

Interpolation

Getting from 0 to 1 in various ways

BACKGROUND

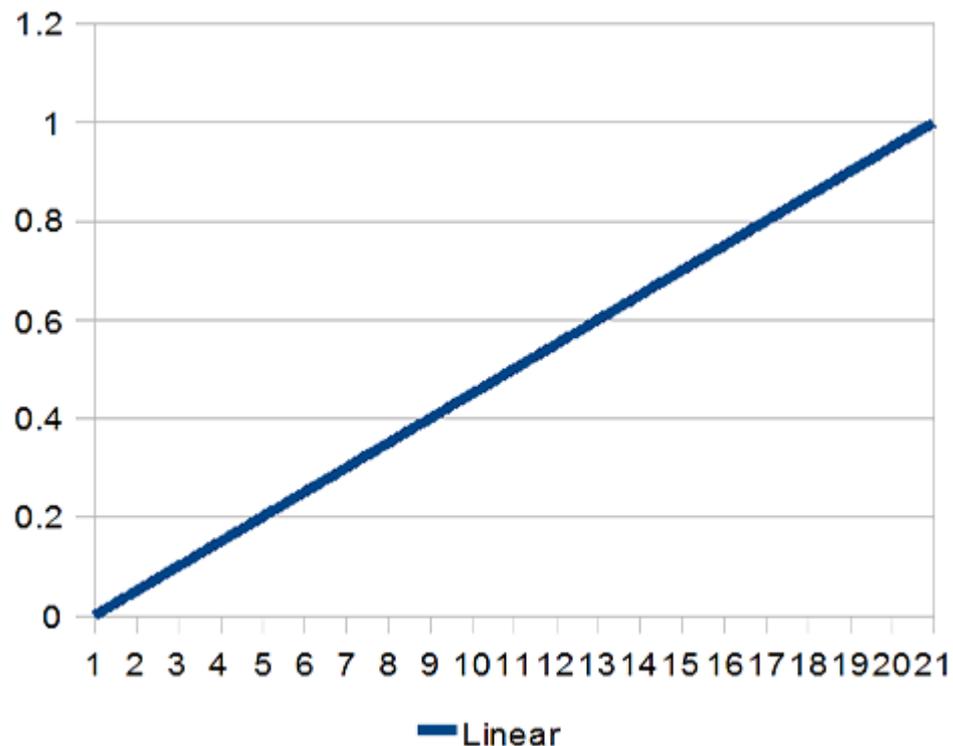
- We tend to interpolate a lot of things.
- Linear interpolation is good for some things, but may feel jarring in others.
- Luckily, there's plenty of ways to interpolate.

WHY 0..1 RANGE?

- Every range can be simplified to 0..1.
 - ZeroToOne = (value-minvalue)/(maxvalue-minvalue)
- Manipulating things within 0..1 range has some interesting properties.
 - $n * n * n \dots = [0..1]$
 - $n * m = [0..1]$
 - (where n and m are [0..1])

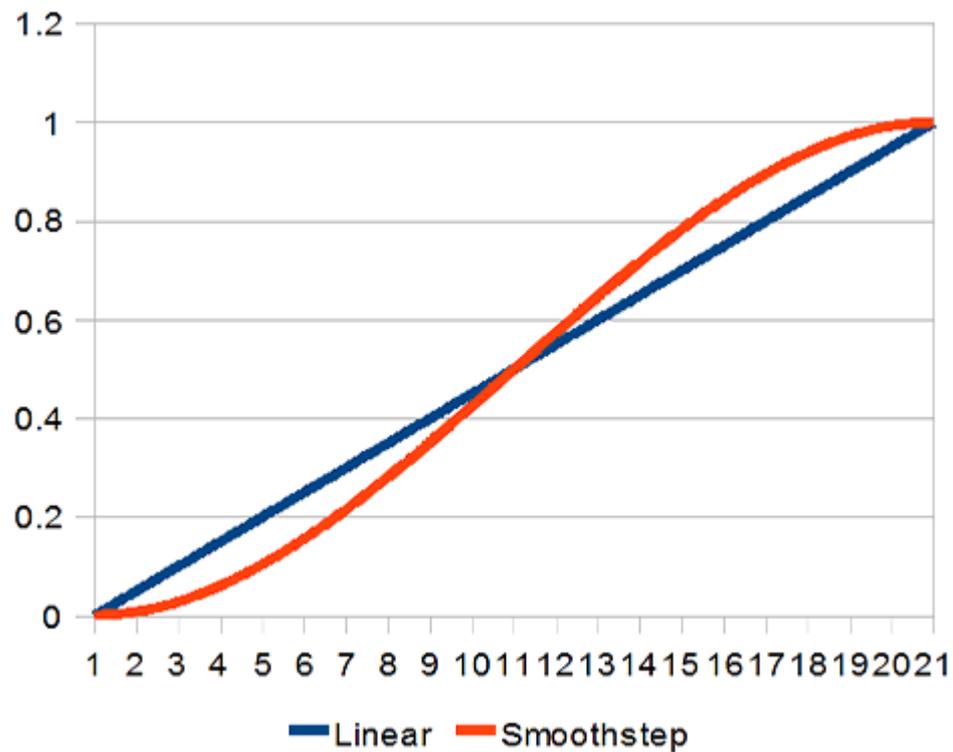
LINEAR INTERPOLATION (LERP)

- Moving from 0 to 1 in n discrete steps, all equal length.



