

Corrections

Note: I would like to thank Cynthia Bruyns of Stanford University for pointing out these typos and errors.

Basdogan, C., Ho, C., Srinivasan, M.A., 2001, “[Virtual Environments for Medical Training: Graphical and Haptic Simulation of Common Bile Duct Exploration \(PDF\)](#)”, *IEEE/ASME Transactions on Mechatronics* (special issue on Haptic Displays and Applications), Vol. 6, No.3, pp. 267-285.

- 1) There is a typing error in page 275 of the article. The entries of the second column (i.e. the second partition) of the large matrix at the end of the page appear as $(k_{3x3}^{13})_b$, $(k_{3x3}^{23})_b$, and $(k_{3x3}^{33})_b$ in the article. The subscripts of these sub-matrices should be changed to $(k_{3x3}^{11})_b$, $(k_{3x3}^{21})_b$, and $(k_{3x3}^{31})_b$. Please see the correct version below.



$$\begin{bmatrix}
 (k_{2x2}^{11})_m & 0 & 0 & 0 & 0 & (k_{2x2}^{12})_m & 0 & 0 & 0 & 0 & (k_{2x2}^{13})_m & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & (k_{3x3}^{11})_b & 0 & 0 & (k_{3x3}^{12})_b & 0 & 0 & 0 & 0 & (k_{3x3}^{13})_b & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 (k_{2x2}^{21})_m & 0 & 0 & 0 & 0 & (k_{2x2}^{22})_m & 0 & 0 & 0 & 0 & (k_{2x2}^{23})_m & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & (k_{3x3}^{21})_b & 0 & 0 & (k_{3x3}^{22})_b & 0 & 0 & 0 & 0 & (k_{3x3}^{23})_b & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 (k_{2x2}^{31})_m & 0 & 0 & 0 & 0 & (k_{2x2}^{32})_m & 0 & 0 & 0 & 0 & (k_{2x2}^{33})_m & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & (k_{3x3}^{31})_b & 0 & 0 & 0 & (k_{3x3}^{32})_b & 0 & 0 & 0 & (k_{3x3}^{33})_b & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
 \end{bmatrix}$$

(Eq. 5)

2) It also appears that some of the entries of the A[9][9] matrix in page 281 have been contaminated with an additional “ y_2 ” term in the article.

The way that they appear in the article:

$$A[8][5] = \frac{2}{3}(1-\nu)x_3y_2(x_3y_2 + (y_2 + y_3))$$

$$A[8][6] = \frac{2}{3}x_3y_2(x_3y_2 + \nu(y_2 + y_3))$$

$$A[8][7] = \frac{1}{2}x_3^2y_2\{2\nu x_3y_2 + (y_2 + 2y_3)\}$$

$$A[8][8] = \frac{1}{3}x_3y_2\{(3-2\nu)(x_3^2y_2) + (2-\nu)(x_3y_2)(y_2 + 2y_3) + (3-2\nu)(y_2^2 + y_2y_3 + y_3^2)\}$$

The corrected terms:

$$A[8][5] = \frac{2}{3}(1-\nu)x_3y_2(x_3 + (y_2 + y_3))$$

$$A[8][6] = \frac{2}{3}x_3y_2(x_3 + \nu(y_2 + y_3))$$

$$A[8][7] = \frac{1}{2}x_3^2y_2(2\nu x_3 + (y_2 + 2y_3))$$

$$A[8][8] = \frac{1}{3}x_3y_2\{(3-2\nu)x_3^2 + (2-\nu)x_3(y_2 + 2y_3) + (3-2\nu)(y_2^2 + y_2y_3 + y_3^2)\}$$