Errata to Third Printing
Computational Fourier Optics: A MATLAB Tutorial
6/6/2011

Location	Reads	Should Read
Pg. 22, Eq. (2.23)	$f(x) = ...$	$f_S(x) = ...$
Pg. 23, Eq. (2.24)	$\mathrm{F}(\mathrm{f}_\mathrm{X}) = ...$ no italics	$F_S(f_X) = ...$ *with italics*
Pg. 41, line 4	orelement by element	or element by element
Pg. 60, Fig. 4.5 caption	obscurations	obscuration
Pg. 73, comment (a)	D1 <2 places>	D_1
Pg. 74, Sec. 5.4.3, line 2	Section 5.3.1?	Section 5.3?
Pg. 76, comment (c):	integration result	analytic result
Pg. 118, 1 line from bottom	$\cos^2(2\pi bx) = \frac{1}{2}[1 - \cos(2\pi 2bx)]$	$\cos^2(2\pi bx) = \frac{1}{2}[1 + \cos(2\pi 2bx)]$
Pg. 119, line 2 after Eq. (7.17):	Applying Eq. (7.17),	Applying Eq. (7.15),
Pg. 128, line 2 before Eq. (7.27)	First, the Fourier transform then takes the squared modulus	First, find the Fourier transform then take the squared modulus
Pg. 129, code line 23	`OTF=abs(OTF/OTF(1,1));`	`OTF=OTF/OTF(1,1);`
Pg. 130, code line 26	`surf(fu,fv,fftshift(OTF))`	`surf(fu,fv,fftshift(abs(OTF)))`
Pg. 148, Eq. (8.9)	$h(\bar{u}_0, \bar{v}_0; u, v)$	$h(\hat{u}_0, \hat{v}_0; u, v)$
Pg. 149, line 6	$\bar{u}_0 = 0, \bar{v}_0 = 1$	$\hat{u}_0 = 0, \hat{v}_0 = 1$
Pg. 152, Fig. 8.5 caption	$\bar{u}_0 = 0, \bar{v}_0 = 0$	$\hat{u}_0 = 0, \hat{v}_0 = 0$
Pg. 157, line 2	(Table 8.1)	(Table 8.2)
Pg. 196, Eq. (A.21)	$\Delta x > \frac{\lambda z}{L}$	$\Delta x = \frac{\lambda z}{L}$
Pg. 210, Exercise 2.1, line 2	Nyquist frequency: 500, 5×10^4 ...	Nyquist frequency: 5×10^4 …

6/7/2011

Location	Reads	Should Read
Pg. 48, Eq. (4.1)	$u(P,t) = A(P)\cos[2\pi\nu t - \varphi(P)]$	$u(P,t) = A(P)\cos[2\pi\nu t - \phi(P)]$
Pg. 191, Eq. (A.2)	$\varphi_H(f_X, f_Y) = ...$	$\phi_H(f_X, f_Y) = ...$
Pg. 192, Eq. (A.3)	$\Delta f_X \left\| \frac{\partial \varphi_H}{\partial f_X} \right\|_{max} \le \pi$	$\Delta f_X \left\| \frac{\partial \phi_H}{\partial f_X} \right\|_{max} \le \pi$
Pg. 192, line 4	$\partial\varphi_H / \partial f_X = ...$	$\partial\phi_H / \partial f_X = ...$

7/7/2011

Location	Reads	Should Read
Pg. 24, line 10	98% level	98% power level
Pg. 109, Ex. 6.4, line 2	$2w_l = 25$ mm	$2w_L = 25$ mm
Pg. 115, line 3	lenses	lens
Pg. 155, Fig. 8.8 caption	for the $\hat{u}_0 = 0, \hat{v}_0 = 1$.	for the $\hat{u}_0 = 0, \hat{v}_0 = 1$ image point.
Pg. 169, line 14	Section 7.3.4	Section 7.2.4

Pg. 177, sec. 9.2.1, heading	Stochastic transmission screen	Stochastic transmittance screen
Pg. 194, sec A.1.2, line 4	Figure A.1(c) illustrates	Figures A.1(c) and (d) illustrate

