

Course Syllabus & Content Release Schedule

[🏠 \(HTTPS://GURUS.PYIMAGESEARCH.COM\)](https://gurus.pyimagesearch.com/) > COURSE SYLLABUS & CONTENT RELEASE SCHEDULE

Month 1

- [1.1: Loading, displaying, and saving images \(https://gurus.pyimagesearch.com?p=397\)](https://gurus.pyimagesearch.com?p=397)
- [1.2: Image basics \(https://gurus.pyimagesearch.com?p=399\)](https://gurus.pyimagesearch.com?p=399)
- [1.3: Drawing \(https://gurus.pyimagesearch.com?p=401\)](https://gurus.pyimagesearch.com?p=401)
- [1.4: Basic image processing \(https://gurus.pyimagesearch.com?p=403\)](https://gurus.pyimagesearch.com?p=403)
- [1.4.1: Translation \(https://gurus.pyimagesearch.com?p=723\)](https://gurus.pyimagesearch.com?p=723)
- [1.4.2: Rotation \(https://gurus.pyimagesearch.com?p=726\)](https://gurus.pyimagesearch.com?p=726)
- [1.4.3: Resizing \(https://gurus.pyimagesearch.com?p=729\)](https://gurus.pyimagesearch.com?p=729)
- [1.4.4: Flipping \(https://gurus.pyimagesearch.com?p=732\)](https://gurus.pyimagesearch.com?p=732)
- [1.4.5: Cropping \(https://gurus.pyimagesearch.com?p=735\)](https://gurus.pyimagesearch.com?p=735)
- [1.4.6: Image arithmetic \(https://gurus.pyimagesearch.com?p=738\)](https://gurus.pyimagesearch.com?p=738)
- [1.4.7: Bitwise operations \(https://gurus.pyimagesearch.com?p=741\)](https://gurus.pyimagesearch.com?p=741)
- [1.4.8: Masking \(https://gurus.pyimagesearch.com?p=744\)](https://gurus.pyimagesearch.com?p=744)
- [1.4.9: Splitting and merging channels \(https://gurus.pyimagesearch.com?p=747\)](https://gurus.pyimagesearch.com?p=747)
- [1.5: Kernels \(https://gurus.pyimagesearch.com?p=1018\)](https://gurus.pyimagesearch.com?p=1018)
- [1.6: Morphological operations \(https://gurus.pyimagesearch.com?p=405\)](https://gurus.pyimagesearch.com?p=405)
- [1.7: Smoothing and blurring \(https://gurus.pyimagesearch.com?p=407\)](https://gurus.pyimagesearch.com?p=407)
- [1.8: Lighting and color spaces \(https://gurus.pyimagesearch.com?p=409\)](https://gurus.pyimagesearch.com?p=409)
- [1.9: Thresholding \(https://gurus.pyimagesearch.com?p=411\)](https://gurus.pyimagesearch.com?p=411)
- [1.10: Gradients and edge detection \(https://gurus.pyimagesearch.com?p=414\)](https://gurus.pyimagesearch.com?p=414)
- [1.10.1: Gradients \(https://gurus.pyimagesearch.com?p=1098\)](https://gurus.pyimagesearch.com?p=1098)

- [1.10.2: Edge detection \(https://gurus.pyimagesearch.com?p=1115\)](https://gurus.pyimagesearch.com?p=1115)
- [1.11: Contours \(https://gurus.pyimagesearch.com?p=416\)](https://gurus.pyimagesearch.com?p=416)
- [1.11.1: Finding and drawing contours \(https://gurus.pyimagesearch.com?p=982\)](https://gurus.pyimagesearch.com?p=982)
- [1.11.2: Simple contour properties \(https://gurus.pyimagesearch.com?p=984\)](https://gurus.pyimagesearch.com?p=984)
- [1.11.3: Advanced contour properties \(https://gurus.pyimagesearch.com?p=986\)](https://gurus.pyimagesearch.com?p=986)
- [1.11.4: Contour approximation \(https://gurus.pyimagesearch.com?p=988\)](https://gurus.pyimagesearch.com?p=988)
- [1.11.5: Sorting contours \(https://gurus.pyimagesearch.com?p=990\)](https://gurus.pyimagesearch.com?p=990)
- [1.12: Histograms \(https://gurus.pyimagesearch.com?p=418\)](https://gurus.pyimagesearch.com?p=418)
- [1.13: Connected-component labeling \(https://gurus.pyimagesearch.com?p=2836\)](https://gurus.pyimagesearch.com?p=2836)
- [10.1: What are image descriptors, feature descriptors, and feature vectors? \(https://gurus.pyimagesearch.com?p=627\)](https://gurus.pyimagesearch.com?p=627)
- [10.2: Color channel statistics \(https://gurus.pyimagesearch.com?p=629\)](https://gurus.pyimagesearch.com?p=629)
- [10.3: Color histograms \(https://gurus.pyimagesearch.com?p=631\)](https://gurus.pyimagesearch.com?p=631)
- [11.1: Measuring distance from camera to object in image \(https://gurus.pyimagesearch.com?p=651\)](https://gurus.pyimagesearch.com?p=651)

