# Workshop on Robust Social Science

The *Workshop on Robust Social Science* will focus on modern research methods – recent developments in methodology and statistics, and new techniques made possible by modern technology – that are more conducive to reproducibility. In particular, we will discuss how such methods can and cannot be applied in behavioral and cognitive science and how their use can be facilitated or encouraged.

The workshop will be attended by experts in research methodology and statistics (to discuss the methods) as well as domain experts in a variety of disciplines in psychology and cognitive science (to discuss their feasibility).

## Dates and Venue

The workshop is scheduled to take place in St. Petersburg, Florida, from June 4 to 7. Details regarding the venue will be provided soon. The nearest airports are Tampa (TPA) and St. Petersburg/Clearwater (PIE).

## Goals

During the workshop, the assembled participants will be involved in a full-time collaborative project with two related goals. The first goal is to produce a small number of video lectures on the topics of robust design, robust statistics, emerging technologies, and model-based inference. All panelists will contribute to the production of one or more these video lectures. The second goal is to produce a "road map" document that outlines what we think are roadblocks to the widespread implementation of these modern research methods, and what (if anything) methodology researchers can do to make their methods more accessible. All panelists will contribute to the writing of this document.

## Panel questions

*Panel 1: Robust design*

- What are some features of experimental design that make empirical claims more likely to replicate?
- When do we decide that a finding is sufficiently mature that real world applications are feasible?
- Are findings in certain disciplines systematically more fickle, and what sets these apart?
- What can psychology learn from other empirical sciences that use other experimental designs?
- An example is triple-blind studies, where researchers doing statistical or modeling analysis on data do not know the experimental manipulations or other details of the data.
- What are the strengths and weaknesses of new experimental methods made possible by technological advances? An examples is the "MCMC" approach to studying the effects of nuisance variables in controlled experiments across many labs.
- What hampers adoption of robust methods by researchers in social science?

*Panel 2: Robust Statistics*

- Are there specialist areas in statistics that are active, and that need to be monitored and incorporated into psychology as they break new ground? What are they, and what journals or topics or research groups need to be monitored?
- How does lack of robustness in statistical results come to the fore? Where do robust statistics shine?
- To what extent is open and transparent science a statistical robustness feature?
- What hampers adoption of robust statistics by researchers in social science?

*Panel 3: Emerging technologies*

- What does robustness mean for the analysis of archival data sets (e.g., data from a machine-learning repository, or a Kaggle competition, or supplied by an industry collaborator)?
- What robustness concerns follow from the "found data" / convenience sample aspect of naturally occurring data sets? What does replicability mean in such a context?
- What implications does on-line collection have for robustness, for technologies like Amazon Mechanical Turk or one of its many variants (Elance, CloudCrowd, Microtask, Expertplanet, Freelancer…)?
- What are some new technologies with untapped potential for social science?
- What hampers adoption of emerging technologies by researchers in social science?

*Panel 4: Model-based inference*

- To what extent can model-based analysis be pre-registered in the same ways as more standard data analysis?
- To what extent should model-based analysis be pre-registered? Is there a difference in the balance in the usefulness or likely prevalence of exploratory versus pre-registered analyses?
- How should model-based analyses be pre-registered, to the extent they can and should be?
- What needs to be provided for a model-based analysis to be replicated? Are there standard formats that will help support this? What level of code and data is desirable and feasible?
- What hampers adoption of model-based inference by researchers in social science?