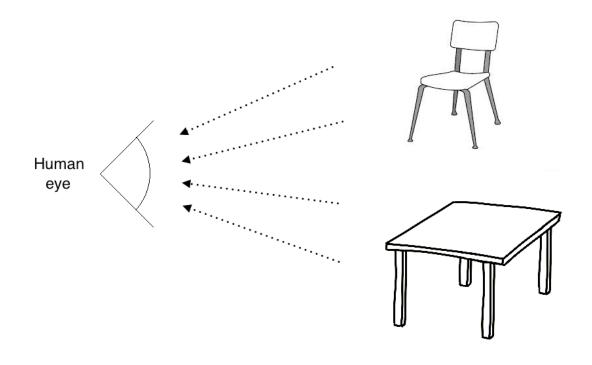
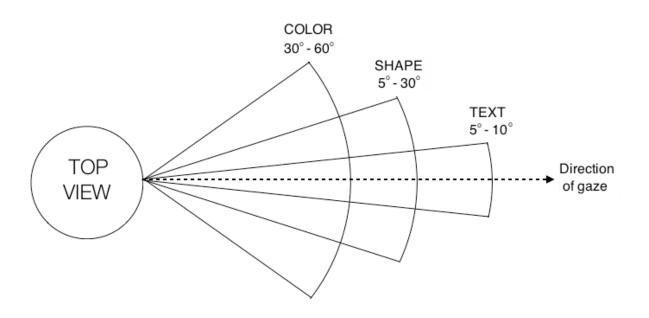
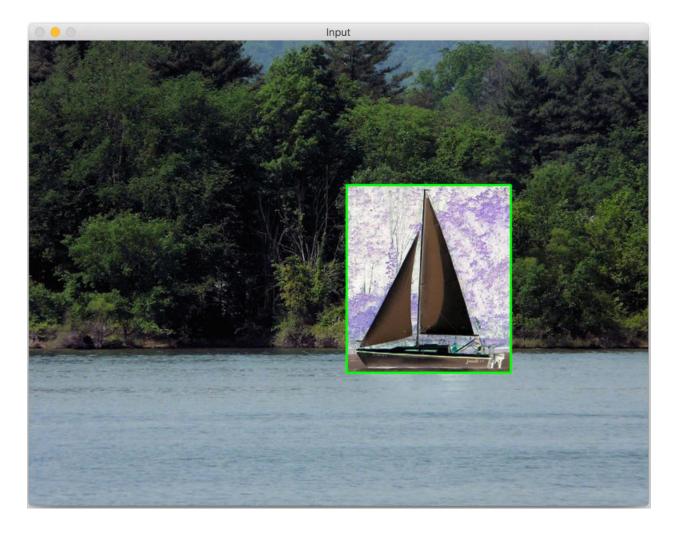
## **Chapter 1: Getting Started with OpenCV**

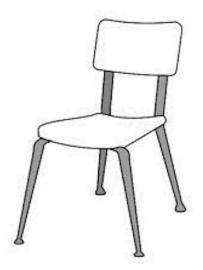






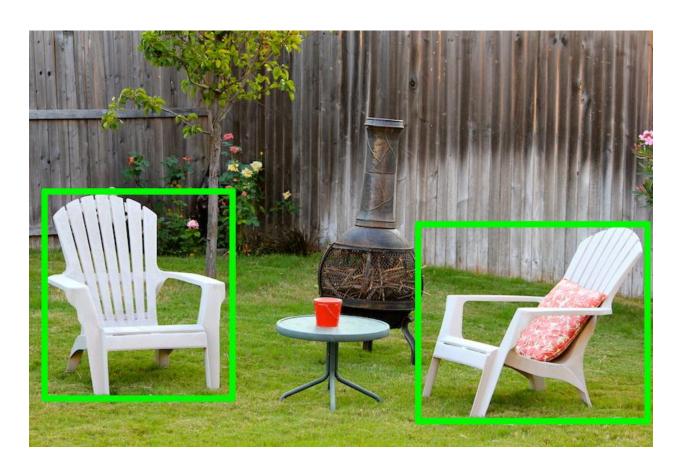






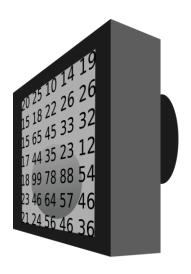








**Chapter 2: An Introduction to the Basics of OpenCV** 

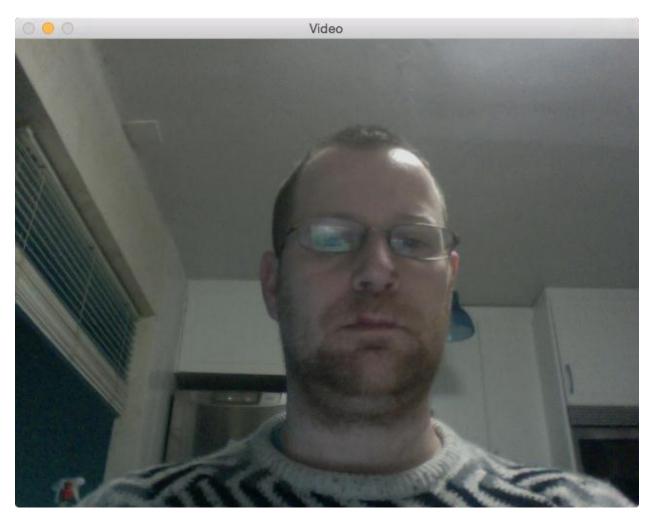


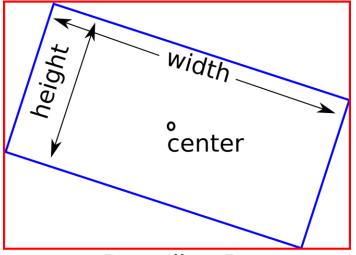


159	165	185	187	185	190	189	198	193	197	184	152	123
174	167	186	194	185	196	204	191	200	178	149	129	125
168	184	185	188	195	192	191	195	169	141	116	115	129
178	188	190	195	196	199	195	164	128	120	118	126	135
188	194	189	195	201	196	166	114	113	120	128	131	129
187	200	197	198	190	144	107	106	113	120	125	125	125
198	195	202	183	134	98	97	112	114	115	116	116	118
194	206	178	111	87	99	97	101	107	105	101	97	95
206	168	107	82	80	100	102	91	98	102	104	99	72
160	97	80	86	80	92	80	79	71	74	81	81	64
98	66	76	86	76	83	72	71	55	53	61	61	56
60	76	74	70	67	64	63	60	55	49	54	52	54

-		159	165	185	187	185	190	189	198	193	197	184	152	123
	159	165	185	187	185	190	189	198	193	197	184	152	123	125
159	165	185	187	185	190	189	198	193	197	184	152	123	125	129
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187	200	197	198	190	144	107	106	113	120	125	125	125	118	95
198	195	202	183	134	98	97	112	114	115	116	116	118	95	72
194	206	178	111	87	99	97	101	107	105	101	97	95	72	64
206	168	107	82	80	100	102	91	98	102	104	99	72	64	58
160	97	80	86	80	92	80	79	71	74	81	81	64	56	54
98	66	76	86	76	83	72	71	55		61	61	56	54	Gr
60	76	74	70	57	54	63	60	55		54		54	R	ed







Bounding Box

[0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0 0 0 0	0	0	0	0

[1	1	1	1	1]
1	1	1	1	1
1	1	1	1	1
1	1	1	1	1
1	1 1 1 1	1	1	1

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix} + \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix} = \begin{bmatrix} 2 & 1 & 1 \\ 1 & 2 & 1 \end{bmatrix}$$

