

# ERRATA

(Updated June 17, 2004)

**“Realistic Image Synthesis using Photon Mapping”**  
**Henrik Wann Jensen**  
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(lfb=line from bottom; lft=line from top)

- Page vi, 14<sup>th</sup> lft. “mathematicians” should be “mathematician”. (Thanks to Per Christensen)
- Page vi, 1<sup>st</sup> lfb. “repetoire” should be “repertoire”. (Thanks to Takeshi Naemura)
- Page 8, Figure 1.5, “Absorbtion” should be “Absorption”. (Thanks to Takeshi Naemura)
- Page 16, 6<sup>th</sup> lfb. remove extra “is”. (Thanks to Piero Foscari)
- Page 16, 5<sup>th</sup> lfb. exchange “longitude” and “latitude”. (Thanks to Takeshi Naemura)
- Page 17, Equation 2.14 should be:  $E(x) = \frac{\Phi_s \cos \theta}{4\pi r^2}$  (Thanks to Koji Nakamaru)
- Page 17, 12<sup>th</sup> lfb. “denominator” should be “numerator” (Thanks to Koji Nakamaru)
- Page 20, Equation 2.20, could technically be  $\leq 1$  rather than  $< 1$ . (Thanks to Piero Foscari)
- Page 21, Equation 2.21, should include  $(\vec{n} \cdot \vec{\omega}')$  for each  $d\vec{\omega}'$  in integrals (Thanks to Sampo Smolander, François Bertel), and Rick Speer
- Page 21, Equation 2.23, should include  $(\vec{n} \cdot \vec{\omega})$  in integral. (Thanks to Sampo Smolander, François Bertel, Thorsten Ottosen and Kevin Beason)
- Page 21, 11<sup>th</sup> lfb.  $\int_{\Omega} d\vec{\omega} = \pi$  should be  $\int_{\Omega} (\vec{n} \cdot \vec{\omega}) d\vec{\omega} = \pi$  (Thanks to François Bertel)
- Page 22, Equation 2.24 is actually a cosine weighted distribution and not uniform according to the solid angle. (Thanks to Anders Wang Kristensen)
- Page 23, Equation 2.28,  $\rho_{\perp}$  should be computed as:  $\rho_{\perp} = \frac{\eta_1 \cos \theta_1 - \eta_2 \cos \theta_2}{\eta_1 \cos \theta_1 + \eta_2 \cos \theta_2}$  (Thanks to Steve Marschner)
- Page 24, 11<sup>th</sup> lfb. phenomological should be phenomenological (Thanks to Kevin Beason)
- Page 26, 13<sup>th</sup> lfb.  $w$  should be computed as:  $w = \vec{T} \cdot \frac{\vec{H} - (\vec{n} \cdot \vec{H})\vec{n}}{|\vec{H} - (\vec{n} \cdot \vec{H})\vec{n}|}$  (Thanks to Colin Withers)
- Page 26, Equation 2.35. First term should be:  $Z(t) = \frac{\sigma}{(1 + \sigma t^2 - t^2)^2}$  (Thanks to Theo Engell-Nielsen)
- Page 27, Equation 2.37. Should be:  $D(t, v, v', w) = \frac{G(v)G(v')Z(t)A(w)}{4\pi v v'} + \frac{1 - G(v)G(v')}{\pi} A(w)$  (Thanks to Pascal Mignot and Sampo Smolander)
- Page 27, Equation 2.41. First term should be:  $t = \sqrt{\frac{\xi_1}{\sigma - \xi_1 \sigma + \xi_1}}$  (Thanks to Morten Lang)
- Page 28, Equation 2.45.  $\vec{\omega}$  should be  $\vec{\omega}'$ . (Thanks to Manfred Ernst)
- Page 45, Equation 3.7.  $i = 0$  should be  $j = 0$ . (Thanks to Takeshi Naemura)
- Page 51, 1<sup>st</sup> lft. “This” should be “The”. (Thanks to Piero Foscari)
- Page 57, Pseudocode in 5.3. The do-loop should be: (Thanks to Colin Withers)
- ```

do {
    use rejection sampling to find new photon direction
    x = 2ξ1 - 1      ξ1 ∈ [0, 1] is a random number
    y = 2ξ2 - 1      ξ2 ∈ [0, 1] is a random number
    z = 2ξ3 - 1      ξ3 ∈ [0, 1] is a random number
} while ( x2 + y2 + z2 > 1 )

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- Page 58, 1<sup>st</sup> lfb. “with” should be “will”. (Thanks to Rasmus Tamstorf)
- Page 61, 10<sup>th</sup> lft. “includes” should be “include”. (Thanks to Piero Foscari)
- Page 62, Equation 5.3 should use  $L_n$  rather than  $L$  (Thanks to Piero Foscari)
- Page 63. “ $p_{s,avg}$ ” should be “ $\rho_{s,avg}$ ”, and “ $p_{d,avg}$ ” should be “ $\rho_{d,avg}$ ” (Thanks to Suzuki Masuo)
- Page 69, 6<sup>th</sup> lft. remove extra “makes”. (Thanks to Piero Foscari)
- Page 70, 9<sup>th</sup> lft. “acos(dx)” should be “acos(dz)”. (Thanks to Stephen Westin)
- Page 71, 7<sup>th</sup> lfb. Add space between “,” and “it”. (Thanks to Piero Foscari)
- Page 77, Equation 7.1. “ $\Omega$ ” should be “ $\Omega_x$ ”. (Thanks to Thorsten Ottosen and Dennis Kristensen)
- Page 77, Equation 7.3. “ $d\vec{\omega}'_i$ ” should be “ $d\vec{\omega}'$ ”. (Thanks to Piero Foscari)
- Page 79, 1<sup>st</sup> lfb. “to leak” should be “from leaking”. (Thanks to Piero Foscari)
- Page 81, Figure 7.4, line 10,  $(2\pi r^2)$  should be  $(\pi r^2)$ . (Thanks to Eugene Lee)
- Page 82, 3<sup>rd</sup> lfb.  $\alpha$  should be 1.818 and not 0.918. (Thanks to Kevin Beason)
- Page 82, Equation 7.11, add missing factor  $\frac{1}{\pi r^2}$ . (Thanks to Jon Frydensbjerg)

