Digital Image Processing

4th Edition

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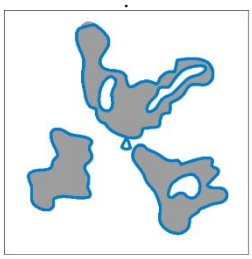
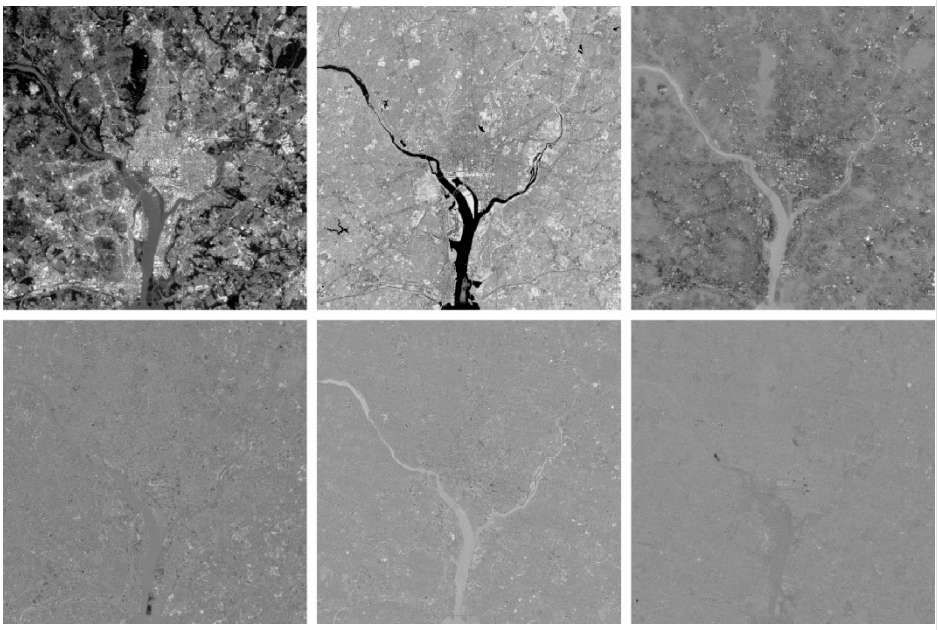
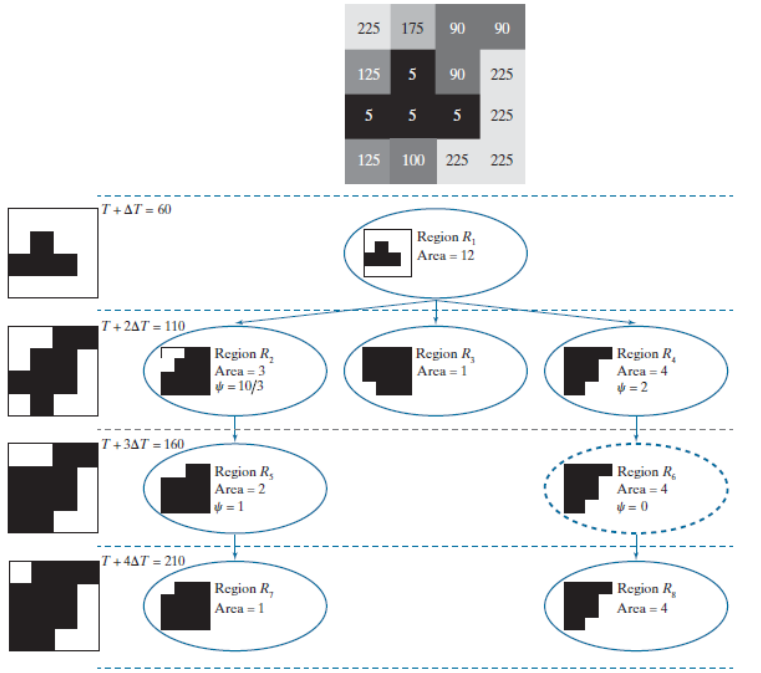
CORRECTIONS

Some of the corrections listed may already be incorporated in your printing of the book

