep-neural networks with their pre-trained models . Built with SOD:

- Convolutional Neural Networks (CNN) for multi-class (20 and 80) object detection & classification.
- Recurrent Neural Networks (RNN) for text generation (i.e. Shakespeare, 4chan, Kant, Python code, etc.).
- Decision trees for single class, real-time object detection.
- A brand new architecture written specifically for SOD named RealNets .

SOD in 5 minutes or less

A quick introduction to programming with the SOD Embedded C/C++ API with real-world code samples implemented in C.

C/C++ API Reference Guide

This document describes each API function in details. This is the reference document you should rely on.

SOD Github Repository

The official Github repository.

C/C++ Code Samples

Real world code samples on how to embed, load models and start experimenting with SOD.

Hope this helps!

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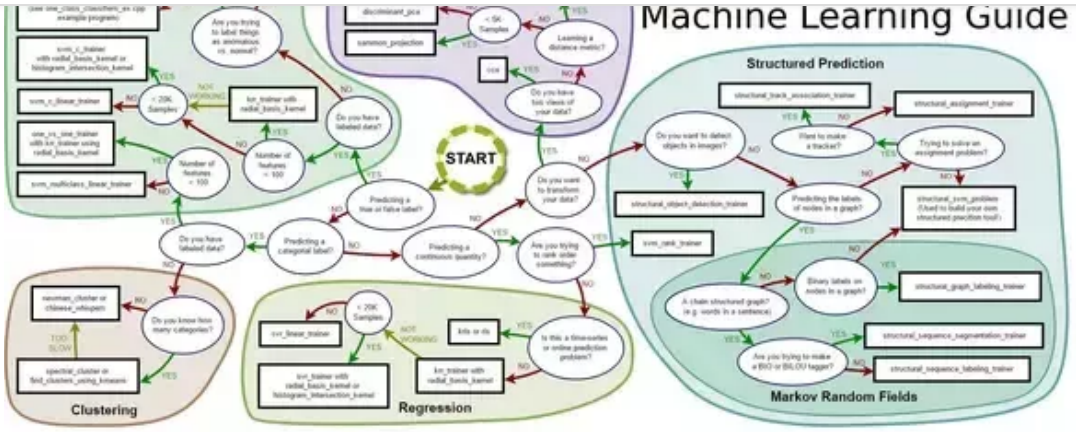
András Pálffy, Algorithm developer, specialized in computer vision and machine learning
Answered Feb 21, 2017

Aside the the libraries recommended by Bhaskar, I would suggest Dlib as well.

dlib C++ Library

It is an extremely well documented C++ library with python wrappers with a lot of machine learning and computer vision functions and tools (along with a lot of other things, like network handling!).

Here is a nice decision flow from the developers, just to show how much it is capable of. (source: dlib C++ Library - Machine Learning)



I used it multiple times alone or with openCV (it has nice adapters as well, like converting image formats from and to the openCV representation), and would choose it again.

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Kashif Ali Siddiqui, Has taken course and done projects in my previous employment

Answered Mar 19

OpenCV is the king among all many available.

various CV tasks. For Java, its has a very effective impl. in JavaCPP library.

Although OpenCV is very very good for research purposes. For production, it is not that efficient as compare to others. So for final product, also see other options.

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Muthu Kumar Chandrasekaran, CS PhD student researching on personalising online education at scale

Updated May 20, 2016

OpenCV: http://opencv.org in my opinion is the most popular.

There are also deep learning libraries which are mainly used in vision. Torch for example.

Besides many other traditional image processing libraries that support feature extraction for computer vision problems. These include FFmpeg , mp4box and the like.

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Bhaskar Bhattacharya, Since 2010 working in labs
Answered Jun 25, 2016

I work in computer vision heavily.

OpenCV is the obvious answer since it's the most popular.

PCL (Point Cloud Library) is also popular if you work with 3D data a lot.

ROS is again used heavily in robotics, mainly dealing with robot navigation.

MATLAB if you have the money is pretty good also for prototyping.

CUDA for parralelizing stuff.

There are many many libraries out there which do just a little extra thing more than these ones. Some most likely built on top of these.

However, the ones I mentioned are the ones people use heavily.

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Riswan Lathif, studied Computer Science at Technical University of Munich (2018)

Answered May 17, 2016

OpenCV is a nice place to start.

http://opencv.org

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