

SDCurve.js

A JavaScript Library for Interactive Subdivision Curves



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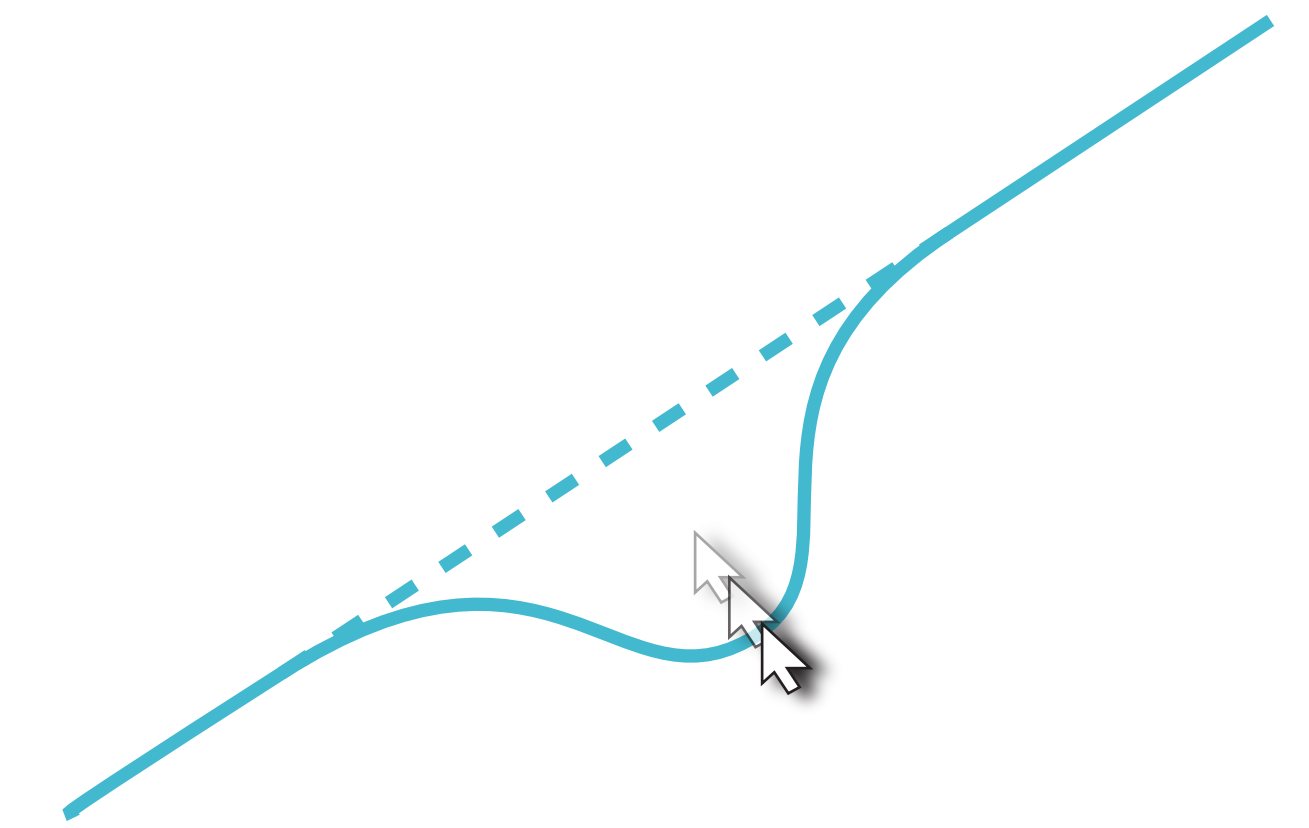
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PURPOSE

SDCurve.js is a curve library that makes it easy to **interact** with curves.

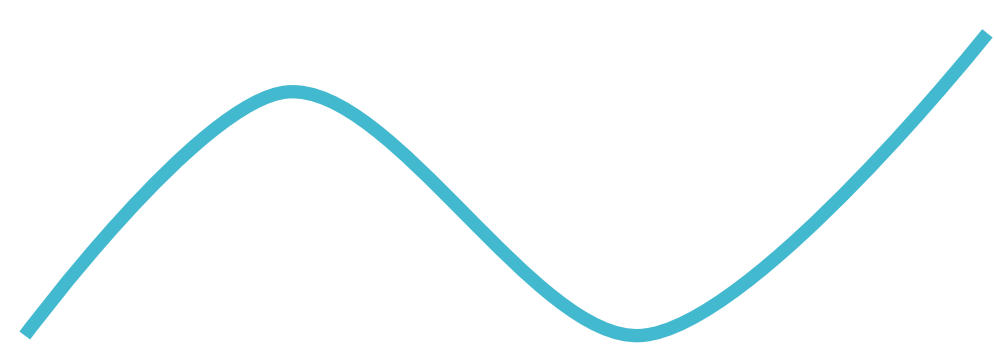
Once created, no knowledge of the underlying control points is needed to freely manipulate the curve, making it well-suited to interactive visualizations.

