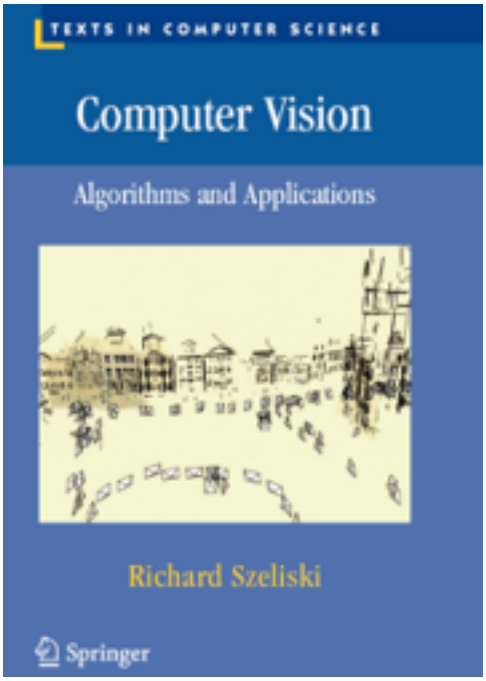
Author's Note

Congratulations! By downloading this resource guide you have embarked on a journey of learning. This guide is not a laundry list of all available computer vision resources. On the contrary, it is a curated list of things I find useful in my work. It is often wise to leave out ingredients from a recipe to improve it, and so I have decided to leave out resources that may overwhelm a beginner. However, if you do have a resource that you find useful, please email me at spmallick@learnopencv.com

Who is this guide for ?

This guide is for programmers, hackers, engineers, scientists, students and self-starters. It is for those creative people who have an itch to learn something new, and build something useful and beautiful. It is for people who take pride in their work, and are craftsmen at heart. It is for men and women who believe in sharpening their tools and improving their craft on a regular basis. It is for those who believe that learning is a continuous process, and that there are smart ways to learn fast. It is for tinkerers who can learn by reading, but prefer to learn by doing. Lastly, it is for people who invest in themselves by learning something new every day and are eager to contribute back to the community to enrich others!

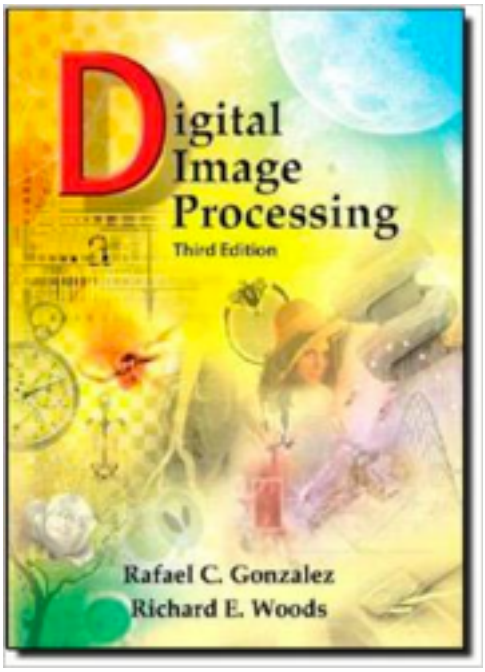
Books



1. Computer Vision: Algorithms and Applications

Author : Richard Szeliski
Summary : This is by far the best book on computer vision I have used. This is a good basic reference book for a wide variety of computer vision topics — image formation, image processing, feature detection and matching, segmentation, image alignment, structure from motion, motion estimation, image stitching, computational photography, stereo correspondence, 3D reconstruction, image based rendering, and recognition.

Free version : http://szeliski.org/Book/
Buy at Amazon (Hardcover)



2. Digital Image Processing

Authors : Rafael C. Gonzalez and Richard E. Woods
Summary : This is a good introductory book in image processing. It may be challenging to understand Computer Vision literature without a basic understanding of image processing concepts. The book covers digital image fundamentals, image enhancement (spatial and frequency domains), image restoration, color image processing, wavelets and multi-resolution processing, image compression, morphological operations, segmentation, and a bit of object detection.

Buy at Amazon (Hardcover and Paperback)

Software & Libraries

OpenCV (http://opencv.org/)

Summary

The biggest and the most extensive open source computer vision library. OpenCV has more than 47 thousand people of user community and estimated number of downloads exceeding 10 million.

Languages

C/C++ with interfaces to Python and Java.

Platforms

Windows, Linux, Mac OS, iOS, Android, Raspberry Pi, and NVIDIA Jetson TK1.

License (http://opencv.org/license.html *)*

BSD : It is free for both academic and commercial use.

Note : Not all parts of OpenCV are free.

VLFeat (http://www.vlfeat.org/)

Summary

Computer vision algorithms specializing in image understanding and local features extraction and matching.

Languages

C with interfaces in MATLAB

Platforms

Windows, Mac OS X, and Linux.

License

BSD : It is free for academic and commercial use.

SimpleCV (http://simplecv.org/)

Summary

SimpleCV is an open source wrapper around computer vision libraries such as OpenCV that hides some of its complexities.

Languages

Python

Platforms

Windows, Mac OS X, Linux, and Raspberry Pi.