BIL464 Multimedia Systems
2014-2015 Fall

Laboratory Experiment 3

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Objectives

- Vector graphics

Before completing this worksheet, you should view the on-line interactive tutorial "Vector Graphics and the Mathematics of Curves". This tutorial can be accessed at my Web site: http://www.baskent.edu.tr/~msert/courses/bil464/bil464.html

1. Bézier curves are defined by the basis matrix

$$\boldsymbol{M} = \begin{bmatrix} -1 & 3 & -3 & 1 \\ 3 & -6 & 3 & 0 \\ -3 & 3 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$$

and the geometry matrix

$$\boldsymbol{G} = \begin{bmatrix} \boldsymbol{p}_0 \\ \boldsymbol{p}_1 \\ \boldsymbol{p}_2 \\ \boldsymbol{p}_3 \end{bmatrix}$$

Let $\boldsymbol{p}_0$ = (2,7), $\boldsymbol{p}_1$ = (3,8), $\boldsymbol{p}_2$ = (3,5), and $\boldsymbol{p}_3$ = (3,6). Give the parametric equations $x(t)$ and $y(t)$ that would describe a Bézier curve defined by these points.

2. Evaluate the parametric equations you derived at t = (0.5, 0.5).

3. Try to draw the curve in a vector graphics program (in your case Matlab ;)).

4. Verify that the point you computed in #2 above is on the curve.