

# **Modeling and Simulation in Robotics Workshop**

Breakout Summary Slides

Team 3

Breakout 1

# Slide 1: Consensus Thinking

- Robots should be modelable: we have all the parts!
- Merge uses of simulation: Classical + Data generator + Model based control.
- Hierarchical, multi-resolution simulation.
- Beyond rigid bodies: multi-physics (granular, fluid, turbulent, deformable).
- Sim-to-real transfer.
- Rich, unstructured worlds.
- Parallelization of development through compartmentalization.

# Cheat Sheet Slide

- Breakout Themes, “M&S in Robotics” workshop:
  - Breakout 1: Panoramic view of opportunities  
[a time to dream]
  - Breakout 2: What’s stopping us from getting there  
[the reality check]
  - Breakout 3: Pragmatic suggestions for moving forward  
[what funding organizations, the robotics community,  
or other vested parties can/should do]

- Breakout session, things to keep in mind
  - You have 25 mins to generate your three slides
  - Select a scribe to generate your three slides
  - Decide who will present your slides in plenary
  - Do not argue within team for more than 2 mins about an idea. Move it to “Slide 2” and proceed
  - Generate diverse/original/out-there ideas
- Plenary session, things to keep in mind
  - Each team has 5 mins to present its slides
  - We seek to collect as many original ideas/points of view/opinions as possible
    - Settling contentious issues not a priority
  - Use open-floor discussion to add to what the teams have presented
  - Limit your remarks to one to two minutes. Give others an opportunity to speak. Keep it fun, keep it friendly