The library is **easy to use, lightweight, and flexible**.



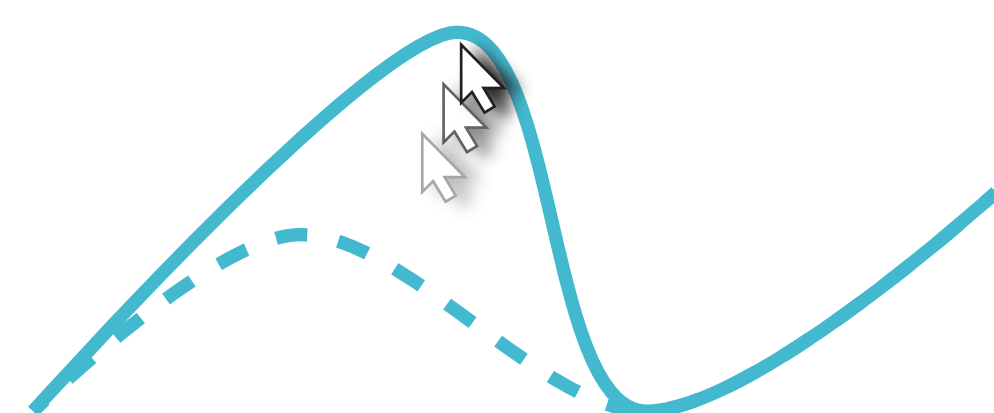
EASY & LIGHTWEIGHT

```
pts = [ {x: 0, y: 0},  
        {x: 10, y: 10},  
        ... ]  
myCurve = new SDCurve({  
  points: pts,  
  type: "bspline"})  
draw(myCurve.curve())
```



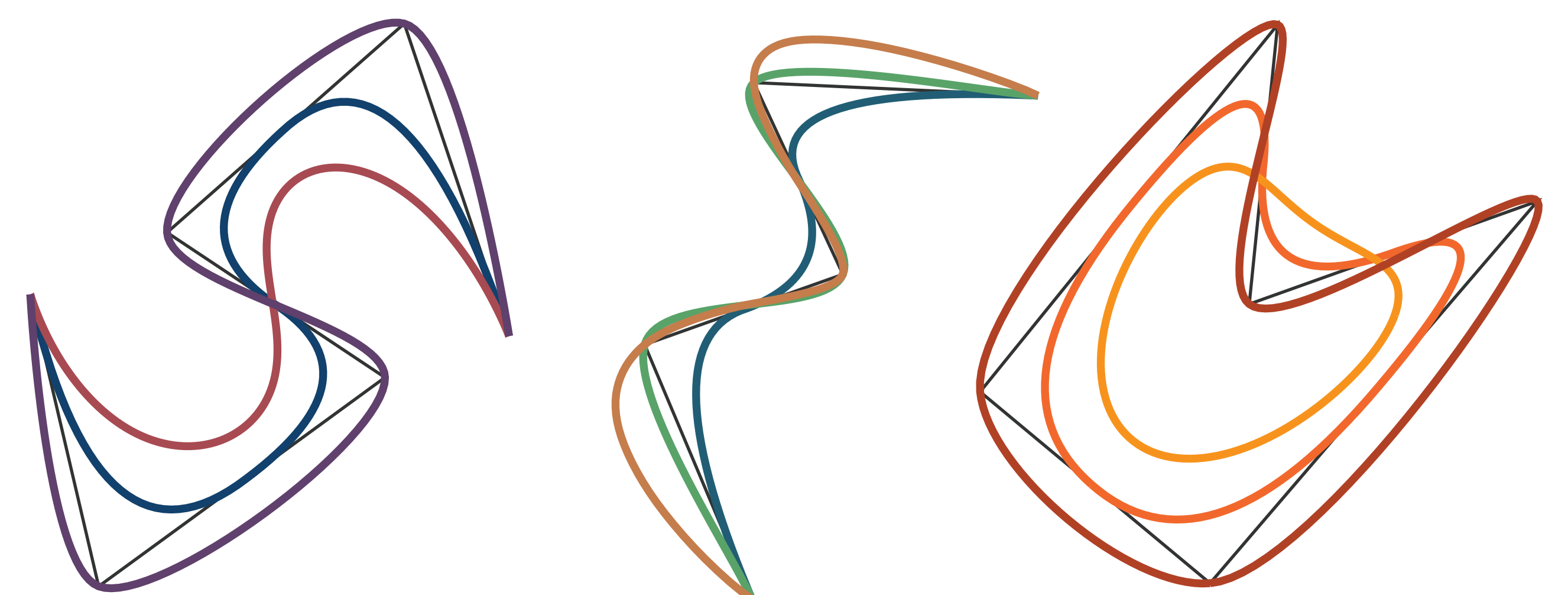
Creating a SDCurve from an array of control points and a curve type is easy. The resulting curve can be drawn with any method, such as D3's `d3.svg.line()` function.

```
void mouseMove() {  
  ...  
  myCurve.moveCurve(  
    clickPt, mouseDelta)  
  ...  
}
```



