

**Typos in *Discrete Fourier Analysis and Wavelets:  
Applications to Signal and Image Processing***

by Allen Broughton and Kurt Bryan

1. p. 8, line 5 “upper left corners” should read “lower right corners”
2. p. 10, #3d: this fragment runs on; put a semi-colon after “ $u + w = 0$ ”
3. p. 19, equation 1.15 and the line of text above: remove second “t” in the left hand side of each equation. That is, left side is  $e^{i\omega(t+\lambda)}$ .
4. p. 30, Remark 1.9, line 3 “some natural of measure of energy” should read “some natural measure of energy”
5. Pg. 42, first full paragraph: “we reconstruct approximately” should be “we reconstruct it approximately”
6. p. 44 , right side of the last equation should be

$$m + \left(k + \frac{1}{2}\right) h.$$

7. pg.54, last full paragraph: “can be a very useful” should be “can be very useful”
8. p. 61, Exercise 1.6.a, line 3 “product vector” should read “produce vector”
9. p. 63, Exercise 1.14b should read “Show that  $f(t) = ae^{i\omega t}$  is shifted  $\theta/\omega$  time units to the left, compared to  $|r|e^{i\omega t}$ .”
10. Pg. 71, 3rd paragraph, first sentence: “definition” should be plural.
11. Pg. 73, 2nd paragraph: “obtain sample vector” should be “obtain a sample vector”
12. p. 74, near bottom, displayed equation for  $g(t)$  should be

$$g(t) = 0.15(e^{2\pi i(47)t} + e^{2\pi i(-47)t}) - 0.4i(e^{2\pi i(12)t} - e^{2\pi i(-12)t}) + (e^{2\pi i(5)t} + e^{2\pi i(-5)t})$$

(the signs between the exponentials in each set of parentheses were reversed.)

13. p. 79, Remark 2.1, line 4 “refereed” should read “referred”.
14. p. 79, equation 2.7: The  $\mathbf{E}_{N,k}$  in the numerator should be  $\overline{\mathbf{E}_{N,k}}$ .
15. p. 79, last sentence of paragraph following equation (2.7): the word “maple” should be capitalized.
16. p. 81, last full paragraph, the phrase “ $\mathbf{x}$  and the DFT  $\mathbf{X}$ ” should be “ $\mathbf{x}$  and its DFT  $\mathbf{X}$ ”
17. p. 84 , line 12, the expression at the end of the line should be  $(|X_{-k}|^2 + |X_k|^2)/N$  (it’s currently missing the last “”).
18. p. 98, 2.8.1, part 3 “three (obviously) obviously largest frequencies” should read “three frequencies of (obviously) largest amplitude”
19. p. 98, 2.8.1, part 4 “these largest frequencies” should read “the frequencies of largest amplitude”
20. p. 100, second Matlab command omit period at the end, not a part of the command
21. p. 101, Exercise 2.4, line 1 insert “the” after the word “denote”
22. p. 133, second paragraph of exercise 4, the fragment “(command” at the end of the line can be removed, along with the “)” at the end of the sentence.
23. pg.149, Example 4.4, first paragraph near the end: “corresponds frequencies” should be “corresponds to frequencies”
24. p. 197, Exercise 5.2, second sentence the inequality  $0 \leq k \leq N - 1$  should be  $0 \leq m \leq N - 1$  (replace the  $k$  by an  $m$ .) Same exercise, the displayed formula should be

$$X_k = \frac{2}{1 - e^{-2\pi ik/N}}$$

(there’s currently an extra  $m$  in the exponent in the denominator.)

25. pg.221, Ex.6.7: We can strike the reference to example 6.15 (it occurs later in the text). Also, in the second displayed equation in this exercise there is a denominator obviously missing a square root sign (should be  $\frac{x_0}{\sqrt{2}}$ ).

26. pg.236, last equation: the  $\alpha_1(\mathbf{A})$  should be  $\alpha_2(\mathbf{A})$  (last line on the page).
27. p. 242, toward the end of the first paragraph  $H_s(z) = 1 - z^{-1}$  should be  $H_s(z) = -1 + z^{-1}$ .
28. p. 252, 6.8.1 part 3 “Repeat steps 2 through 3” should read “Repeat steps 1 and 2”
29. p. 252, 6.8.1 part 4 “Repeat steps 2 through 4” should read “Repeat steps 1 through 3”
30. pg. 252, step 2, first line: “to the original full-length” should be followed by “signal”
31. pg. 255, step 3: repeat steps 1-2, not 2-3
32. pg. 256, step 3: the first Matlab command should be

$$Y = \text{fullwave}(y1, 'd4', 4);$$

(the “y” should be replaced by “y1”).

33. pg.260, Prob. 6.10: missing closing parenthesis after ”equation (6.21)”  
Page 260, Problem 6.13 - In part b. there should be a  $(\mathbf{U}\mathbf{x})$  not  $(\mathbf{D}\mathbf{x})$  in each instance (two instances) because it is upsampling not down-sampling.
34. p. 292, equation (7.32): The first part of the equation should say

$$\bigcup_{k=-\infty}^{\infty} V_k \text{ is dense in } L^2(\mathbb{R}).$$

35. p. 333, solution to 6.22 should read: “We obtain causal filters with coefficients with coefficients  $(\ell_s)_0 = 1/2, (\ell_s)_1 = -1, (\ell_s)_2 = 1/2$  and  $(\mathbf{h}_s)_2 = -1, (\mathbf{h}_s)_1 = 2, (\mathbf{h}_s)_0 = 1$ . The filter bank has delay 3. (The second  $(\ell_s)_0$  should be a  $(\ell_s)_2$ , and the second  $(\mathbf{h}_s)_0$  should be  $(\mathbf{h}_s)_2$ ).