Page	Reads	Should Read
55, six lines from bottom	$W/2$	$1/2W$
67-121	The running heads in Section 2.6 starting in pg. 67 show as 2.5. They all should be 2.6.	
71, Fig. 2.29 caption.	. . . 28 light years	. . . 28 million light years
97, Ex. 2.12, replace last line:	This event set has 11 elements because A and B share element (1,2). Thus, $P(A \approx B) = 11/36 = 0.31$.	
178-79	In Eq. (3-41) we made the implicit assumption that 1-D kernels are of dimension 1-by-n. Change a to b in the limits for consistency with Eq. (3-40). Then, in the 2nd line of pg 179, make the change a=0 and b=2, again for consistency.	
186, 2nd line below Eq. (3-53)	. . . a respectable 5.2.	. . . a respectable 5.5.
258, 1st eq. in Ex 4.2	$...dt = e^{-j2\pi\mu}$	$...dt = e^{-j2\pi\mu 0} = e^0 = 1$
276, Eq. (4-52)	$\delta(t,z) = \begin{cases} 1 & \text{if } t = z = 0 \\ 0 & \text{otherwise} \end{cases}$	$\delta(t,z) = \begin{cases} \infty & \text{if } t = z = 0 \\ 0 & \text{otherwise} \end{cases}$
300, equation, middle of page.	$(f \star h)(x) = \sum_{m=0}^{300} f(x)h(x-m)$	$(f \star h)(x) = \sum_{m=0}^{300} f(m)h(x-m)$
301, labels in Figs. 4.27(e),(j).	$(f \star g)(x)$	$(f \star h)(x)$
317, Ex 4.15, 6th line	. . . from Fig. 3.58(e)	. . . from Fig. 3.56(e)
341, Eq. (4-147)	The equation should read: $H(u,v) = (\gamma_H - \gamma_L)[1 - e^{-cD^2(u,v)/D_0^2}] + \gamma_L$	
343, below Eq. (4-148)	I the text below Eq. (4-148), lines 3, 6, and 12: replace "bandpass" with "bandreject"	
346, Eq. (4-154)	Both instances of n in the denominator should be $2n$.	
352, first line	$W_M^{u+K} = W_K^u$	$W_K^{u+K} = W_K^u$
353, Eq. (4-172)	$\alpha(n) = M \log_2 M$	$\alpha(p) = M \log_2 M$
387, 2nd line above Ex 5.5	. . . Problem 3.18	. . . Problem 3.47
408, Eq. (5-84)	Upper limit in last summation reads $M-1$	Replace with $N-1$
446, 1st line of Proj. 5.2(a)	. . . three levels	. . . four levels
456, top side comment box	Change $s_{3,0}$ to $s_{0,3}$.	
456, Eq. (6-22)	The elements of the second *column* vector should be: $s_{0,u}, s_{1,u}, ..., s_{N-1,u}$	
465, 3rd line from top	$x = 0, 1, ..., 7$	$x = 0, 1/8, ..., 7/8$
478, Step 3 of Example 6.19	The components of the column vector **h** should be 1, $e^{-j\pi/8}$, $e^{-j\pi/4}$, and $e^{-j3\pi/8}$	
489, last parag, penultimate line	. . . Fig. 6.16(b)	. . . Fig. 6.17(b)
506, Eq. (6-150)	$g_1(n) = (-1)^n h_0(n)$	$g_1(n) = (-1)^{n+1} h_0(n)$
563, Fig. 7.29 Caption	(d), (e)-(f) should read: (d) The required CMY mapping function. (e)-(f) The required CMYK mapping functions.	
598, Example 8.1	In the first eq. of the example, after the second term, insert the term "+ 0.25(3)"	
599, Table 8.1	Change the 2rd, 3rd, and 4th entries in the Code 1 col to: 10000000, 11000100, and 11111111	
696, Fig. 9.3(c)	Elements (3,5), (3,11), (5,5), and (5,11) should be 0 (white in the figure)	
832, 7 lines from bottom	set, Q, of observations . . .	set of Q vector observations . . .