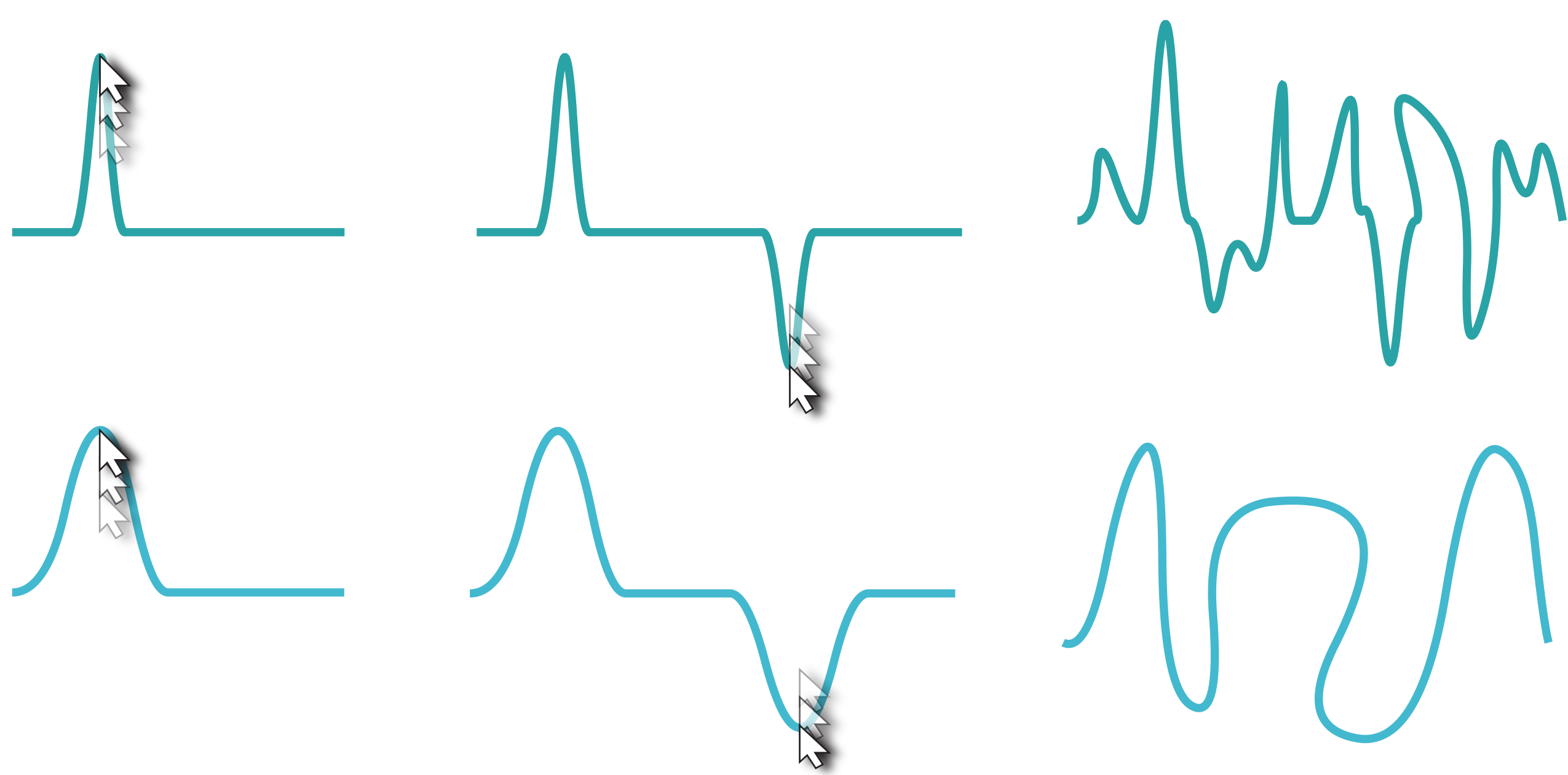
A curve can be manipulated using simple and clear methods that interface nicely with touch or mouse input.

