MANCHESTER 1824
The University of Manchester

COMP37111: Advanced Computer Graphics

Workshop 1 : Modeling Curves

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Welcome to the first workshop of COMP37111!

Let's safely assume you already watched the videos for week 1 then, with this assumption in place, we go over the following questions together. Please pair-up with your neighbours, discuss the following questions and feel free to use your phones and laptops.

These questions are designed to first establish an understanding of why bothering learning curves?! Then, introduce widely used methods for modeling them, followed by some stretching exercises to help you understand any math you see in this topic.

1. Why curves? *most simple in 2D*
2. Then, why there are more than one type of curve?
3. Who really first invented Bezier curves and what for?
4. In the following figure, Which pair of curves is Bezier?
5. What are the advantages and disadvantages of Bezier vs B-Spline curve?
6. True or false: In Bezier, the degree of the polynomial defining the curve segment is one less than the number of defining polygon points.
7. True or false: B-Spline allows the order of the basis function so the degree of the resulting curve is independent of the number of vertices.
8. What is the general function f(t) for quadratic and cubic Bezier curves? Use these to derive the 4x4 matrix so it no longer looks scary.
9. Consider a Bezier curve with control points (1,0), (1,1), (0,1). Using the matrix you derived for question 8, what is the mid point on the curve?