Month 2

- [4.1: A high level overview of image classification \(https://gurus.pyimagesearch.com?p=491\)](https://gurus.pyimagesearch.com?p=491)
- [4.1.1: What is image classification? \(https://gurus.pyimagesearch.com?p=1396\)](https://gurus.pyimagesearch.com?p=1396)
- [4.1.2: Types of learning \(https://gurus.pyimagesearch.com?p=1858\)](https://gurus.pyimagesearch.com?p=1858)
- [4.2: The image classification pipeline \(https://gurus.pyimagesearch.com?p=493\)](https://gurus.pyimagesearch.com?p=493)
- [4.3: k-Nearest Neighbor classification \(https://gurus.pyimagesearch.com?p=495\)](https://gurus.pyimagesearch.com?p=495)
- [6.1: What is ANPR? \(https://gurus.pyimagesearch.com?p=541\)](https://gurus.pyimagesearch.com?p=541)
- [9.1: Installing OpenCV on your Raspberry Pi \(https://gurus.pyimagesearch.com?p=611\)](https://gurus.pyimagesearch.com?p=611)
- [10.4: Hu Moments \(https://gurus.pyimagesearch.com?p=639\)](https://gurus.pyimagesearch.com?p=639)
- [10.5: Zernike Moments \(https://gurus.pyimagesearch.com?p=641\)](https://gurus.pyimagesearch.com?p=641)
- [10.6: Haralick texture \(https://gurus.pyimagesearch.com?p=635\)](https://gurus.pyimagesearch.com?p=635)
- [10.7: Local Binary Patterns \(https://gurus.pyimagesearch.com?p=633\)](https://gurus.pyimagesearch.com?p=633)
- [10.8: Histogram of Oriented Gradients \(https://gurus.pyimagesearch.com?p=637\)](https://gurus.pyimagesearch.com?p=637)
- [11.2: Face detection in images \(https://gurus.pyimagesearch.com?p=654\)](https://gurus.pyimagesearch.com?p=654)

Month 3

- [3.1: What is Content-Based Image Retrieval? \(https://gurus.pyimagesearch.com?p=457\)](https://gurus.pyimagesearch.com?p=457)
- [3.2: Your first image search engine \(https://gurus.pyimagesearch.com?p=459\)](https://gurus.pyimagesearch.com?p=459)
- [4.4: Common machine learning algorithms for image classification \(https://gurus.pyimagesearch.com?p=501\)](https://gurus.pyimagesearch.com?p=501)
- [4.4.1: Logistic regression \(https://gurus.pyimagesearch.com?p=1873\)](https://gurus.pyimagesearch.com?p=1873)
- [4.4.2: Support Vector Machines \(https://gurus.pyimagesearch.com?p=1875\)](https://gurus.pyimagesearch.com?p=1875)
- [4.4.3: Decision trees \(https://gurus.pyimagesearch.com?p=1877\)](https://gurus.pyimagesearch.com?p=1877)
- [4.4.4: Random forests \(https://gurus.pyimagesearch.com?p=1879\)](https://gurus.pyimagesearch.com?p=1879)
- [6.2: The problem with ANPR datasets \(https://gurus.pyimagesearch.com?p=543\)](https://gurus.pyimagesearch.com?p=543)
- [6.3: Localizing license plates in images \(https://gurus.pyimagesearch.com?p=545\)](https://gurus.pyimagesearch.com?p=545)
- [9.2: Setting up your Raspberry Pi Camera \(https://gurus.pyimagesearch.com?p=613\)](https://gurus.pyimagesearch.com?p=613)
- [9.3: Accessing the Raspberry Pi camera and video stream \(https://gurus.pyimagesearch.com?p=615\)](https://gurus.pyimagesearch.com?p=615)
- [10.9: Understanding local features \(https://gurus.pyimagesearch.com?p=643\)](https://gurus.pyimagesearch.com?p=643)
- [10.10: Keypoint detectors \(https://gurus.pyimagesearch.com?p=645\)](https://gurus.pyimagesearch.com?p=645)
- [10.10.1: FAST \(https://gurus.pyimagesearch.com?p=1903\)](https://gurus.pyimagesearch.com?p=1903)
- [10.10.2: Harris \(https://gurus.pyimagesearch.com?p=1909\)](https://gurus.pyimagesearch.com?p=1909)
- [10.10.3: GFTT \(https://gurus.pyimagesearch.com?p=1907\)](https://gurus.pyimagesearch.com?p=1907)
- [10.10.4: DoG \(https://gurus.pyimagesearch.com?p=1901\)](https://gurus.pyimagesearch.com?p=1901)
- [10.10.5: Fast Hessian \(https://gurus.pyimagesearch.com?p=1905\)](https://gurus.pyimagesearch.com?p=1905)
- [10.10.6: STAR \(https://gurus.pyimagesearch.com?p=1915\)](https://gurus.pyimagesearch.com?p=1915)
- [10.10.7: MSER \(https://gurus.pyimagesearch.com?p=1911\)](https://gurus.pyimagesearch.com?p=1911)
- [10.10.8: Dense \(https://gurus.pyimagesearch.com?p=1899\)](https://gurus.pyimagesearch.com?p=1899)
- [10.10.9: BRISK \(https://gurus.pyimagesearch.com?p=1897\)](https://gurus.pyimagesearch.com?p=1897)
- [10.10.10: ORB \(https://gurus.pyimagesearch.com?p=1913\)](https://gurus.pyimagesearch.com?p=1913)

