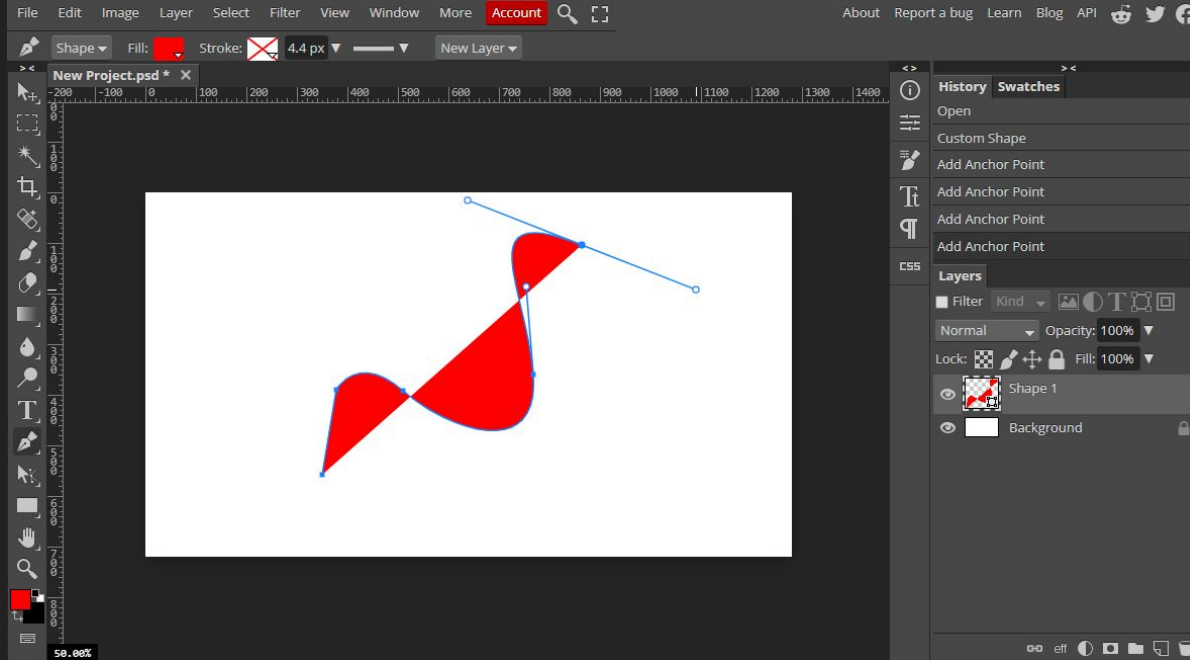


# How to draw Bezier curves with Scipy

Oras

<https://github.com/panangam/>

# What is a Bezier curve?



- If you've used Photoshop you must have seen it
- A natural way to draw curves on computer
- **But how to do it in Python?**

# What is Scipy?



- Scientific computing in python
- Lots of math tools; well optimized
- Very widely-used
- You should use it
- **Can it calculate a Bezier curve?**

How to calculate Bezier curve in Scipy?

```
from scipy.interpolate import BPoly
```

How to calculate Bezier curve in Scipy?

**WHAT KINDA NAME IS THAT?**

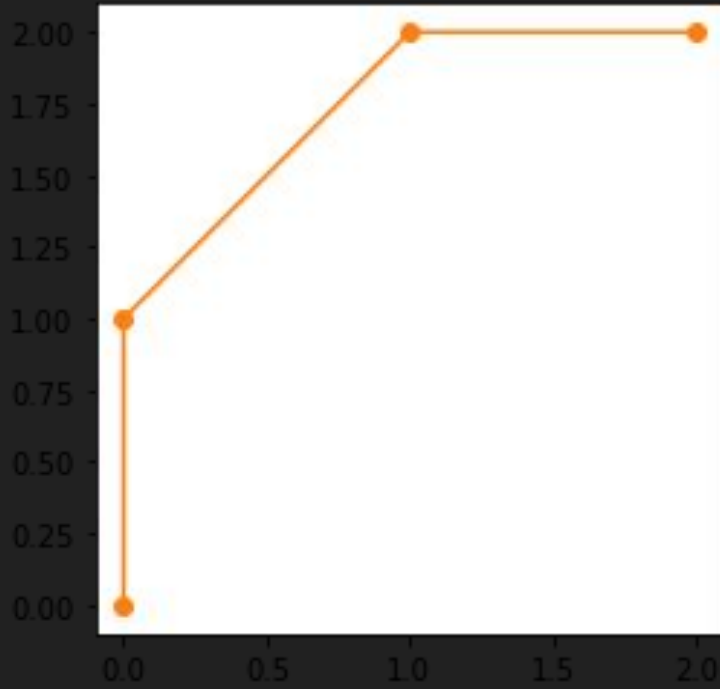


```
from scipy.interpolate import BPoly
```

