

Modeling and Simulation in Robotics Workshop

Breakout Summary Slides

Team 2

Breakout 2

Slide 1: Consensus Thinking

- **Fidelity.** We do not know what we mean by fidelity and how much we need it. It is task dependent.
- **Simulation of closed-loop behaviors:** Robotics benefits from good predictive models. In many cases this might be simpler to obtain for closed-loop behavior rather than open-loop behavior.
- **Standardization.** There is no consistency or standardization between simulators. There are also no specs or guidance as to when/which one to use.
- **Abstraction.** Abstraction comes with biases on what we intuitively think as optimal behavior. So in some sense we limit what is discoverable.
- **Trust.** How we build trust in simulators? Simulators do not output confidence: interval or distribution. They do not either output guidance as to when we should trust them.

Slide 2: “Somewhat contentious” Ideas

- **Benchmarks.** What constitutes for a good benchmark? Are benchmarks useful if they do not involve physical experiments? Do we benchmark robot simulators or robot systems?
- **Optimality and model accuracy.** Optimal behavior in the real world might require very good models. Sub-optimal might get away with worse models. Should we aim for optimality?
- **Accuracy.** Do we need better understanding of physics or better ways to simulate the physics? Partial physics might limit what is discoverable in a simulator.

Slide 3: Odds and ends, out there thoughts, fun stuff

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
 - The desire is 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