FLEXIBLE



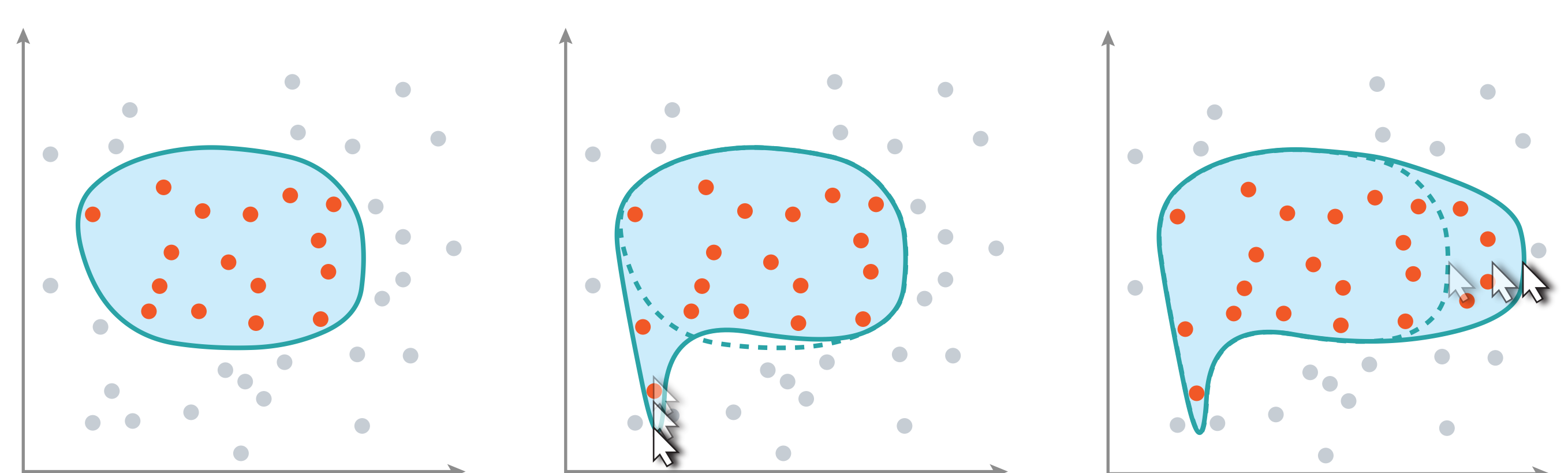
SDCurve.js supports B-spline curves of any degree, Catmull-Rom interpolating curves, open and closed curves, and more. Because SDCurves provide access to the curve structure, they can also be used to perform more complicated tasks, such as animating objects along a path or computing intersection points.

