Overview: This assignment will enable you to dig deeper on a topic or technology that interested you during the semester.

Ground Rules: This assignment is to be done alone. You may ask others for help or for feedback on your visualization choices. However, you should develop any code, write-up, presentation, or ideas.

PART 1 – Implementation (50%)

You must select one of the topics below to implement.

Possible Topics:

- Parallel Coordinates – Implement parallel coordinates in Processing, Java, Python, or C++. Your implementation should be interactive, includes features like axis swapping, line tracing, and item brushing. Choose your own data, or Dr. Rosen can provide data. Your deliverable will be source code.

- Force directed graph layout – Implement a force directed graph drawing implementation using Java, Python, or C++. The approach should be interactive, allowing users to grab and move individual nodes. Data can be downloaded from http://snap.stanford.edu/data/. Your deliverable will be source code.

- Complete a VAST Mini challenge – Complete either the VAST 2015 Mini challenge #1 or #2. Details and data are available at http://vacommunity.org/VAST+Challenge+2015. Your deliverable will be a document as described in the mini challenge.

- Complete a new data analysis story – Complete a data analysis story similar to the process used in projects 1-3. You will be expected to create visualizations using all 3 tools from those projects. Your deliverable will be a document and any source code used in visualizations.

- Complete a state-of-the-art report – choose a topic from this course (to be approved by Prof. Rosen), and complete a state-of-the-art report on that topic.
As part of this study, you should review at least 10 papers and complete a document of at least 15 pages in length. Your deliverable will be a document.

- **Line Integral Convolution** – Implement the LIC algorithm (https://en.wikipedia.org/wiki/Line_integral_convolution) in Processing, Java, or C++. Your implementation should include both the basic algorithm, as well as coloring the visualization using a dye dropping approach. Your deliverable will be source code.

- **Select your own project** – Prof. Rosen must approve your project.

**PART 2 – Presentation (20%)**

During the final 2 class periods, you will be expected to present your final projects to the class. Each student will be randomly assigned a slot. You will have 8 minutes to present and 2 minutes for questions. You will be graded on both the quality of your presentation and your participation in asking questions.

**PART 3 – Critiques (30%)**

You will be responsible for completing critiques for 3 different visualizations of the same dataset. Your job will be to “play the expert”. Identify visual channels, give feedback on design decision, features that may cause confusion, and make general suggestions for improvements. It is your choice as to the medium for providing this feedback.

You will receive e-mail from Prof. Rosen containing 3 visualizations by the end of the day on November 3rd.

**DEADLINES**

**NOVEMBER 3** – YOU MUST SELECT A PROJECT, AND E-MAIL YOUR SELECTION TO PROF. ROSEN BY THAT DATE.

**DECEMBER 1/3** – PRESENT YOUR WORK TO CLASS.

**DECEMBER 4** – SUBMIT CODE, DOCUMENTS, CRITIQUES, AND/OR PRESENTATION.