Month 4

- [2.1: What are object detectors? \(https://gurus.pyimagesearch.com?p=425\)](https://gurus.pyimagesearch.com?p=425)
- [2.1.1: An introduction to object detection \(https://gurus.pyimagesearch.com?p=2958\)](https://gurus.pyimagesearch.com?p=2958)
- [2.1.2: Template matching \(https://gurus.pyimagesearch.com?p=2845\)](https://gurus.pyimagesearch.com?p=2845)
- [2.2: Object detection: The easy way \(https://gurus.pyimagesearch.com?p=427\)](https://gurus.pyimagesearch.com?p=427)
- [2.2.1: How to install dlib \(https://gurus.pyimagesearch.com?p=2852\)](https://gurus.pyimagesearch.com?p=2852)
- [2.2.2: Object detection made easy \(https://gurus.pyimagesearch.com?p=2961\)](https://gurus.pyimagesearch.com?p=2961)
- [3.3: The 4 steps of building any image search engine \(https://gurus.pyimagesearch.com\)](https://gurus.pyimagesearch.com)

[p=461](#))

- [3.3.1: Defining your image descriptor \(https://gurus.pyimagesearch.com?p=1949\)](https://gurus.pyimagesearch.com?p=1949)
- [3.3.2: Feature extraction and indexing \(https://gurus.pyimagesearch.com?p=1951\)](https://gurus.pyimagesearch.com?p=1951)
- [3.3.3: Defining your similarity metric \(https://gurus.pyimagesearch.com?p=1953\)](https://gurus.pyimagesearch.com?p=1953)
- [3.3.4: Searching \(https://gurus.pyimagesearch.com?p=1955\)](https://gurus.pyimagesearch.com?p=1955)
- [4.5: k-means clustering \(https://gurus.pyimagesearch.com?p=497\)](https://gurus.pyimagesearch.com?p=497)
- [6.4: Segmenting characters from the license plate \(https://gurus.pyimagesearch.com?p=547\)](https://gurus.pyimagesearch.com?p=547)
- [10.11: Local invariant descriptors \(https://gurus.pyimagesearch.com?p=647\)](https://gurus.pyimagesearch.com?p=647)
- [10.11.1: SIFT \(https://gurus.pyimagesearch.com?p=1917\)](https://gurus.pyimagesearch.com?p=1917)
- [10.11.2: RootSIFT \(https://gurus.pyimagesearch.com?p=1919\)](https://gurus.pyimagesearch.com?p=1919)
- [10.11.3: SURF \(https://gurus.pyimagesearch.com?p=1921\)](https://gurus.pyimagesearch.com?p=1921)
- [10.11.4: Real-valued feature extraction and matching \(https://gurus.pyimagesearch.com?p=3034\)](https://gurus.pyimagesearch.com?p=3034)
- [11.3: Face detection in video \(https://gurus.pyimagesearch.com?p=656\)](https://gurus.pyimagesearch.com?p=656)