INTERACTIVE



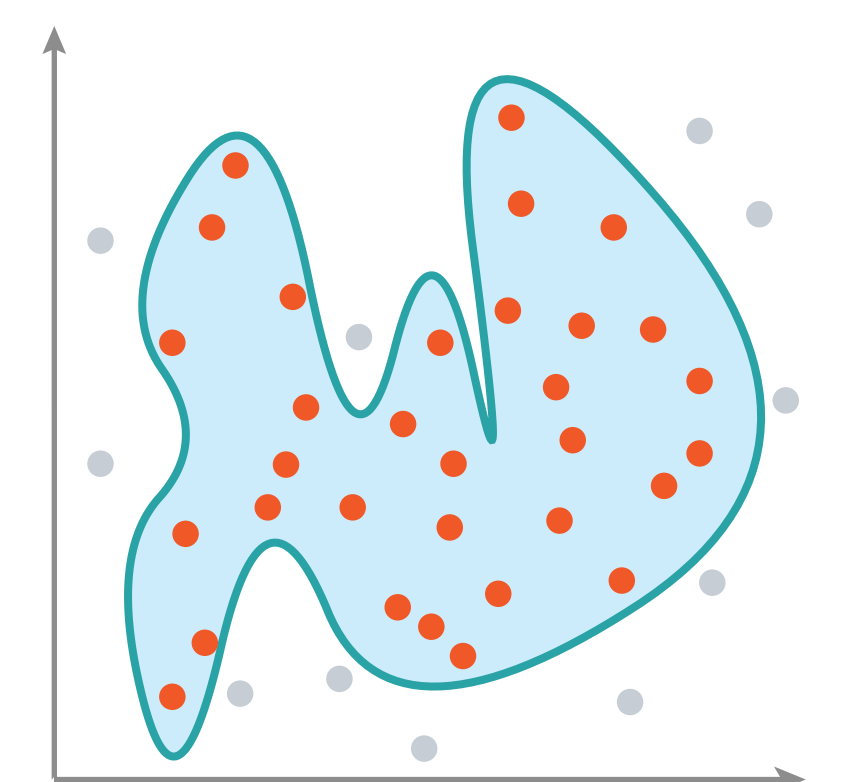
SHARP & SMOOTH CHANGES

Adjust parameters of your curve to make interactive manipulations sharper or smoother.



LASSO SELECTION

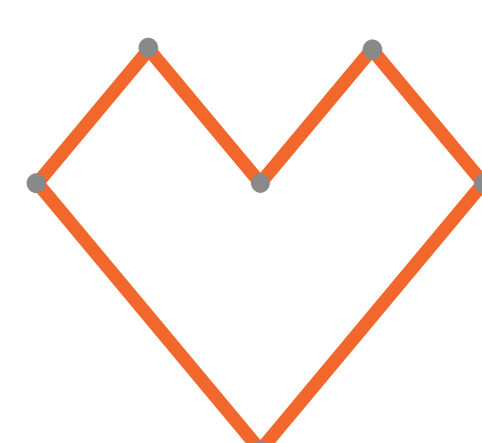
A freeform lasso selection can be altered on the fly using both sharp and smooth changes. The curve updates only in the local area of change to improve performance, and intersection or containment tests can be performed on the curve object.



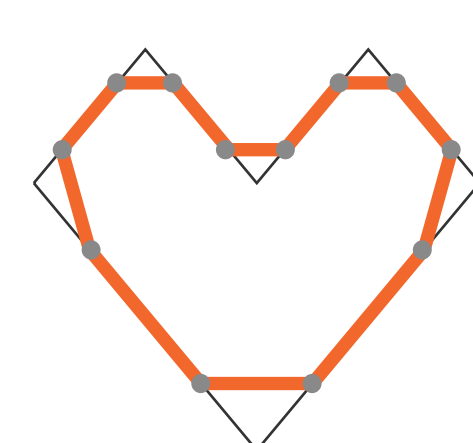
WHAT IS SUBDIVISION?

Subdivision operates on control points, refining them iteratively until obtaining a smooth curve.

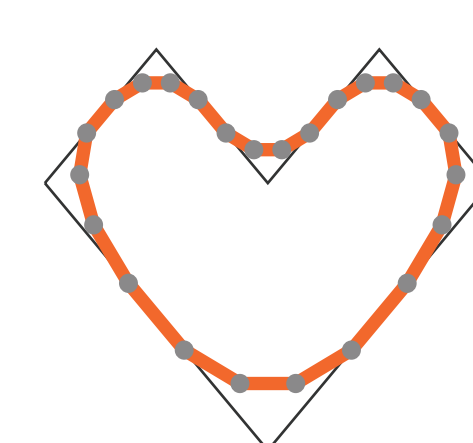
Many common curve schemes can be represented using subdivision.



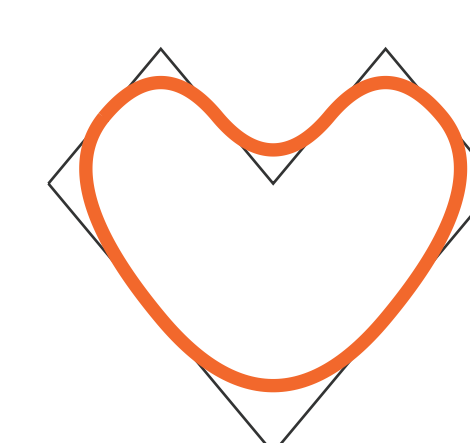
Control points



One step



Two steps



Many steps

DOWNLOAD:

<https://github.com/rpusch/sdcurve.js>