**WHY?**



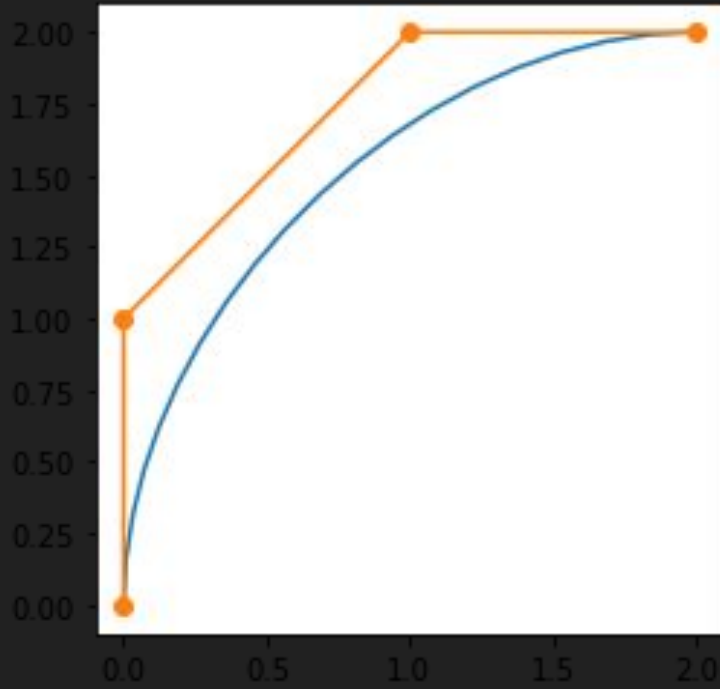
# “Interpolate”



Oras Phongpanangam

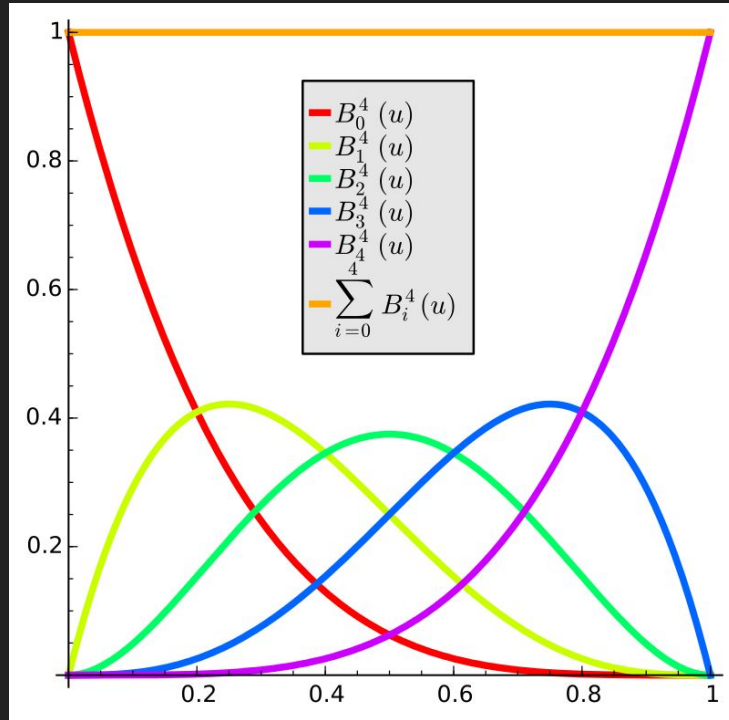
- A way to “connect the dot”
- A naive way to do is “**linear interpolation**”: just connecting the dots with lines
- Janky; not very pretty

# “Interpolate”



- “Bezier curve” is a smooth way to connect the dots (sort of)
- Instead of using linear coefficients, the points are averaged using **Bernstein Polynomials** -- hence **BPoly!**

# “Bernstein Polynomials” in one sentence?



- A weighted averaging of the points where the points are emphasized sequentially, from the beginning to the end, but the weights always sum up to 1



How do you use it?

[https://github.com/panangam/bezier-bpoly-scipy-example/blob/main/bezier\\_demo.ipynb](https://github.com/panangam/bezier-bpoly-scipy-example/blob/main/bezier_demo.ipynb)