Project Title: Interface Design for the Complex Data Explorer (CODEX)

Desired Number of Participants: 2

Background Information: Data and physical scientists alike are often confronted with large and complex data files. They are then faced with the task to "understand" the data rapidly and sufficiently to enable traditional analysis, yet any lingering or surprising data facets not caught in this rushed initial period can distort or invalidate results later on.

Project Description:

Build a deep, robust interface using javascript tools to permit users to engage Machine Learning and data analysis capabilities to rapidly assess and triage data quality. Permit users to identify the kinds, behaviors, and challenges within a new datafile using sophisticated, linked, interactive visualizations. Permit researchers to generate, test, and modify hypothesis for data behavior in a rapid prototype environment. Interface core concepts include “Ask no question without guidance,” “Estimate how long anything will take before starting,” “Visually show option results before user must select,” and “The same point here can be found in any other graph or report trivially.”

Suggested and/or Required Background: Required:

Javascript, Node.js, react framework

Preferred:

Python, machine learning, data analysis

Primary Discipline: Computer Science

Secondary: Other (Interface Design)