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ENSC474 – SFU – Spring 2017

Assignment 2

Task 1 & 2

- Function $z = \text{ValueAt}(A, x, y)$ returns the value of a grayscale image at location x and y by first finding the values of integer neighbors of the point (x, y) and using the **Bilinear** interpolation formula:

$$f_{\alpha,\beta} = (1 - \alpha)(1 - \beta)f_1 + \alpha(1 - \beta)f_2 + \alpha\beta f_3 + \beta(1 - \alpha)f_4$$

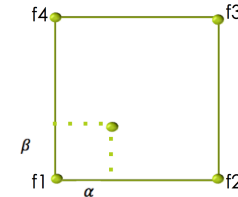


Figure 1: Bilinear Interpolation

- Resampling is done by calculating the new dimensions of the image and finding the position of new samples in the image. The above function then is used to interpolate the value of each new sample.



Figure 2: Image to resample

Task 2 & 3

Figure 2: color and gray scale mugshots

Img2: $\alpha = 10, b = 0.1$



Img3: $\alpha = 3, b = 0.3$



Img1: $\alpha = 0.1, b = 10$



Img4: $\alpha = 0.4, b = 4$



Img5: $\alpha = 0.25, b = 8$