Month 5

- [2.3: Sliding windows and image pyramids \(https://gurus.pyimagesearch.com?p=431\)](https://gurus.pyimagesearch.com?p=431)
- [2.3.1: Image pyramids \(https://gurus.pyimagesearch.com?p=1827\)](https://gurus.pyimagesearch.com?p=1827)
- [2.3.2: Sliding windows \(https://gurus.pyimagesearch.com?p=1825\)](https://gurus.pyimagesearch.com?p=1825)
- [3.4: The bag of \(visual\) words model \(https://gurus.pyimagesearch.com?p=3371\)](https://gurus.pyimagesearch.com?p=3371)
- [3.5: Extracting keypoints and local invariant descriptors \(https://gurus.pyimagesearch.com?p=465\)](https://gurus.pyimagesearch.com?p=465)
- [3.6: Clustering features to form a codebook \(https://gurus.pyimagesearch.com?p=467\)](https://gurus.pyimagesearch.com?p=467)
- [3.7: Visualizing words in a codebook \(https://gurus.pyimagesearch.com?p=470\)](https://gurus.pyimagesearch.com?p=470)
- [5.1: What is face recognition? \(https://gurus.pyimagesearch.com?p=529\)](https://gurus.pyimagesearch.com?p=529)
- [5.2: LBPs for face recognition \(https://gurus.pyimagesearch.com?p=535\)](https://gurus.pyimagesearch.com?p=535)
- [6.5: Scissoring the license plate characters \(https://gurus.pyimagesearch.com?p=549\)](https://gurus.pyimagesearch.com?p=549)
- [10.12: Binary descriptors \(https://gurus.pyimagesearch.com?p=1895\)](https://gurus.pyimagesearch.com?p=1895)
- [10.12.1: What are binary descriptors? \(https://gurus.pyimagesearch.com?p=3296\)](https://gurus.pyimagesearch.com?p=3296)
- [10.12.2: BRIEF \(https://gurus.pyimagesearch.com?p=1923\)](https://gurus.pyimagesearch.com?p=1923)
- [10.12.3: ORB \(https://gurus.pyimagesearch.com?p=1925\)](https://gurus.pyimagesearch.com?p=1925)
- [10.12.4: BRISK \(https://gurus.pyimagesearch.com?p=1927\)](https://gurus.pyimagesearch.com?p=1927)
- [10.12.5: FREAK \(https://gurus.pyimagesearch.com?p=1929\)](https://gurus.pyimagesearch.com?p=1929)

- [10.12.6: Binary feature extraction and matching \(https://gurus.pyimagesearch.com?p=3310\)](https://gurus.pyimagesearch.com?p=3310)
- [11.4: Object tracking in video \(https://gurus.pyimagesearch.com?p=658\)](https://gurus.pyimagesearch.com?p=658)

Month 6

- [2.4: The 6-step framework \(https://gurus.pyimagesearch.com?p=1838\)](https://gurus.pyimagesearch.com?p=1838)
- [3.8: Vector quantization \(https://gurus.pyimagesearch.com?p=472\)](https://gurus.pyimagesearch.com?p=472)
- [3.8.1: Going from multiple features to a single histogram \(https://gurus.pyimagesearch.com?p=3783\)](https://gurus.pyimagesearch.com?p=3783)
- [3.8.2: Forming a BOVW \(https://gurus.pyimagesearch.com?p=3785\)](https://gurus.pyimagesearch.com?p=3785)
- [4.6: Bag of visual words for classification \(https://gurus.pyimagesearch.com?p=505\)](https://gurus.pyimagesearch.com?p=505)
- [5.3: The Eigenfaces algorithm \(https://gurus.pyimagesearch.com?p=533\)](https://gurus.pyimagesearch.com?p=533)
- [8.1: Neural networks in a nutshell \(https://gurus.pyimagesearch.com?p=582\)](https://gurus.pyimagesearch.com?p=582)
- [8.1.1: Introduction to neural networks \(https://gurus.pyimagesearch.com?p=3720\)](https://gurus.pyimagesearch.com?p=3720)
- [8.1.2: The Perceptron algorithm \(https://gurus.pyimagesearch.com?p=3722\)](https://gurus.pyimagesearch.com?p=3722)
- [8.1.3: Multi-layer networks \(https://gurus.pyimagesearch.com?p=3724\)](https://gurus.pyimagesearch.com?p=3724)
- [11.5: Identifying the covers of books \(https://gurus.pyimagesearch.com?p=664\)](https://gurus.pyimagesearch.com?p=664)

