

Suggestions for Improvements made at the December 2014 Machine-Ground Interaction Consortium (12/9/14-12/10/14)

Food/conference logistics:

- Better food, more coffee
- More time to network
- Beer and ice cream from Memorial Union
- Put together a panel talk that the audience can have – NEGRUT TO SEND EMAIL OUT REQUESTING THIS
- Should get a bigger room next time, it was hard to predict that we were going to have so much people
- Is one day the correct amount of time? Or would people consider more?
 - o One day is good
 - o Need more time for networking

Testing:

- This is a good platform to promote modeling approach, but we should talk about standardized tests (come up with a list of them) that we can all perform. That will make it easier to compare our results. What would an example be? Need to come up with a library of test data for benchmarks.
- Mike presented a list of tests that can be used as a benchmark for any modeling approach. It would be nice to come together to collect this data. Dan Melanz has 3 different soil tests, Wong also has data for M113
- If we want ground interaction, we need to have calibration, validation, and verification
- Difficult to come up with data, need to share data with each other, need to provide support
- Benchmarking is a very critical topic, are we working correctly at the physics level? Is our implementation correct?
- There are basic tests that look deceptively simple, such as a shear test
- You have to be very careful that you are questioning the implementation as well as the test itself. Need to come up with a valuable test.
- Next time we need to actually have available data (Chrono tutorial actually contains some of this information at a high level)

Industry relevance of modeling and simulation:

- How do we make industry understand that simulation is important? Caterpillar had a very good presentation making the case that modeling and simulation is important
- It is good to talk about the implementation/software but it is also really important to elevate this discussion to how modeling and simulation figures into the entire lifecycle (How can you show that modeling and simulation is a valuable investment?)
- Technical people can see the value, but hard to make the importance known to the management level
- How do we summarize best practices in modeling and simulation? Would it be possible to use the example of Caterpillar, Inc.

- Caterpillar's approach: Need to translate the discussion into dollars. The simulation community needs to speak with authority rather than presenting it as an opinion.
- We focused a lot on simulation, but once you start looking at other fields (i.e. robotics) controls starts to become an important topic. How do you figure controls into your modeling scheme? A lot of the dynamics is being driven by controls. Look at the DARPA challenge: those are real robots that are based on controls. This goes for the autonomous community as well, since they are trying to not consider dynamics.

Action items:

- If we want to function as a consortium and meet again in a couple of months, we need to come up with a theme for each meeting. Collectively we should come up with an idea of what is important or not.
- Dan will send an email out asking for all of the presentations and they'll be posted on the webpage
- Dan will send out an email to come up with themes for the next meeting
- Maybe we should put the presentations on a restricted website