Mike Crowder Slides

Slide 13 Geovisual Framework – 15 seconds

* Our geovisual framework consists of 6 parts, in no particular order maps are to be
  + Web based interactive maps
  + Color schemes that are well thought out
  + Possess a clean and easy to read basemap
  + The right type of thematic map for the right incident
  + Time-Bound
  + Contain limited variables

Slide 14 Interactivity – 15 seconds

* + Philip Roth defines Cartographic interaction is the use of a digital map by a user facilitated by a computer.
  + Manipulation of known data is not what we are thinking about as data scientist, but the user’s private relationship with the interactivity of the map.

Slide 15 Interactivity – 15 seconds

* + The user is able to zoom and in and out, click on data points in some maps so they can gain additional areas of knowledge by interaction
  + High levels of interactivity can enhance user engagement leading to further understanding of content

Slide 16 Interactivity – 15 seconds

* + Cartographic interaction can be applied to other fields of study beyond geography and criminology
    - Some of the research in our paper is from medical and engineering fields with spatial analysis and analytics take place

Slide 17 Color – 15 seconds

* + In one the most famous works on visual graphics by Jacques Bertin in 1983, he wrote that the goal of color in a map is to give a clear visual indication of what is happening on the earth
    - In this example we see a contrast of color between cholera and other contagious diseases.

Slide 18 Color – 15 seconds

* + Bertin also said a map could graphically show the difference between entities by using color
  + These may seem like simple excerpts, but a lot of thought should go into color selection for displaying data
  + One of the better methods we found for selecting colors was using Harrower and Brewer’s paper

Slide 19 Color – 15 Seconds

* + ColorBrewer.org: An Online Tool for Selecting Color Schemes for Maps
    - Color schemes to need to be attractive, but also support the message of the map, and the nature of the data.
    - This was also helpful when we looked for colors that worked with vision impaired users

Slide 20 Basemaps

* + A basemap is GIS data that has been planimetrically corrected, this basically means that the effects of tilt and perspective are removed and only displays the horizontal surface. Basemaps can be simple with few boarders or contain many features.

Slide 21 Basemaps

* + The process of selecting a basemap is a balance of abstraction and reality. Transparency depends on the ability of the citizen user to understand what they are seeing. In one of these maps we can easily make out locations in the Dallas area in the other we cannot

Slide 22 Map Types

* + Dot maps are a type of thematic map that shows the variable of interest using a dot. These can be a one-to-one relationship or one-to-many in cases of dot density maps. One-to-one dot maps are what we display in our examples.

Slide 23 Dot Map

* + Dot size selection can lead to data being over exaggerated or so small that is hard for the map user to see.
  + Some light tweaks to the opacity can lead to areas of density appearing if the dots are large enough, again careful consideration is needed in determining size.

Slide 24 Cluster Maps

* Dot maps can be a little heavy on processing time a solution to this is a cluster map
* Cluster maps indicate the number of markers a cluster contains. As you zoom into a cluster the numbers on the clusters decrease and you will see the individual markers on the map.

Slide 25 Cluster Maps

* These maps are computationally more efficient than dot maps. Leaflet uses Spiderfy which

Slide 26 & 27 Heat Map

* Heat mapping in a geovisual context, is a way of displaying how dense an activity is geographically. ‘Heat’ in this case refers to higher density of occurrences in the variable of interest. Heat maps have advantages in that they can cross geographic boundaries like zip codes, or counties.
* They also present some challenges. Setting the intensity too small and nothing will come, set the intensity too high and patterns may disappear altogether.

Slide 28 Time Bound

* Geovisualization covering NIBRS data should be time bound
  + Victims, offenders, guardians and managers of property adjust their densities over time around specific places
* A map should represent a period of time say a year or a comparison

Slide 29 Variable Selection

* We find many crime maps display many types of incidents together, variables should be kept to a single variable or a carefully selected few.
* With that I’ll pass it to Gerardo who is going to close us out.