

1 Lab 5 - Animation via Parametric Curves

Goals

The goals for this lab are:

1. Practice using a loop control structure to create and animate along a parametric curves.
2. Practice using animation to control how much of a curve you draw for each frame

Modality

Pair or Individual (you may choose - partners of your own choosing)

Overview

This sketch takes its inspiration from Celtic knots - consider looking at images of Celtic knots to see if any of them look similar to the parametric curves defined in the resources.

Details

Task: You must create a Processing sketch which animates a n expanding knot in the shape of a complex parametric curve. As the sketch animates the knot (ie the parameter controlling how much of the curve to draw) must increase. Coding your parametric curve may involve creating a curve using polar coordinates (r, theta) that are converted into Cartesian (x,y) coordinates.

The sketch should plot an interesting parametric curve. See Resources for some examples. The curve must be more complex then just a spirial or circle - see the examples in Figure 1 and the resources from mathworld.

The sketch must be animated to have more and more of the curve appear over time.

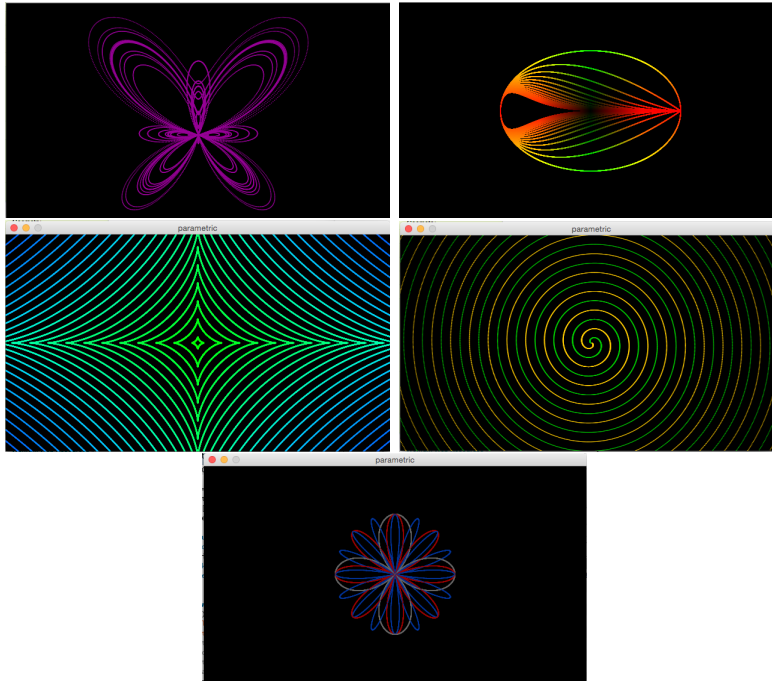


Figure 1: Examples of copies of various parametric curves adjusting the parameters for different sizes, colors, ect.

Your lab must:

- use a complex parametric curve
- include a representation of a Celtic Knot plotted using a parametric curve
- must animate by having the knot expand along the curve over time
- the animation must stop at a certain point
- be at least 400 x 400
- be in color

Demo:

In order to receive credit for this lab, you must demo your sketch to your instructor or TA. For every lab, your score will be broken down 75% for meeting the technical requirements and 25% for aesthetics.

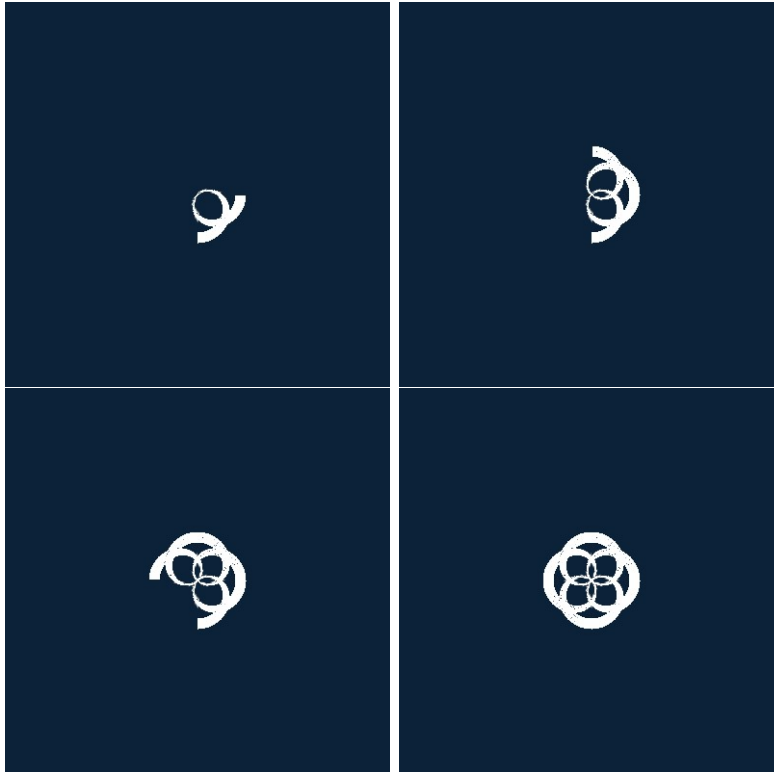


Figure 2: Examples of frames of an animation of a celtic knot like parametric shape created in Processing.

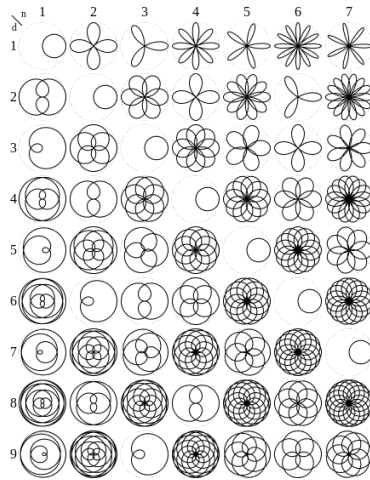
Submitting your sketch

You must post an image of your sketch to your pinterest Computational Art board. If you use a reference image for inspiration for the creature's head or shape, please also pin those reference images to your pinterest board as well.

Resources:

- Parametric Rose: <http://mathworld.wolfram.com/Rose.html>

$$\begin{aligned}x &= \cos(n * t / d) * \cos(t) \\ y &= \cos(n * t / d) * \sin(t)\end{aligned}$$



- Parametric Teardrop: <http://mathworld.wolfram.com/TeardropCurve.html>
- Parametric Butterfly: <http://mathworld.wolfram.com/ButterflyCurve.html>
- Parametric Astroid: <http://mathworld.wolfram.com/Astroid.html>