

### ***Week 7 homework***

#### ***Due date reminder***

Please email your completed assignment to the course TAs ([mch6@illinois.edu](mailto:mch6@illinois.edu) and [jjc11@illinois.edu](mailto:jjc11@illinois.edu) cc [rlongo@illinois.edu](mailto:rlongo@illinois.edu), subject: '[PHYS371]: Week 7 Homework, Your Group Number) by Thursday, 5 pm of week 5 (03/08/2023). Homework that includes only group work should be submitted by one group member, rigorously copying all the other members, the instructor and the TAs.

Each day of delay in turning in the assignment will result in a grade reduction of 10%. We will not grade anything submitted more than one week late. A group member can use their wildcard to delay the homework turn-in to the beginning of the class on Friday (e.g. not to the next week anymore, since the assigned tasks are now time-sensitive). The use of the wildcard should be communicated to the instructor and the TAs before the deadline to turn in the homework.

Quote the main authors of different parts of the code you develop. **Keep the code up-to-date on the GitLab repository.**

Please compress all the material related to the homework into a .zip or .tar file. If you have questions or points you need to address, please do not wait until the last day to ask for office hours since it may be impossible to accommodate all the requests on short notice.

#### ***Problem 1***

All the groups have to use their PCB design (available through the course webpage) to finalize the design of their case, and submit it for production to Kristopher. In addition, Group 1 and Group 4 will prepare an analysis teaser presentation (~10 minutes).

#### ***Problem 2***

Each group submit a short progress report (max 1 page – can include pictures). I will not assign specific homework this week, but I encourage you to take advantage of all the time possible to advance your analysis, given the timeline discussed for the final report.

#### ***Note on analysis “teaser” presentations***

Your presentation should include: an overview of test data taken to validate your setup, a first look to test data, data analysis techniques (to be) used for the final analysis, and plans for data taking and analysis once the PCB is assembled. Please note that the first look at the data should be based on a significant sample, e.g. not on a handful of a few acquisitions. The latter can apply only to complex data samples (e.g. Machine Learning analysis of images) that may not be ready and not trivial to establish properly during the next week. You are strongly encouraged to analyze your data via python or c++. Specific data analysis software like Origin or Mathematica will also be accepted. Data analyses carried out with Excel will not receive full evaluation. Other discriminants for the final grading of the presentation will be related to the fair share of the

presentation (please avoid evident unbalance in the presenting time between different group members, e.g. 30 seconds vs 4 minutes), quality of the slides, quality and readability of the plots, timing of the presentation and so on.