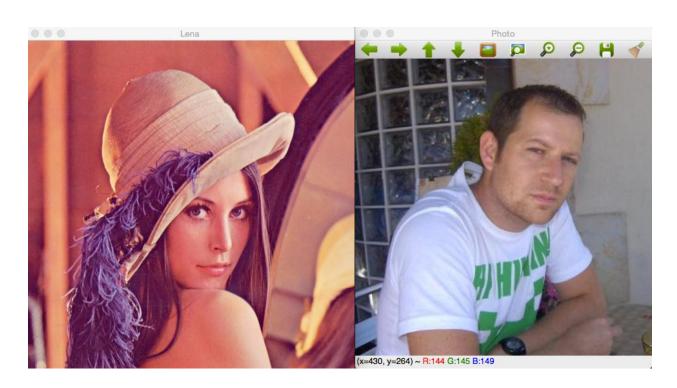
$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix} - \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix} = \begin{bmatrix} 0 & -1 & -1 \\ -1 & 0 & -1 \end{bmatrix}$$

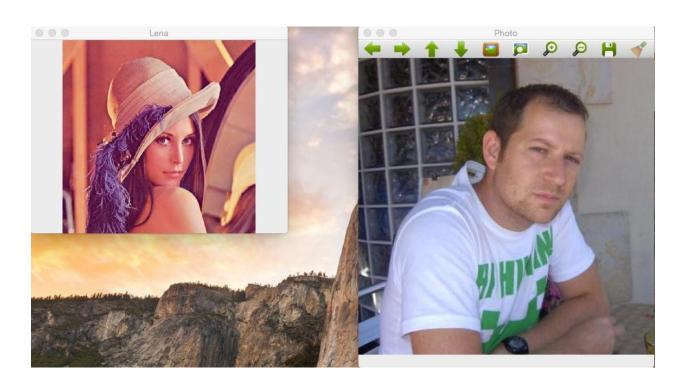
$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix} * 2 = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \end{bmatrix}$$

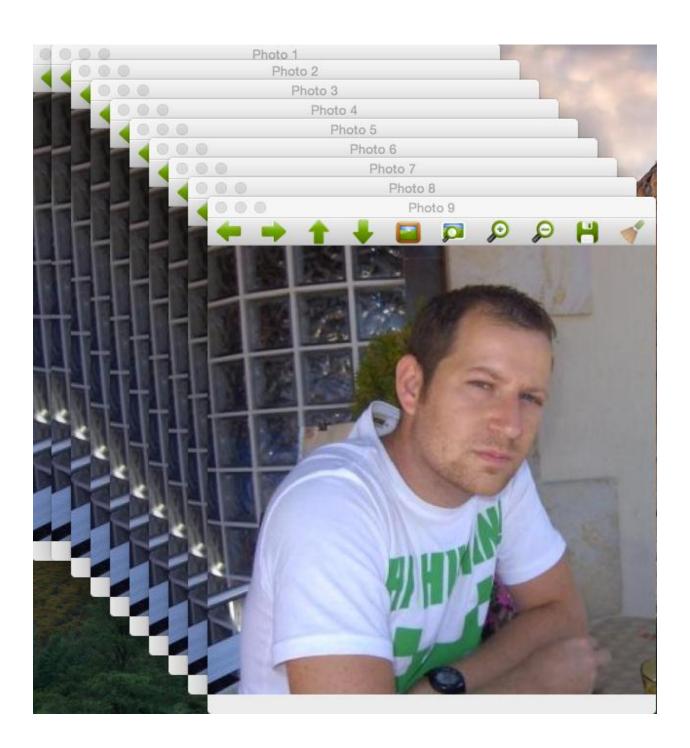
$$\begin{bmatrix} 2 & 1 & 1 \\ 1 & 2 & 1 \end{bmatrix} \cdot * \begin{bmatrix} 4 & 3 & 3 \\ 3 & 4 & 3 \end{bmatrix} = \begin{bmatrix} 8 & 3 & 3 \\ 3 & 8 & 3 \end{bmatrix}$$

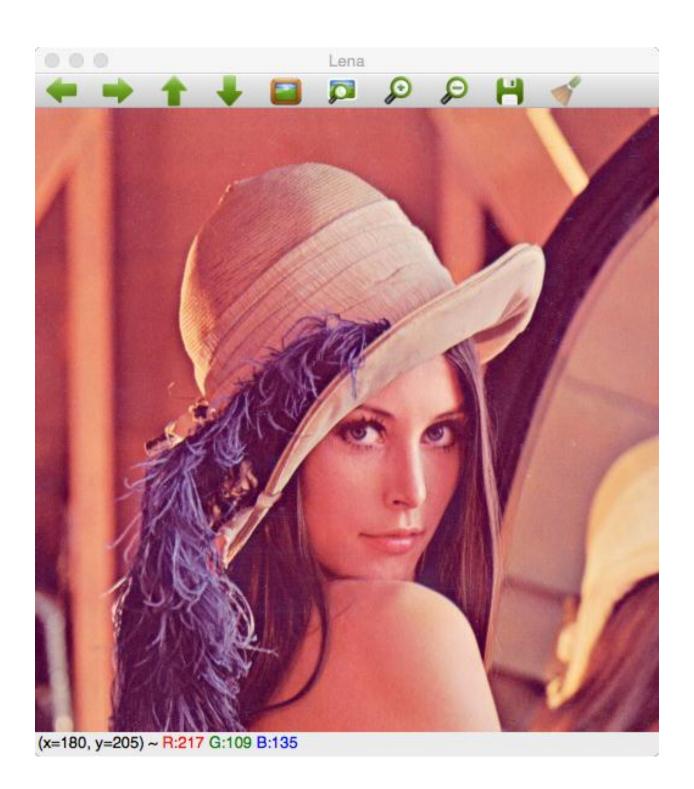
$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix} * \begin{bmatrix} 1 & 1 \\ 1 & 1 \\ 1 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$$

