Brainstorming scientific opportunities: Synthesis on topics

**Animals models: Human applications**

**The Challenge**

- Develop animals models that are matched to human behaviors
- Validate animals models
- Better metrics of behavior
Develop animal models matched to human behavior

- Which human behaviors?
  Typical/atypical; social/cognitive/etc
- Which animals models?
  Primate, rodent, invertebrate...
- Neuroethological and natural behaviors

Validating animals models

- Does it look the same?
- Does it use the same neural circuits?
- How predictive is it across multiple levels?
- How do we deal with individual heterogeneity?
Better metrics of behavior

- Richer measurements
- More quantifiable behaviors
- Better standardization of behavioral paradigms
- Better metrics of environmental factors

The Opportunity

- Validate animal models using endophenotypes, biomarkers and measures of neural circuitry
- Develop new animal behavioral paradigms borrowing from quantitative human fields like behavioral economics, psychophysics
- Compare across species (including humans)
The opportunity (continued)

- Need to support the training of behavioral specialists, and support training across fields.
- Develop systems for incorporating richer real time behavioral and physiological measurements