Facilitator: Derek Sollberger, University of California Merced

We want to build cooperative spaces where students can improve the quality of their work in iterative ways. However, are we sure that students will rate each other in unbiased ways. We will take some time to address implicit biases that we may have in an activity where we cultivate critical discussion and scientific skepticism to data visualization examples. In this workshop, we will cover a variety of considerations about how we as an audience view data visualization in research papers and science communication.

One of my goals for these endeavors is to create active-learning activities for my students in my introductory data science courses. That is, I am not assuming a bulk of previous knowledge from my students, and similarly for participants for this workshop. In my courses and workshops, I focus on these three times of graphs:

1. Histogram: distribution of one numerical variable
2. Scatterplot: two numerical variables
3. Box plot: one numerical variable across a categorical variable

If you want to explore the realm of data visualization more before the workshop, here are some optional materials that I recommend:

- (10 minutes) Data-to-Viz organizes the variety of ways we make graphs and has some troubleshooting
- (15 minutes) PBL Netherlands put together a wonderful ***Visualizing Knowledge*** guide about refining data products and publishing
- (20 minutes) 3Blue1Brown's video "How to Lie Using Visual Proofs" presents subtle flaws in some pop science "proofs"