## **Chapter 3: Learning the Graphical User Interface and Basic Filtering**



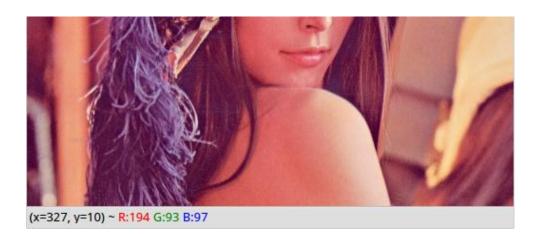


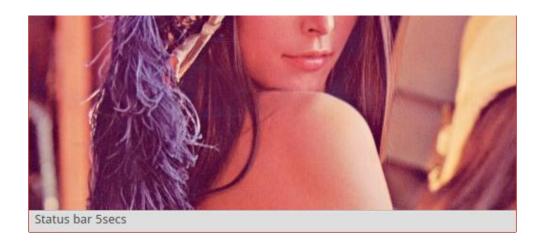


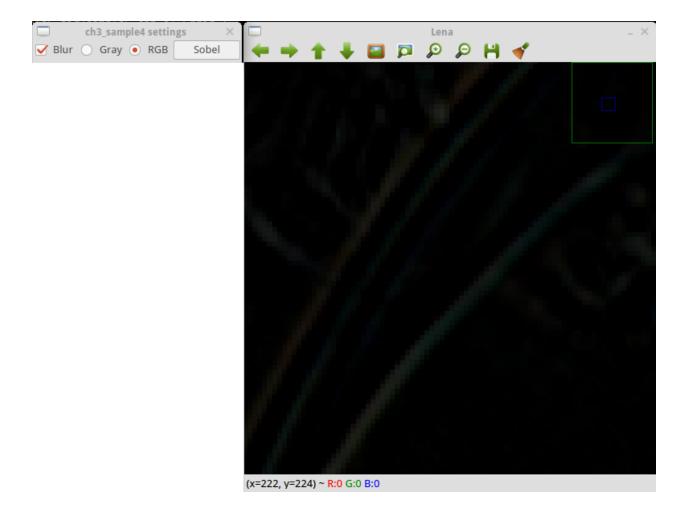






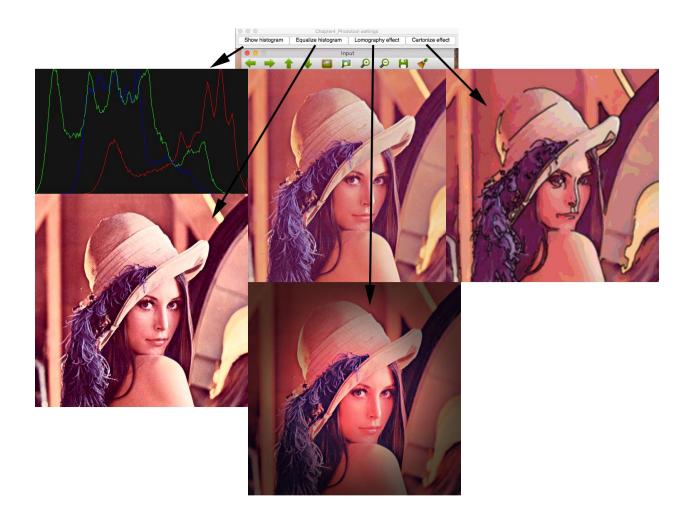


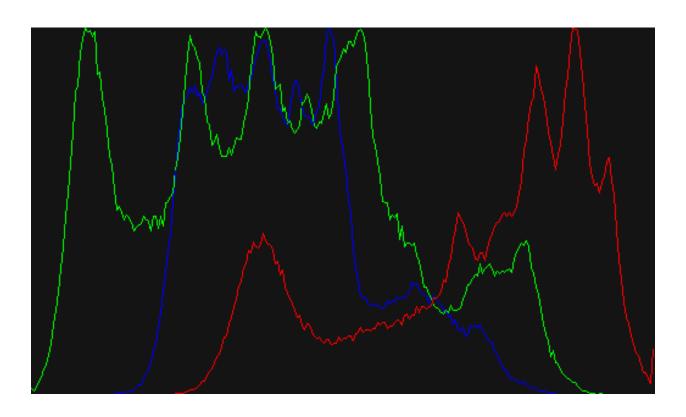






## **Chapter 4: Delving into Histograms and Filters**

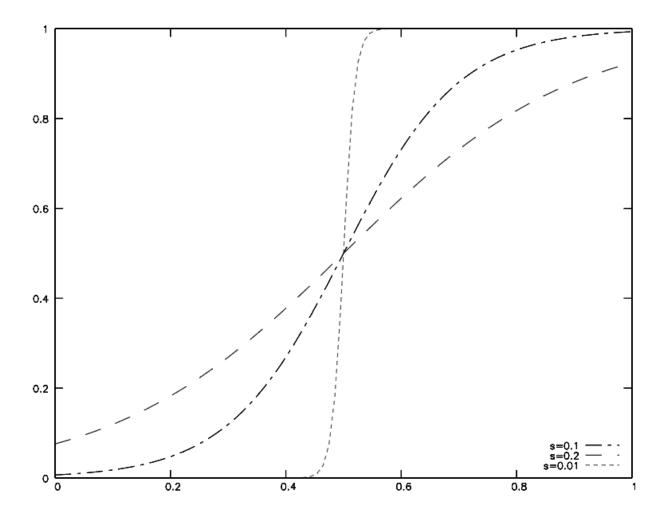


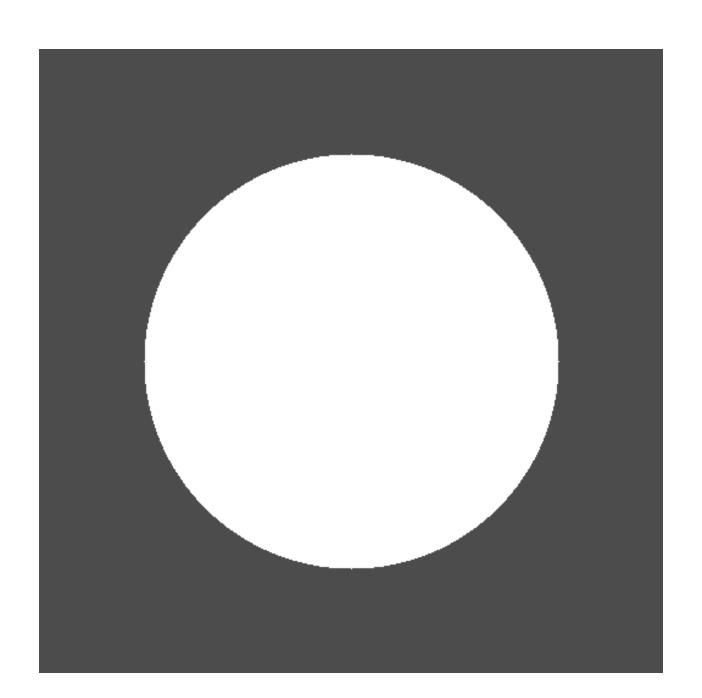


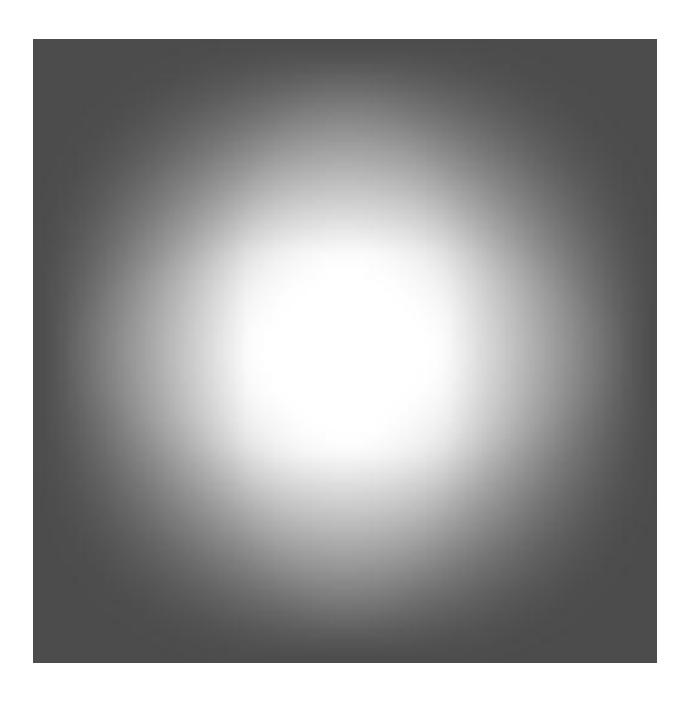




$$\frac{1}{1+e^{-\frac{x-0.5}{s}}}$$



