Lab 1: BioVis Analysis, Critique, and Design Process

In order to make effective visualizations you must be able to critique and deconstruct them. This lab will give you a chance to do that, and get some feedback on your critiques.

Visualizations are a means to an analytic or communication end. If a visualization doesn't get you there, it is a failed visualization. It is essential to deconstruct the techniques used, but remember that these are in service of the analytic goals at hand.

You are encouraged to work together in teams for this project. Look for teammates with backgrounds that differ from your own.

Remember: a critique points out both the good and the bad.

Requirements

- 1. Choose two bio-related visualizations to critique.
- You may use the links below or look elsewhere. Anything is fair game.
- It's up to you to decide what is bio-related (personally, I take a broad view). If it isn't obvious just provide a justification in your writeup.
- 2. Analyze the visualizations based on the dimensions we've discussed in class and the handout. (The questions below are not meant to be used as a formula for critique– just use them to help you get started.)
- What question(s) is the visualization trying to answer?
- Are analytic goals/intentions of this visualization clearly communicated by its designer?
- How does visualization succeed or fail to achieve it's analytic purpose?
- What are the main visual variables and techniques used?
- What are the structure and characteristics of the data in the visualization?
- What is the "provenance" of the data? Where does it come from?
- What is the workflow like that was used to collect this data?
- Is all of the data shown? What could be missing?
- How was this visualization constructed? What types of tools were likely used?
- 3. Round out your analyses by leveraging your background.
- If have design experience, Are the layout and aesthetics in line with the goals of the visualization? What could be improved?

- If have dev experience: How might the dev/framework choices affect designer's ability to address analytical goals of the visualization?
- If have biology experience: Is all necessary data shown? Is there any additional data you think would enrich the analysis?
- 4. Choose one of your visualizations and redesign it.
- You may use *anything* for the redesign: pen and paper, PowerPoint, webpage etc.
- Don't go overboard on detail. Focus on addressing the main problems.
- In your writeup:
 - Include an image of your redesign.
 - Briefly describe your reasoning behind the redesign.
- 5. Produce a writeup that captures your criticisms.
- Minimum 3 pages (one page per visualization + your redesign). (Note: Figures DO count towards your page limit.)
- Don't go overboard on detail. Focus on the main points, and consider making a list of minor points.
- Consider annotating images of the visualizations to highlight the main issues. (Just be sure that your annotations don't hide too much of the visualization.)

Links

- Matt Ward's links
- BioVis Symposium
- Visualizing Biological Data conference
- Nature special issue on biovis
- rulebender
- fixingTIM
- mosbie
- BioVis "community" website
- Nils Gehlenborg slides on "-omics"
- Leaf Venation Modeling in Processing
- Mariah Meyer's TedX Talk
- NY Times: Sebastian Seung's Quest to Map the Human Brain

Turning in the project

Submit a PDF on myWPI.

Grading

This lab is graded on a 100 point scale. The write up will be graded completeness (80) and overall quality (20).