10/7/11

Location	Reads	Should Read
Pg. 43, line 2 from bottom	Display complex	• Display complex
Pg. 100, Eq. (6.22)	$\frac{1}{2}\delta\left(f_{X1}-\frac{1}{P},f_{Y1}\right)-\frac{1}{2}\delta\left(f_{X1}+\frac{1}{P},f_{Y1}\right)$	$\frac{1}{2}\delta\left(f_{X1}+\frac{1}{P},f_{Y1}\right)-\frac{1}{2}\delta\left(f_{X1}-\frac{1}{P},f_{Y1}\right)$
Pg. 102, line 2	don't forget $1/\lambda z$	don't forget $1/\lambda f$
Pg. 102, line 10	`I2(M/2+1,:).`	`I2(M/2+1,:)).`
Pg. 109, Ex. 6.5 (a)	Rewrite Eq. (6.28)	Rewrite Eq. (6.29)
Pg. 126, line 6 from bottom	produce what is know	produce what is known
Pg. 130, line 4 from bottom	$y = 0.2 \times 10^{-4}$	$v = 0.2 \times 10^{-4}$
Pg. 136, Ex. 7.8 (b)	(see Exercise 7.6)	(see Exercise 7.7)
Pg. 142, after Eq. (8.1)	where ρ	where ρ
Pg. 161, line 4 from bottom	(a) Line 32:	(a) Line 31:
Pg. 226, Ex. 9.3	(b) $V = 0.335$.	(a) $V = 0.335$.
Pg. 229, Airy pattern	Airy pattern, 97, 109, 134	Airy pattern, 59, 97, 109, 134

2/21/12

Location	Reads	Should Read
Pg. 5, Table 1.2	$\mathrm{circ}\left(\sqrt{x^2+y^2}\right)=\begin{cases}1 & \sqrt{x^2+y^2}<\frac{1}{2},\\ \frac{1}{2} & \sqrt{x^2+y^2}=\frac{1}{2},\\ 0 & \text{otherwise.}\end{cases}$	$\mathrm{circ}\left(\sqrt{x^2+y^2}\right)=\begin{cases}1, & \sqrt{x^2+y^2}<1\\ \frac{1}{2}, & \sqrt{x^2+y^2}=1\\ 0, & \text{otherwise.}\end{cases}$
Pg. 7, Table 1.3, bottom left	$\exp\left[-j\pi\left(\frac{x^2}{a^2}+\frac{y^2}{b^2}\right)\right]$	$\exp\left[j\pi\left(\frac{x^2}{a^2}+\frac{y^2}{b^2}\right)\right]$
Pg. 21, line 8 from bottom	as far programming	as far as programming
Pg. 54, Eq. (4.24)	$H(f_X,f_Y)=e^{jkz}\exp[j\pi\lambda z(f_X^2+f_Y^2)]$	$H(f_X,f_Y)=e^{jkz}\exp[-j\pi\lambda z(f_X^2+f_Y^2)]$
Pg. 60, Ex. 4.4, line 4	for the above apertures	for the apertures
Pg. 139, part (e)	The result of step (4)	The result of step (d)
Pg. 139, part (f)	the result of step (5)	the result of step (e)
Pg. 176, line 18	$\tau=\Delta d/c=1.67\times10^{-10}$	$\tau_c=\Delta d/c=1.67\times10^{-10}$
Pg. 209, Ex. 1.2 (c)	$\pi w^2\exp[-\pi w^2(f_X^2+f_Y^2)]$	$\pi w^2\exp[-\pi^2 w^2(f_X^2+f_Y^2)]$
Pg. 210, Ex. 2.2 (a)	10 cycles/mm, 0.05 mm, 12.8 mm	5 cycles/mm, 0.1 mm, 25.6 mm
Pg. 212, Ex. 4.1	$\mathrm{OPD}=kd_1(n_1-1)-kd_2(n_2-1)$	$\mathrm{OPD}=d_1(n_1-1)-d_2(n_2-1)$
Pg. 212, Ex. 4.2	Fresnel z > ~2 m, Fraunhofer z > ~20 m.	Fresnel z > ~0.5 m, Fraunhofer z > ~5 m.

5/10/12

Location	Reads	Should Read
Pg. 118, line 1	Eq. (7.8)	Eq. (7.7)
Pg. 139, line 3	step (3).	step (c).
Pg. 147, line 9	Eqs. (7.8) and (7.22)	Eqs. (7.7) and (7.26)
Pg. 213, Ex. 4.5	$\ldots\left[1+\frac{2A_1A_2}{A_1+A_2}\cos\ldots\right.$	$\ldots\left[1+\frac{2A_1A_2}{A_1^{\,2}+A_2^{\,2}}\cos\ldots\right.$
Pg. 214, Ex. 5.1	(b) 100 cycles/m, yes, 100; 5, okay…	(b) 100 cycles/m, yes, 100. (c) 5, okay for this simple aperture.
Pg. 215, Ex. 5.3 (b)	for long-distance IR	for short- and long-distance IR
Pg. 220, Ex. 7.2 (c)	$M \geq 435$	$M \geq 426$

11/18/13

Location	Reads	Should Read
Pg. 45, Ex. 3.1 (a)	`ask=abs(x)<=1;`	`mask=abs(x)<=1;`
Pg. 67, code line 26	`I2=abs(u2.^2);`	`I2=abs(u2).^2;`
Pg. 209, Ex. 1.2 (b)	$\ldots\exp(-j2\pi\, d\, f_X)$	$\ldots\exp(-j2\pi\, x_0 f_X)$