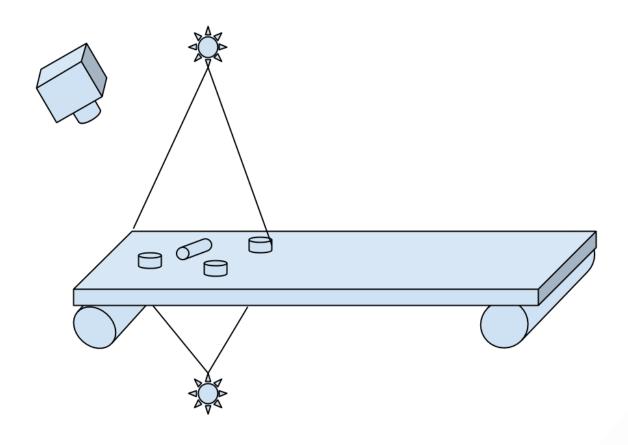


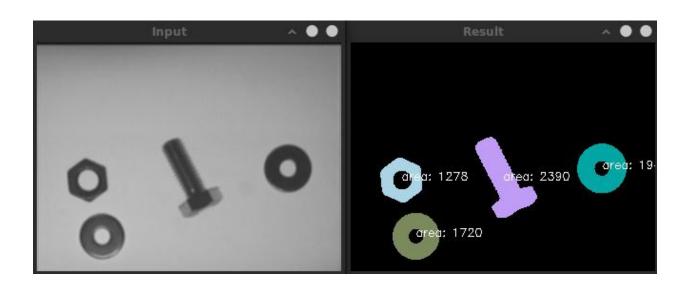


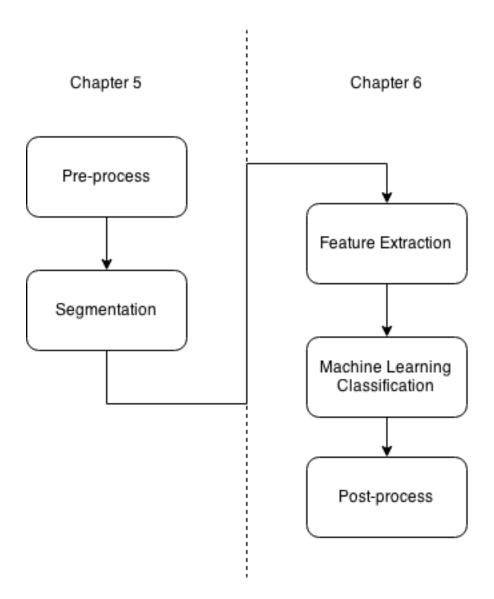


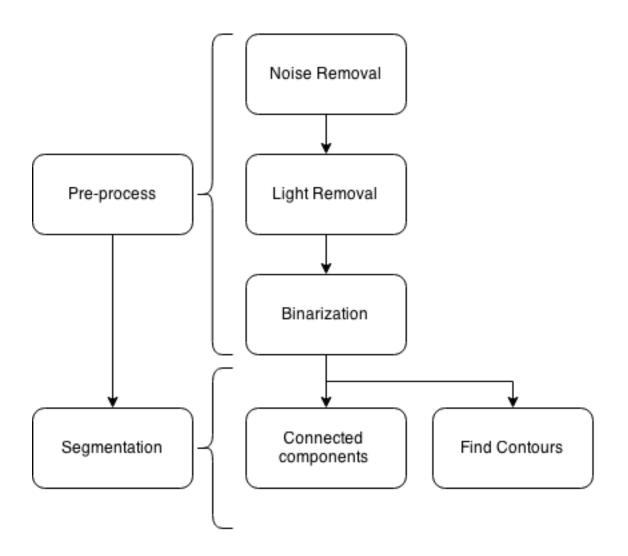


**Chapter 5: Automated Optical Inspection, Object Segmentation, and Detection** 

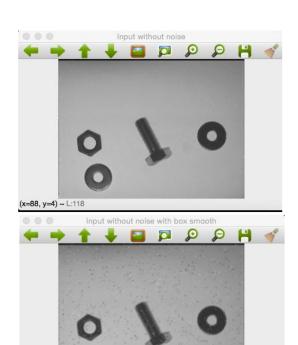


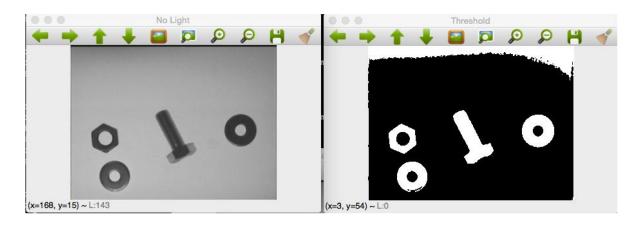


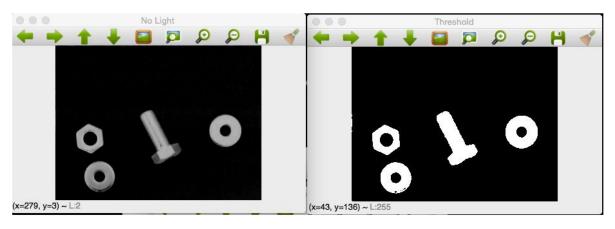




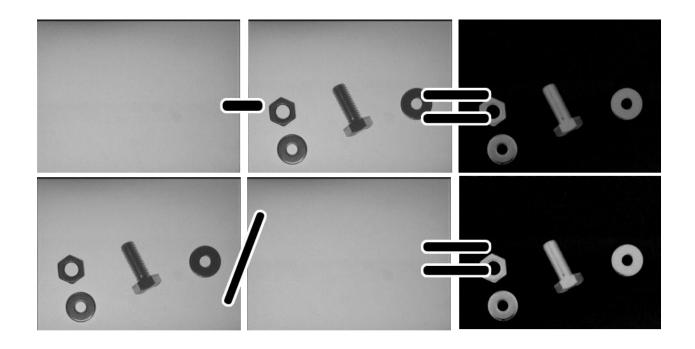


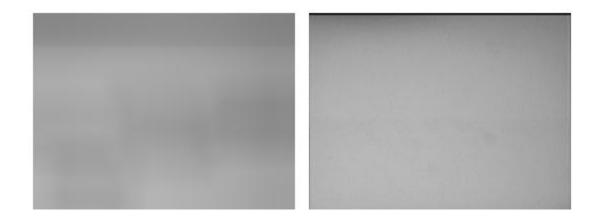






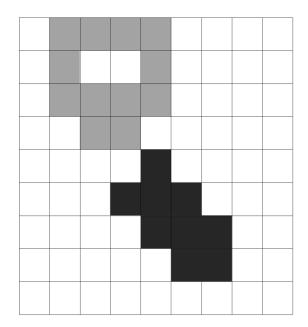


