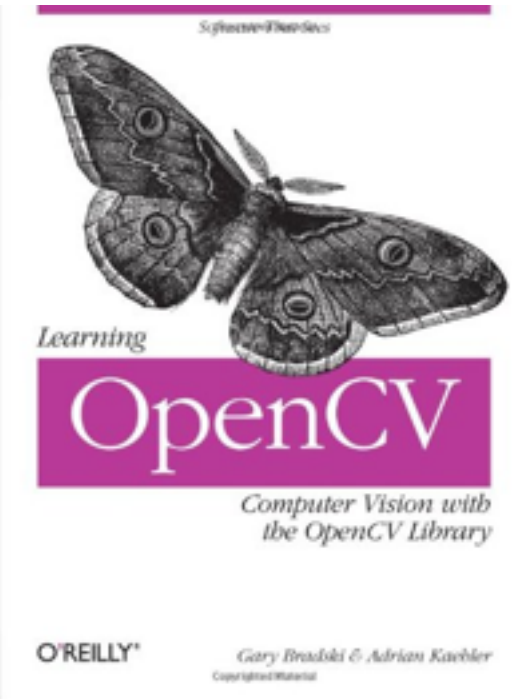
# Author's Note

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!




## 3. Learning OpenCV

**Authors :** Gary Bradski & Adrian Kaehler
**Summary :** Gray Bradski started OpenCV and this book is a great introductory book for learning OpenCV. The book comes with links to code samples and tutorials. The only downside is that this version of the book does not cover OpenCV 3. A revised version is expected to be released in 2015.

**Note** The examples are in the book are in C++ only.

**Buy at Amazon**


## 4. Practical Python and OpenCV

**Authors:** Adrian Rosebrock
**Summary :** Great introductory book for learning OpenCV using Python. It contains example code, and interesting case studies.This digital book comes with a 30-day money back guarantee, so it is risk free! You also receive free updates to the book as it is revised (e.g. when OpenCV 3 is released some of the code will be revised ).

**Buy at PyImageSearch.com**

*License*

BSD : It is free for academic and commercial use.

### MATLAB CV Toolbox ( http://www.mathworks.com/products/computer-vision/ )

*Summary*

A computer vision toolbox for MATLAB.

*Languages*

MATLAB

*Platforms*

*Windows, Mac OS X and Linux.*

*License*

MATLAB's license. Requires Image Processing Toolbox. The total cost of installing MATLAB ( $2,150 ) + Image Processing Toolbox ( $1, 000 ) + Computer Vision Toolbox ( $1,350 ) = $4500. Student licenses are much cheaper though ( few hundred dollars ).

### Python Libraries

One of the main advantages of using OpenCV with Python is the vast number of scientific libraries available for Python. Here are a few libraries you will find useful. The first three libraries — NumPy, SciPy and Matplotlib — are part of the SciPy stack. When used together, they pretty much replace MATLAB.

1. **NumPy ( http://www.numpy.org ) :** NumPy adds support for large, multi-dimensional arrays and matrices to Python. It also consists of a large library of high-level mathematical functions to operate on these arrays. OpenCV images are read in as NumPy arrays. Several other math, image processing, and machine learning libraries are built on top of NumPy.
2. **SciPy** ( **http://scipy.org/scipylib/index.html** ) : SciPy is a powerful scientific library built on top of NumPy. It's sub packages include linalg ( linear algebra ), optimize ( optimization and root-finding routines ), stats ( statistical distributions and functions ), ndimage ( N-dimensional image processing ), interpolate ( interpolation and smoothing splines) , fftpack ( Fast Fourier Transform routines), cluster (Clustering algorithms) and many more.
3. **matplotlib** ( **http://matplotlib.org/** ) : An excellent 2D plotting library for Python that is every bit as powerful as MATLAB. You can generate plots, histograms, power spectra, bar charts, scatterplots, etc, with just a few lines of code.