

Errata for

## Geometric Modeling with Splines: An Introduction

by

Cohen, Riesenfeld, and Elber

### 1 Chapter 1

1. page 15, just below Definition 1.26. The text discusses that matrix multiplication is not commutative. Matrix  $B$  is incorrect and should be

$$B = \begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$$

### 2 Chapter 3

1. p. 106, section 3.8 shows parametric definitions for the equations defining the  $m$  pieces. The one for  $\gamma_m(t)$  should be

$$\gamma_m(t) = \frac{(m-t)^2 P_m + 2(\sqrt{K_m})^{-1}(t-(m-1))(m-t)T_m + (t-(m-1))^2 P_{m+1}}{(m-t)^2 + 2(\sqrt{K_m})^{-1}(t-(m-1))(m-t) + (t-(m-1))^2}$$

2. p. 108, Algorithm 3.21 the last line on the page currently:  
such that  $K = 4\lambda(1-\lambda)$ , can be ...  
SHOULD BE: such that  $K = 4\lambda/(1-\lambda)$ , can be ...

### 3 Chapter 4

1. page 121, section 4.4, the second line of the last paragraph on the page refers to  $(B, B')$ . It is the inner product and should be written  $\langle B, B' \rangle$ .

## 4 Chapter 6

1. p 184, definition 6.7 SHOULD READ:

Let  $t_0 \leq t_1 \leq \dots \leq t_N$  be a sequence of real numbers. For  $\kappa = 0, \dots, N - 1$ , and  $i = 0, \dots, N - \kappa - 1$ , define the  $i^{\text{th}}$  (normalized) B-spline of degree  $\kappa$  and order  $k = (\kappa + 1)$  as

$$\mathcal{B}_{i,0}(t) = \begin{cases} 1 & \text{for } t_i \leq t < t_{i+1} \\ 0 & \text{otherwise} \end{cases}$$

and for  $\kappa > 0$ ,

$$\mathcal{B}_{i,\kappa}(t) = \begin{cases} \frac{(t-t_i)}{t_{i+\kappa}-t_i} \mathcal{B}_{i,\kappa-1}(t) + \frac{(t_{i+1+\kappa}-t)}{t_{i+1+\kappa}-t_{i+1}} \mathcal{B}_{i+1,\kappa-1}(t), & t_i < t_{i+1+\kappa}, \\ 0 & \text{otherwise.} \end{cases}$$

Although the concept of polynomial degree...