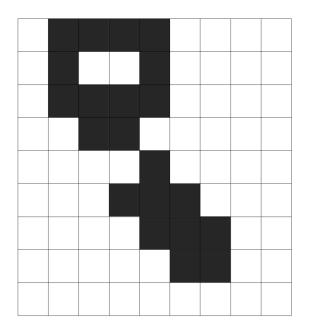


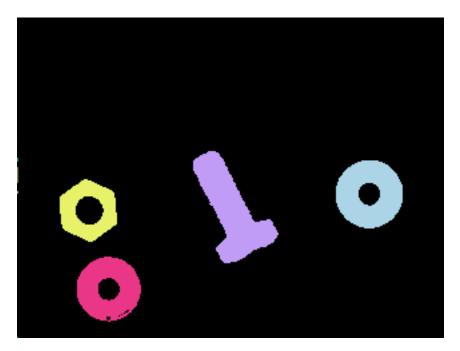


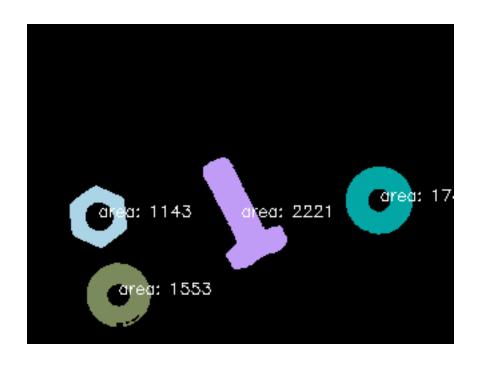


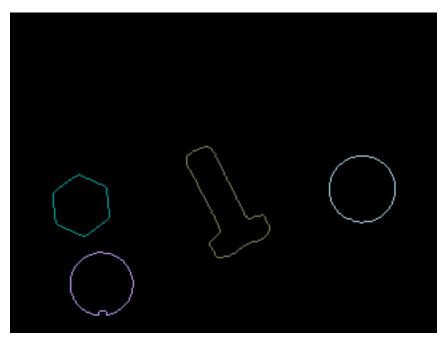
1	2	3
4		5
6	7	8

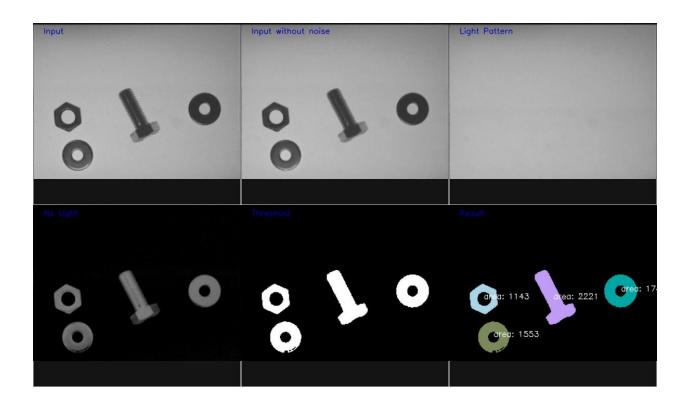




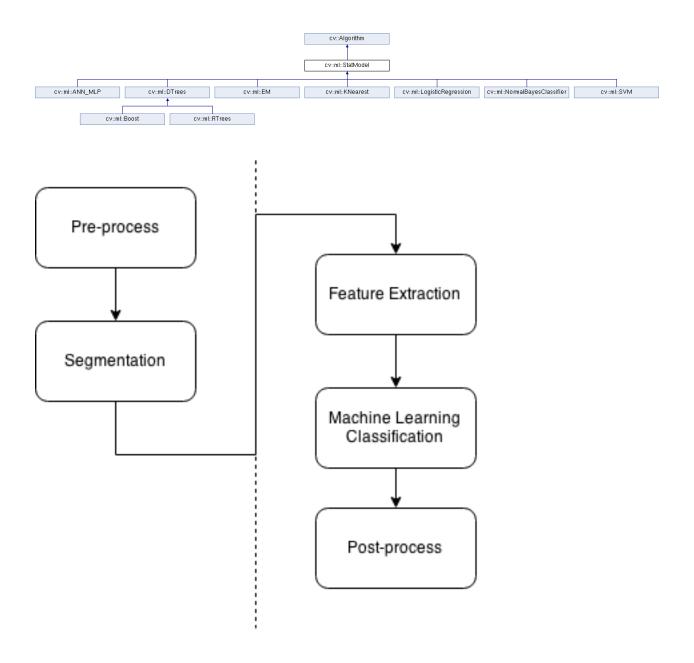


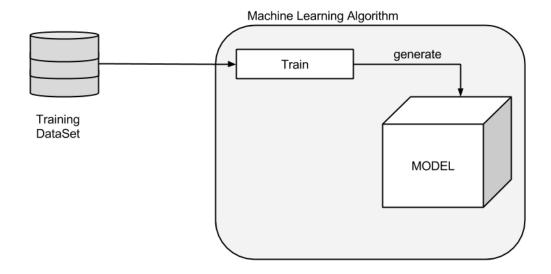


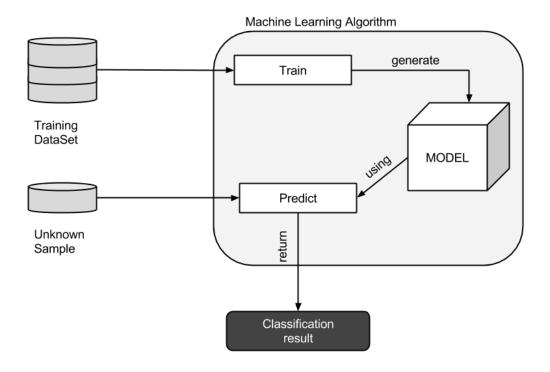


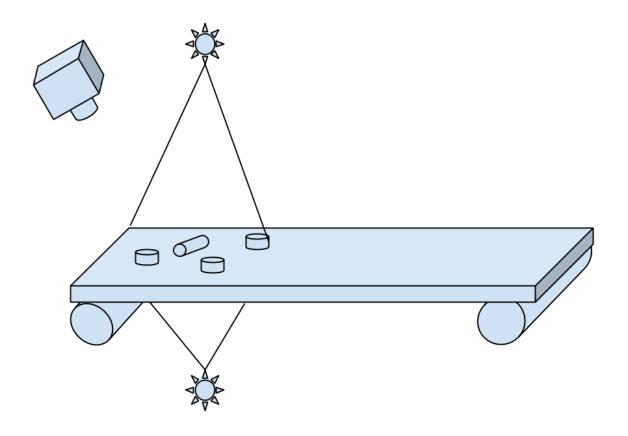


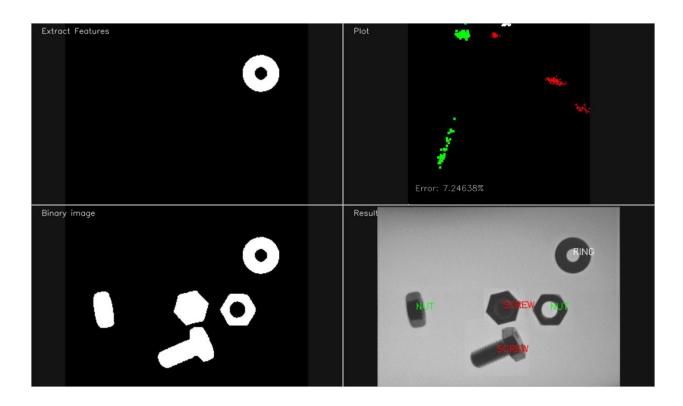
## **Chapter 6: Learning Object Classification**

