Lecture 5 Notes Feb 18, 2019

Warmup Activity

http://old.vijayp.ca/blog/2012/06/colours-in-movie-posters-since-1914/
Trying to understand whether movie posters are using more blue and orange colors overtime
Outcome: Blue gets bigger over the year, usage of orange gets lesser
Methods: Colors extracted from movie poster data
Strengths: Easy to view the trend
Weaknesses: Hard to get specific quantitative judgments, Missing legend

Transformations

Focus on Affine transformation in this course: Transformations that maintain parallel lines, maintain geometry. Types: Shifts, Rotations, Scaling

Colors

Cones in the eye help us view colors. Eyes are more sensitive to red wavelengths.
Pixels composed of RGB usually.
Colors also represented in hexadecimal format which gives 16 million unique colors. For RGB, each RGB has 1 byte which also gives 16 million combinations.

Color spaces:
HSV (Hue, Saturation and Value) Play around with a color wheel to get a good idea.
Different color maps get represented in different HSV space.
sRGB: Works for most modern display devices. Unifies everything well.
Saturation makes vibrant. **Value makes more less gray**.
Rainbow color are cyclical (set using Hue) so no color is high or low.
Colors have a naming scheme for use in HTML, matplotlib and more.

Color mapping and Data Characteristics

Sequential color maps: High value, low saturation to low value, high saturation.
Diverging color maps: Darker on left and right ends, center is brighter.
Qualitative color maps: Chunks of solid color.
For continuous data – Normalize the range for color mapping
Can also use other transformation on range like log or square.

Choosing Visualizations

Be super important of color blindness (around 10% people are colorblind!) Don't rely on pure Red, Blue or Green.

Use good mix of colors such as cyan instead of blue.

Color is cultural and situational. Try to be sensitive to people's expectation of colors such as for skin colors.