832, 2 lines from bottom	. . . } be set of vector observations	. . . } be a set of vector observations
833, 3 lines above Eq. (10-85)	. . . partition the set Q of observations . . .	. . . partition the set of Q observations . . .
835, Fig. 10.50, caption line 1	600×480	600×800
844, 8 lines from bottom	. . . Eq. (10-4)	. . . Eq. (10-97)
908, 4th line from end of example	$1 + t$	$r + t$
973, 7th line of example	Figure 12.14(c)	Figure 12.14(d)
1018, 2nd parag. replace line 5	the pixels above the threshold as white and pixels at or below the threshold as	
1018 lines 6 and 7	… (all pixel values are at or above 0).	… , with 0-valued pixels showing as black.
1021 3rd parag line 7	… that do change	… that do not change
1121, 3rd line from top	… $\delta_{x,y}(\ell+1)$	$\delta_{u,v}(\ell+1)$
1126, last line of last parag	99.9%	99.4%
920, Fig. 11.20(e)	Figure 11.20(e) should look this: : 	
984, Eq. (12-23)	So that the eq will match Fig. 12.21, change it to: eccentricity $= \sqrt{\lambda_1^2 - \lambda_2^2}/\lambda_1 = \sqrt{1-(\lambda_2/\lambda_1)^2} \quad \lambda_1 \geq \lambda_2$	
984, 1st line below Eq. (12-23)	. . . For a line $\lambda_1 = 0$	. . . For a line $\lambda_2 = 0$
1007, Fig. 12.40	Figure 12.40 should look as follows. You can download a corrected, high resolution copy from http://www.imageprocessingplace.com/downloads_V3/public_downloads/DIP4E_Fig1240_Corrected.zip 	

1020, Fig. 12.51	Fig. 12.51 should look like this: 	
1073, Example 13.5	The multiplier in front of m1 and m2 should be $1/4$ instead of $1/3$	
1084, 4th line	. . . positive (i.e., 6)	. . . positive (i.e., 12)
1093, footnote, eq. in 3rd line	...$\exp[z_i(L)]$	...$\exp[z_k(L)]$
1105, 3rd line from bottom	0.02	0.5
1108, 2nd parag., 1st line	1887	1897
1118, Eq. (13-88)	The superscripts in the last summations on the second line should be (3) (3) instead of (2) (2)	
1133, 3rd parag. 2nd line	. . . *universality*	. . . *universal*
1142, Proj 13.9(d)	. . . for K = 1, 2, 3, 4, 5, 6 , . . .	. . . for K = 3, 4, 5, 6, 8, 12 , . . .

Possible Missing References

Roberts, L. G. [1965]. “Machine Perception of Three-Dimensional Solids,” in *Optical and Electro-Optical Information Processing*, Tippet, J. T. (ed.), MIT Press, Cambridge, MA.

Robertson, A. R. [1977]. “The CIE 1976 Color Difference Formulae,” *Color Res. Appl.*, vol. 2, pp. 7–11.

Rosenblatt, F. [1959]. “Two Theorems of Statistical Separability in the Perceptron,” In *Mechanisation of Thought Processes: Proc. of Symposium No. 10*, held at the National Physical Laboratory, November 1958, H. M. Stationery Office, London, vol. 1, pp. 421–456.

Rosenblatt, F. [1962]. *Principles of Neurodynamics: Perceptrons and the Theory of Brain Mechanisms*, Spartan, Washington, D. C.

Rosenfeld, A. and Kak, A. C. [1982]. *Digital Picture Processing*, vols. 1 and 2, 2nd ed., Academic Press, NY.

Ross, J. C. [2011]. *The Image Processing Handbook*, 6th ed., CRC Press, Boca Raton, FL.

Ross, S. M. [2014]. *A First Course in Probability*, 9th ed., Pearson Prentice-Hall, Upper Saddle River, NJ.

Russo F. and Ramponi, G. [1994].“Edge Extraction by FIRE Operators,” *Fuzz-IEEE ’94*, vol. 1, pp. 249–243, IEEE Press, New York.

Rumelhart, D. E., Hinton, G. E., and Williams, R. J. [1986]. “Learning Internal Representations by Error Propagation,” In *Parallel Distributed Processing: Explorations in the Microstructures of Cognition, Vol. 1: Foundations*, Rumelhart, D. E., et al. (eds.), MIT Press, Cambridge, MA, pp. 318–362.