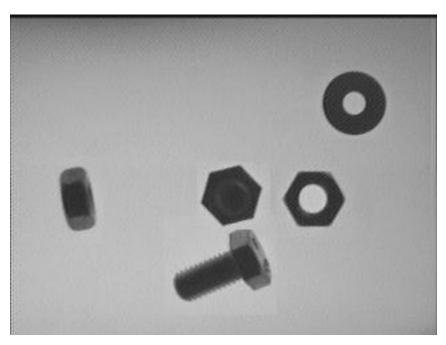


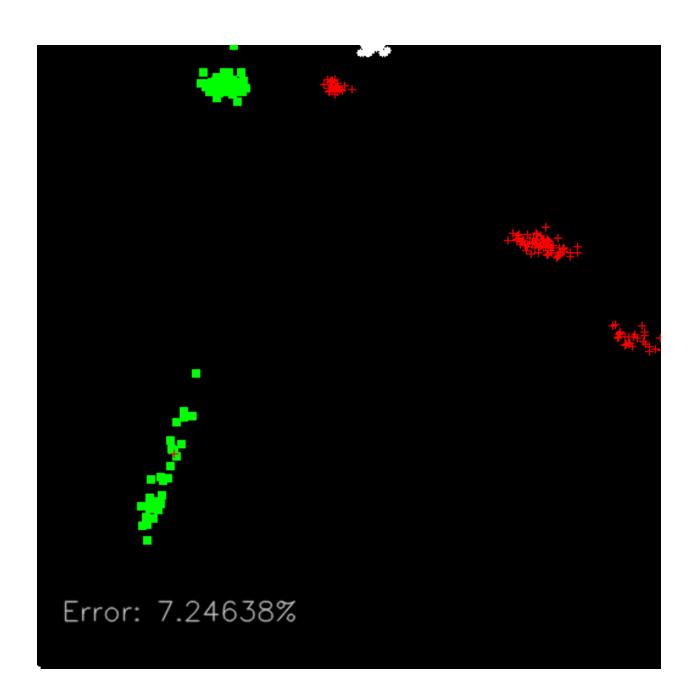


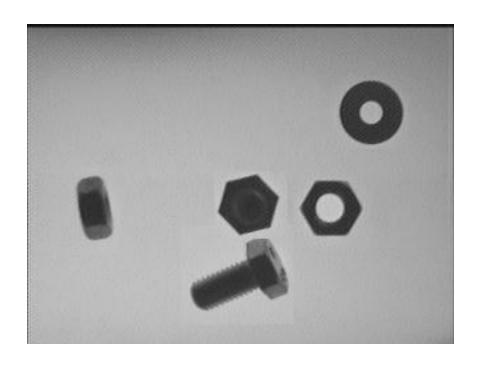


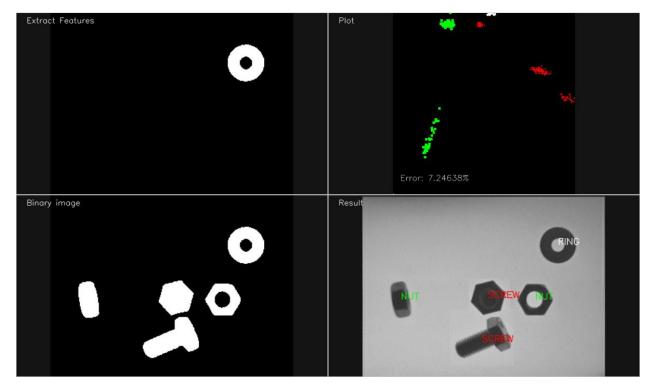




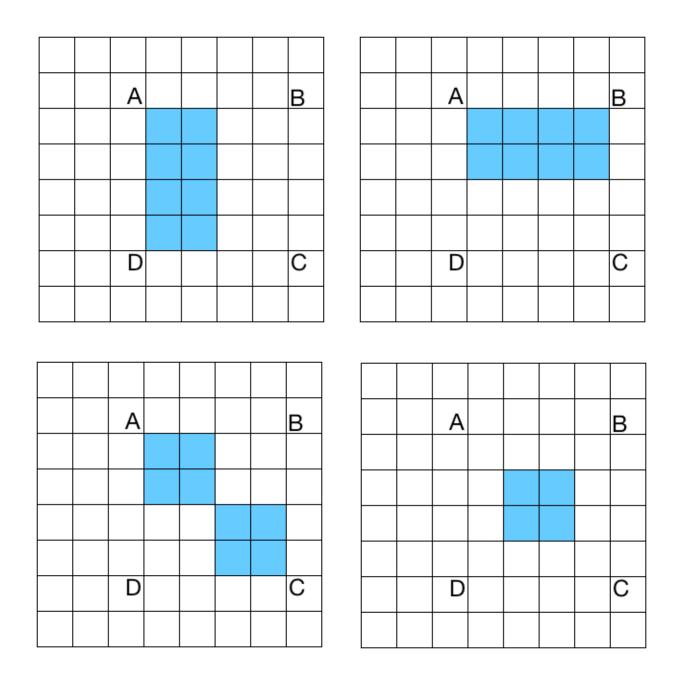




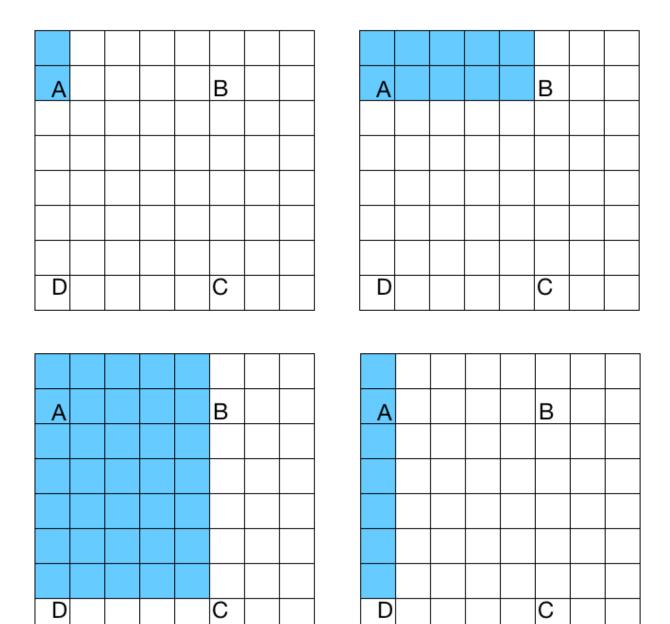




**Chapter 7: Detecting Face Parts and Overlaying Masks** 



Α			В	
D			С	





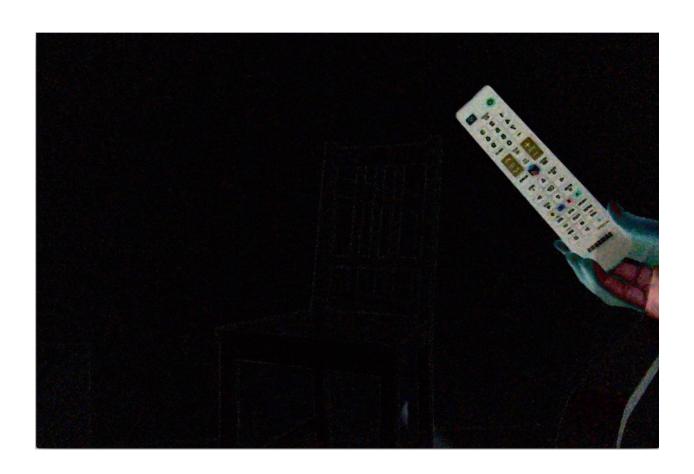


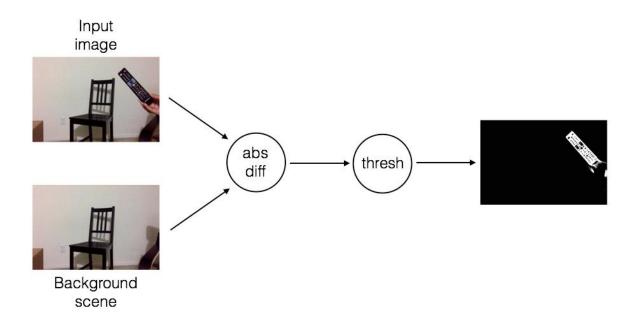


## **Chapter 8: Video Surveillance, Background Modeling, and Morphological Operations**





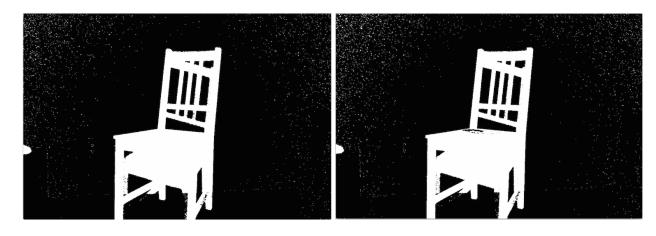






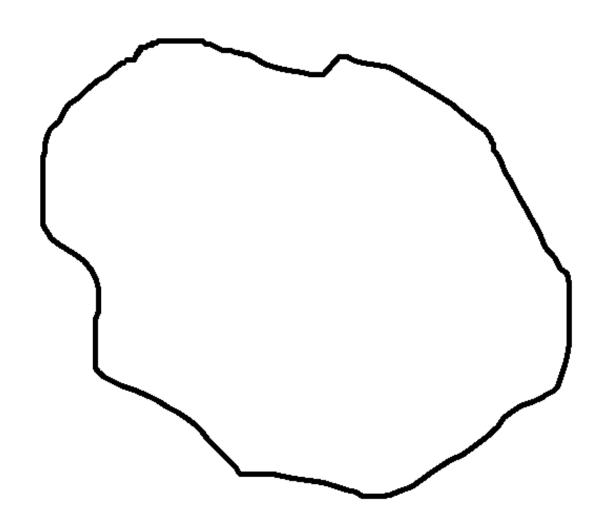






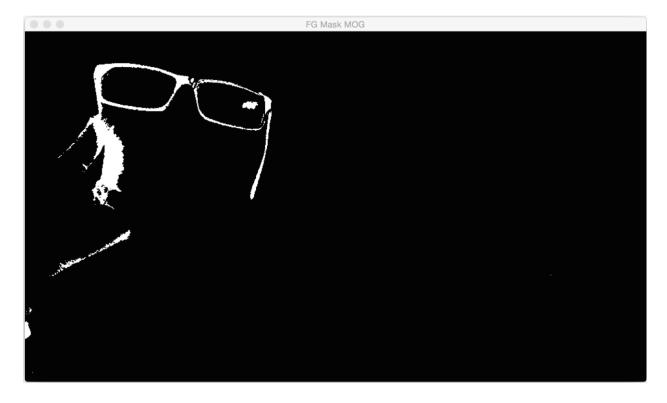


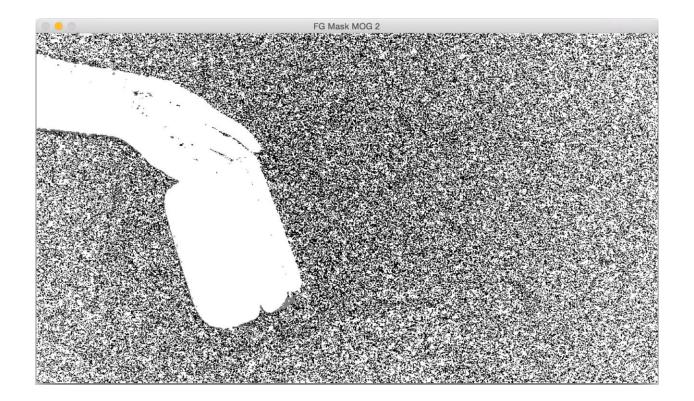












# Morphology

Morphology

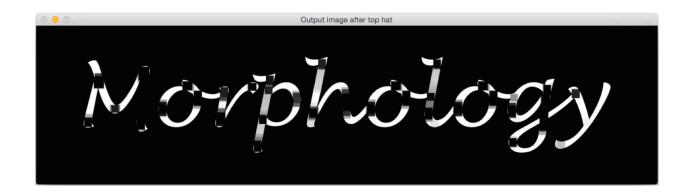