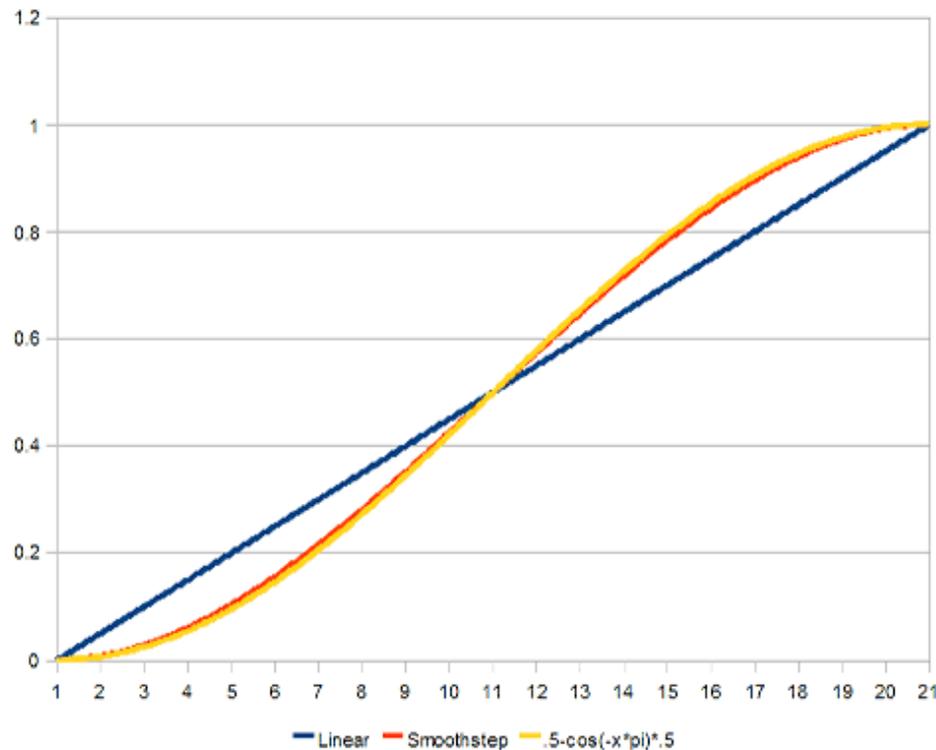
SMOOTHSTEP

- Applying smoothstep function to lerp values.



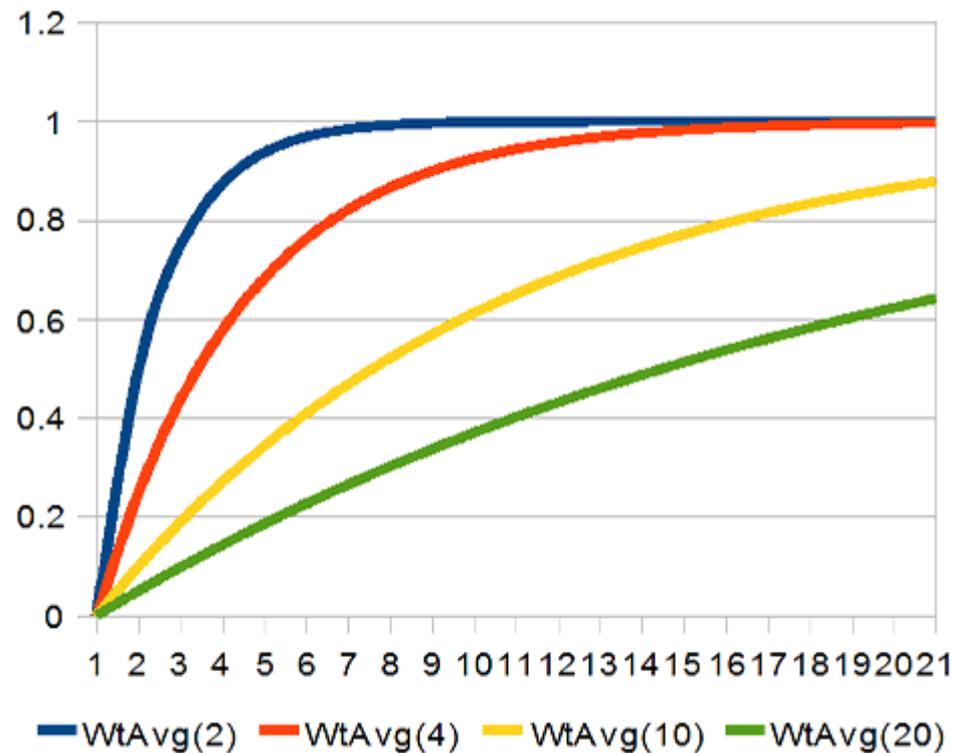
SINE CURVE

- Same idea, with $\cos()$; almost same result, but most likely more expensive to calculate.



LOW-PASS FILTER

- Not exactly interpolation, but often useful nevertheless.



SPLINES

- Finally, if nothing else helps, use splines..
- Catmull-Rom is a handy spline as it goes through all of its control points.

