Research Skills: Version Control

As part of this assignment, you will be expected to develop introductory skills in version control. In order to do so, complete the following:

a. Register for a free Github account.

b. Complete this basic git tutorial.

c. Attend the Version Control micro lecture provided by the graduate student mentors.

d. Add, Commit, and Push your assignment submission to your github repository as part of your submission for this assignment.

Technical Tasks: Preliminary Optimization

a. Pick an application of interest you would like to explore.

b. Considering the content of your theory exploration assignment, choose a design objective.

c. Determine the set of design variables you would like to optimize, as well as the set of parameters you will keep constant for your optimization.

d. With your graduate student mentor, discuss your design objective and obtain two initial constraints to use for this assignment.

e. Using the provided template, put together code to run your optimization problem.

f. Begin at least 3 trade studies exploring the design space for your chosen optimization. At least one of these must be done using optimization.

Writing Tasks: Introduction and Methodology

As you begin these design optimization assignments, you will need to make sure you have clear goals and plans. One of the best ways to organize your thoughts is to write a first draft of the introduction to your final technical report, as well as outline your proposed methodology. Therefore, your main written deliverables (using the provided template) for this assignment are:

a. Write a first draft of the introduction section of your final report.

b. Outline your methodology section including the following specific items:

   - Both a word and mathematical description of your optimization problem.
   - Descriptions and ranges for your design variables.
   - Descriptions and ranges for your design constraints.
   - A table including the parameters you plan to hold constant, along with values and units for those parameters.

c. Draft plots and brief descriptions of your preliminary results.