

Lab 1 - 2D Bézier Curves

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0 Assignments

1. Draw Bézier curve with the de Casteljau algorithm
2. Drag control points to change their position
3. Draw Bézier curve with the optimized adaptive subdivision method

1 De Casteljau algorithm

The de Casteljau algorithm was implemented in the *deCasteljau()* function taking in input *t* as parameter value, an *inArray* containing the control points coordinates, an *outArray* containing the algorithm's results and the *size* of the inArray array.

2 Drag control points to change their position

This functionality was implemented by checking if the clicked point has already a control point in the *isControlPoint()* function. If yes, this function returns the index of the control point hit, which gets saved in the *SelectedCP* global variable. Then, the function *myMotionFunc* handles the logical and graphical update of the point.

3 Optimized adaptive subdivision method

This algorithm was implemented in the recursive function *adaptiveSubdivision()*, which takes in input a *tempArray* of control points and its size. Then, it uses the *deCasteljauASCP* function, a revisited version of the previously implemented one which saves the intermediate results of the algorithm instead of the final ones.