Morphology

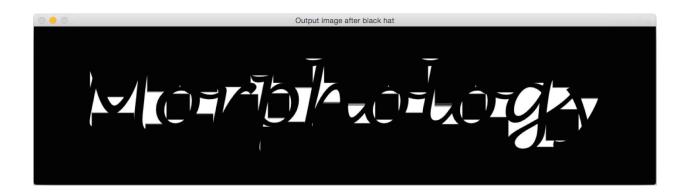
Output image after opening

Morphology

Output image after morphological gradient

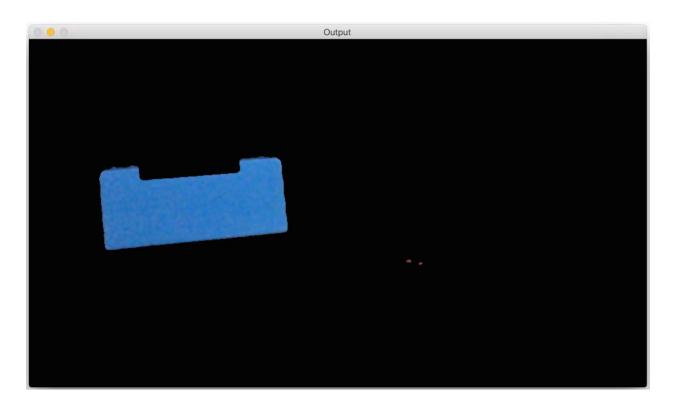
Monphological gradient





#### **Chapter 9: Learning Object Tracking**





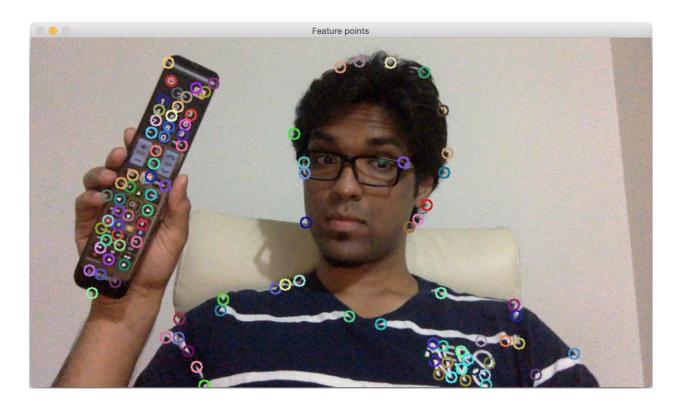








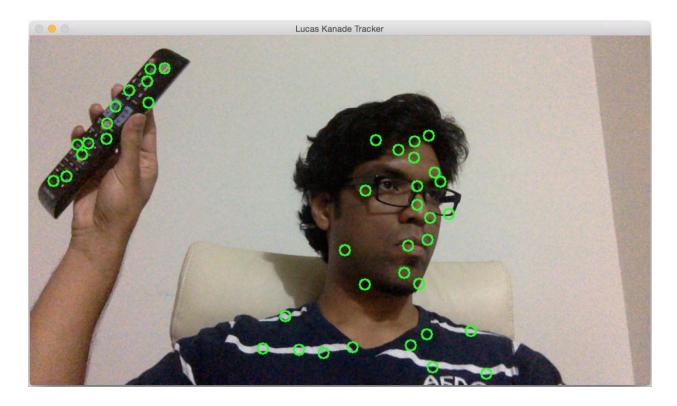




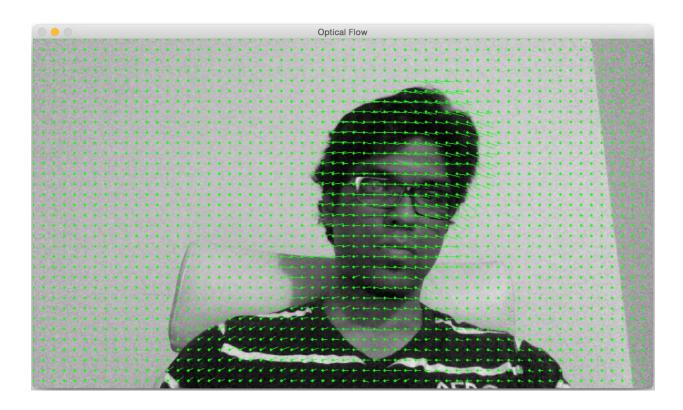








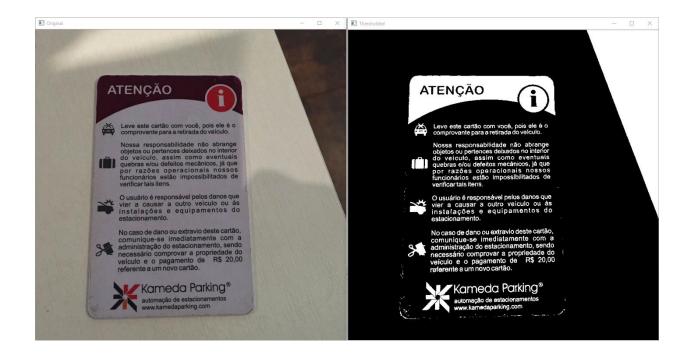


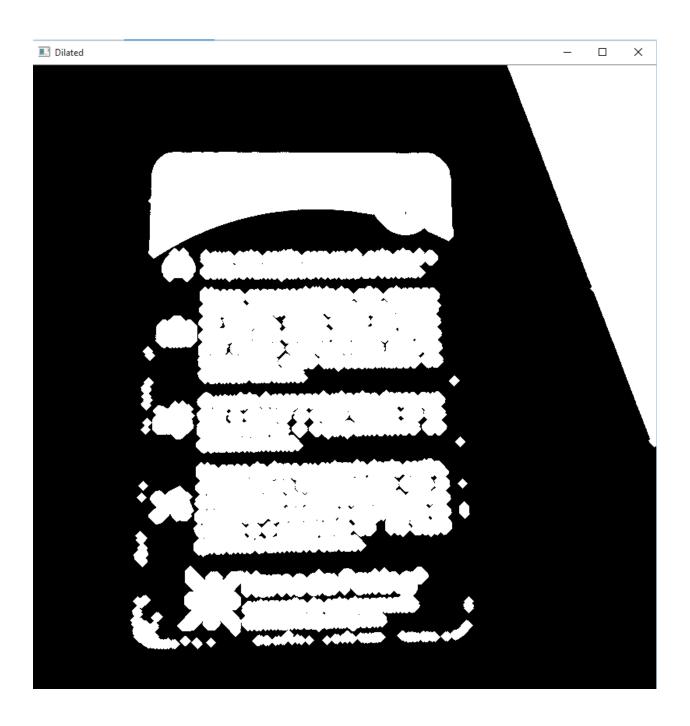


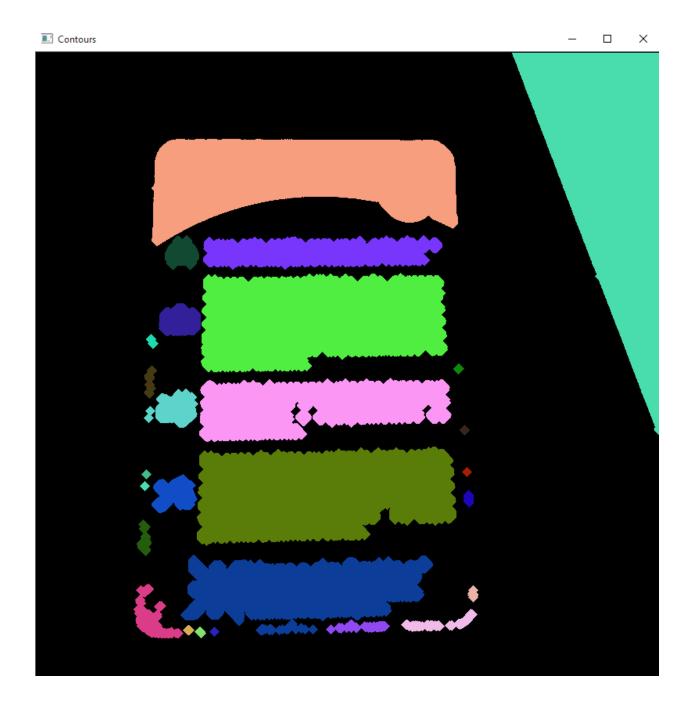


### **Chapter 10: Developing Segmentation Algorithms for Text Recognition**













Leve este cartão com você, pois ele é o

comprovante para a retirada do veículo.

