

**A COMPARISON BETWEEN  $\lambda\mu$  B-SPLINE, CUBIC  
TRIGONOMETRIC BEZIER AND QUASI-QUINTIC  
TRIGONOMETRIC BEZIER**

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## DECLARATION BY CANDIDATE

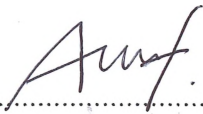
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## ABSTRACT

In dealing with curves and surface of shapes, Computer-Aided Geometric Design (CAGD) is an application used widely in numerous fields such as medical, automotive, aerospace and shipbuilding. B-Spline and Bezier are methods, which play major roles in developing these curves in CAGD whether for two-dimensional shape or three-dimensional shape. Lately, few researches that come out with numerous methods of Bezier and B-Spline with multiple shapes parameter have been found. With multiple shape parameters, it gives a local control on the shape curve and flexibility in adjusting the behavior of the shapes compare to single shape parameters. Hence, in this research,  $\lambda\mu$  B-Spline curve, cubic trigonometric Bezier curve and quasi-quintic trigonometric Bezier curve with two shape parameters  $\lambda$  and  $\mu$  are present in designing two-dimensional shapes to show the differences between all the methods. Therefore, designers can see clearly the differences and have the best method in generating curves. . A comparison between these three methods are made from a few aspects such as shape parameters behavior, generation of curves and control points. The control polygon is kept unchanged while the modification of the shape parameters is made on different shape of curves time by time. The behavior of each shape are observe. The observation shows that  $\lambda\mu$  B-Spline of  $\lambda=1$  and  $\mu=1$  is the best method to apply in designing two-dimensional shapes as it give more advantages compared to the other two methods, cubic trigonometric Bezier and quasi-quintic trigonometric Bezier. From all the comparisons that have been made, a designing tool with altering shapes parameter function are generate.

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