Month 7

- [2.5: Preparing your experiment and training data \(https://gurus.pyimagesearch.com?p=429\)](https://gurus.pyimagesearch.com?p=429)
- [2.6: Constructing your HOG descriptor \(https://gurus.pyimagesearch.com?p=433\)](https://gurus.pyimagesearch.com?p=433)
- [2.7: The initial training phase \(https://gurus.pyimagesearch.com?p=435\)](https://gurus.pyimagesearch.com?p=435)
- [2.8: Non-maxima suppression \(https://gurus.pyimagesearch.com?p=1886\)](https://gurus.pyimagesearch.com?p=1886)
- [3.9: Inverted indexes and searching \(https://gurus.pyimagesearch.com?p=478\)](https://gurus.pyimagesearch.com?p=478)
- [3.9.1: What is Redis? \(https://gurus.pyimagesearch.com?p=3788\)](https://gurus.pyimagesearch.com?p=3788)
- [3.9.2: Building an inverted index \(https://gurus.pyimagesearch.com?p=3790\)](https://gurus.pyimagesearch.com?p=3790)
- [3.9.3: Performing a search \(https://gurus.pyimagesearch.com?p=3792\)](https://gurus.pyimagesearch.com?p=3792)
- [4.7: A different type of image pyramid \(https://gurus.pyimagesearch.com?p=499\)](https://gurus.pyimagesearch.com?p=499)
- [4.7.1: Image pyramids for classification \(https://gurus.pyimagesearch.com?p=1864\)](https://gurus.pyimagesearch.com?p=1864)
- [4.7.2: PBOW \(https://gurus.pyimagesearch.com?p=1868\)](https://gurus.pyimagesearch.com?p=1868)
- [5.4: Preparing and pre-processing your own face data \(https://gurus.pyimagesearch.com?p=531\)](https://gurus.pyimagesearch.com?p=531)

- [6.6: Our first try at recognizing license plate characters](https://gurus.pyimagesearch.com?p=551)
(<https://gurus.pyimagesearch.com?p=551>)
- [8.2: Introduction to deep learning](https://gurus.pyimagesearch.com?p=4033) (<https://gurus.pyimagesearch.com?p=4033>)
- [8.3: Setting up your deep learning development environment](https://gurus.pyimagesearch.com?p=591)
(<https://gurus.pyimagesearch.com?p=591>)
- [11.6: Plant classification](https://gurus.pyimagesearch.com?p=666) (<https://gurus.pyimagesearch.com?p=666>)

Month 8

- [2.9: Hard-negative mining](https://gurus.pyimagesearch.com?p=439) (<https://gurus.pyimagesearch.com?p=439>)
- [2.10: Re-training and running your classifier](https://gurus.pyimagesearch.com?p=443) (<https://gurus.pyimagesearch.com?p=443>)
- [3.10: Evaluation](https://gurus.pyimagesearch.com?p=3794) (<https://gurus.pyimagesearch.com?p=3794>)
- [3.11: Tf-idf weighting](https://gurus.pyimagesearch.com?p=480) (<https://gurus.pyimagesearch.com?p=480>)
- [4.8: Image classification example: Flowers-17](https://gurus.pyimagesearch.com?p=507) (<https://gurus.pyimagesearch.com?p=507>)
- [5.5: The complete face recognition pipeline](https://gurus.pyimagesearch.com?p=537) (<https://gurus.pyimagesearch.com?p=537>)
- [6.7: Gathering our own license plate characters](https://gurus.pyimagesearch.com?p=553) (<https://gurus.pyimagesearch.com?p=553>)
- [6.8: Improving our license plate classifier](https://gurus.pyimagesearch.com?p=555) (<https://gurus.pyimagesearch.com?p=555>)
- [7.1: Introduction to Hadoop and MapReduce](https://gurus.pyimagesearch.com?p=563) (<https://gurus.pyimagesearch.com?p=563>)
- [8.4: Deep Belief Networks](https://gurus.pyimagesearch.com?p=584) (<https://gurus.pyimagesearch.com?p=584>)
- [8.4.1: Deep Belief Network basics](https://gurus.pyimagesearch.com?p=4019) (<https://gurus.pyimagesearch.com?p=4019>)
- [8.4.2: Training a Deep Belief Network](https://gurus.pyimagesearch.com?p=4021) (<https://gurus.pyimagesearch.com?p=4021>)
- [8.5: Convolutional Neural Networks](https://gurus.pyimagesearch.com?p=586) (<https://gurus.pyimagesearch.com?p=586>)
- [8.5.1: A CNN primer](https://gurus.pyimagesearch.com?p=4023) (<https://gurus.pyimagesearch.com?p=4023>)
- [8.5.2: Training your first CNN](https://gurus.pyimagesearch.com?p=4025) (<https://gurus.pyimagesearch.com?p=4025>)
- [12.1: Introduction to PhoneGap](https://gurus.pyimagesearch.com?p=674) (<https://gurus.pyimagesearch.com?p=674>)
- [12.2: Overview of PhoneGap](https://gurus.pyimagesearch.com?p=676) (<https://gurus.pyimagesearch.com?p=676>)
- [12.3: PhoneGap environment setup](https://gurus.pyimagesearch.com?p=678) (<https://gurus.pyimagesearch.com?p=678>)
- [12.4: PhoneGap "Hello, World"](https://gurus.pyimagesearch.com?p=680) (<https://gurus.pyimagesearch.com?p=680>)