No caso de dano ou extravio deste cartão, comunique-se imediatamente com a administração do estacionamento, sendo necessário comprovar a propriedade do veículo e o pagamento de R\$ 20,00 referente a um novo cartão.

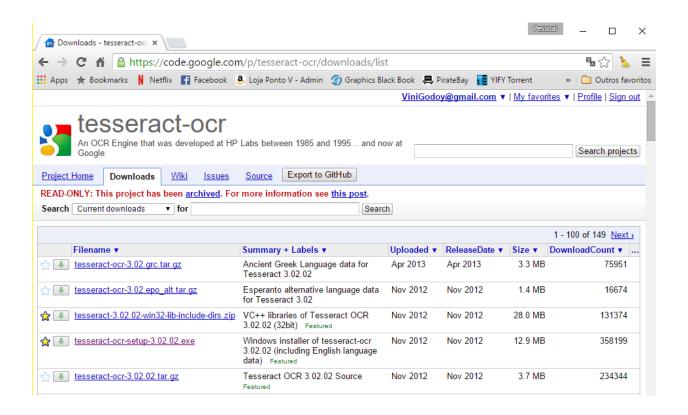
Х

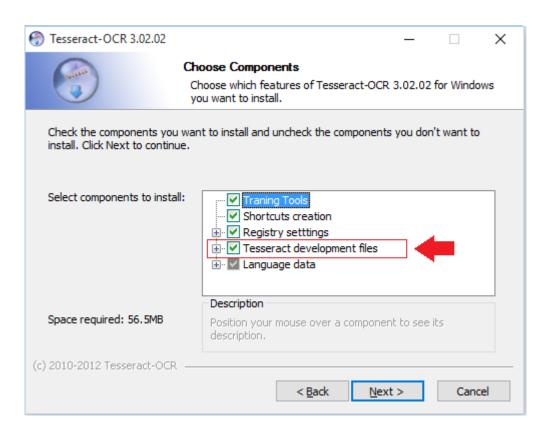
Nossa responsabilidade não abrange objetos ou pertences deixados no intenor do veículo, assim como eventuais quebras e/ou defeitos mecânicos, já que

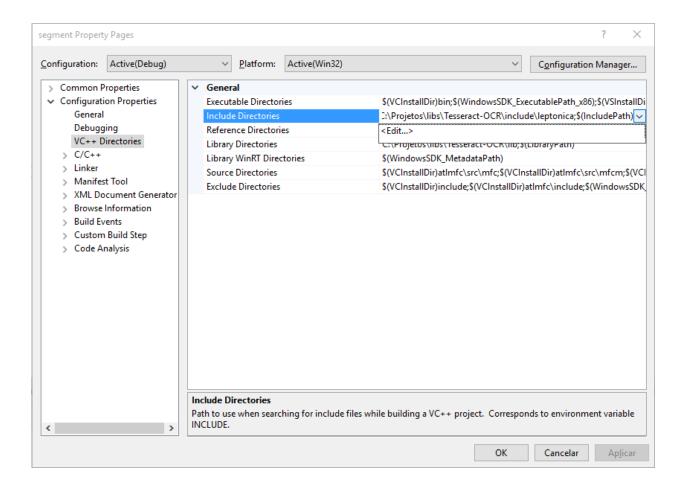
do veículo, assim como eventuals quebras e/ou defeitos mecânicos, já que por razões operacionais nossos funcionários estão impossibilitados de verificartais itens.



Cropped text

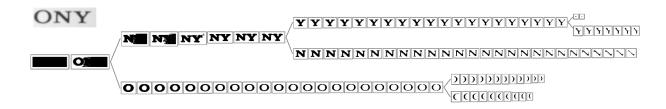






#### **Chapter 11: Text Recognition with Tesseract**









ESTAMOS

# ESTAMOS ATENDENDO CASA & PRESENTES