Month 9

- [2.11: Training your custom object detector](https://gurus.pyimagesearch.com?p=447) (<https://gurus.pyimagesearch.com?p=447>)
- [2.12: Tips on training your own object detectors](https://gurus.pyimagesearch.com?p=453) (<https://gurus.pyimagesearch.com?p=453>)

- [3.12: Spatial verification \(https://gurus.pyimagesearch.com?p=474\)](https://gurus.pyimagesearch.com?p=474)
- [4.9: Image classification example: CALTECH-101 \(https://gurus.pyimagesearch.com?p=521\)](https://gurus.pyimagesearch.com?p=521)
- [4.10: Tips on training your own image classifiers \(https://gurus.pyimagesearch.com?p=525\)](https://gurus.pyimagesearch.com?p=525)
- [6.9: Classifying your own license plates \(https://gurus.pyimagesearch.com?p=557\)](https://gurus.pyimagesearch.com?p=557)
- [7.2: Setting up Hadoop on your machine \(https://gurus.pyimagesearch.com?p=567\)](https://gurus.pyimagesearch.com?p=567)
- [7.3: Preparing your images for use on HDFS \(https://gurus.pyimagesearch.com?p=569\)](https://gurus.pyimagesearch.com?p=569)
- [8.6: Implementing CNN architectures \(https://gurus.pyimagesearch.com?p=5269\)](https://gurus.pyimagesearch.com?p=5269)
- [8.6.1: LeNet \(https://gurus.pyimagesearch.com?p=5271\)](https://gurus.pyimagesearch.com?p=5271)
- [8.6.2: KarpathyNet \(https://gurus.pyimagesearch.com?p=5273\)](https://gurus.pyimagesearch.com?p=5273)
- [8.6.3: MiniVGGNet \(https://gurus.pyimagesearch.com?p=5275\)](https://gurus.pyimagesearch.com?p=5275)
- [11.7: Handwriting recognition \(https://gurus.pyimagesearch.com?p=668\)](https://gurus.pyimagesearch.com?p=668)
- [12.5: PhoneGap UI Setup \(https://gurus.pyimagesearch.com?p=682\)](https://gurus.pyimagesearch.com?p=682)
- [12.6: Capturing photo with PhoneGap \(https://gurus.pyimagesearch.com?p=684\)](https://gurus.pyimagesearch.com?p=684)
- [12.7: Uploading photo with PhoneGap \(https://gurus.pyimagesearch.com?p=686\)](https://gurus.pyimagesearch.com?p=686)
- [12.8: Display JSON response \(https://gurus.pyimagesearch.com?p=688\)](https://gurus.pyimagesearch.com?p=688)
- [13.1: Introduction to hand gesture recognition \(https://gurus.pyimagesearch.com?p=699\)](https://gurus.pyimagesearch.com?p=699)
- [13.2: Understanding convexity defects \(https://gurus.pyimagesearch.com?p=701\)](https://gurus.pyimagesearch.com?p=701)

Month 10

- [7.4: Running computer vision jobs on MapReduce \(https://gurus.pyimagesearch.com?p=571\)](https://gurus.pyimagesearch.com?p=571)
- [7.5: High-throughput face detection \(https://gurus.pyimagesearch.com?p=575\)](https://gurus.pyimagesearch.com?p=575)
- [7.6: High-throughput feature extraction \(https://gurus.pyimagesearch.com?p=577\)](https://gurus.pyimagesearch.com?p=577)
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