

Crowdsourcing Data Analysis



Eric Luis Uhlmann (INSEAD), and many wonderful collaborators & colleagues at many institutions

Many Many Analysts Projects!

Published projects

- [Bastiaansen et al., 2019](#) Time to get personal? The impact of researchers choices on the selection of treatment targets using the experience sampling methodology
- [Boehm et al., 2018](#) Estimating across-trial variability parameters of the Diffusion Decision Model: Expert advice and recommendations
- [Botvinik-Nezer et al., 2020](#) Variability in the analysis of a single neuroimaging dataset by many teams
- [Dutilh et al., 2019](#) The Quality of Response Time Data Inference: A Blinded, Collaborative Assessment of the Validity of Cognitive Models
- [Functional Imaging Analysis Contest 2006](#)
- [Fillard 2011](#) Quantitative evaluation of 10 tractography algorithms on a realistic diffusion MR phantom
- [Huntington-Klein 2021](#) The Influence of Hidden Researcher Decisions in Applied Microeconomics [[preprint](#)]
- [Maier-Hein 2017](#) The challenge of mapping the human connectome based on diffusion tractography
- [Salganik et al., 2020](#) Measuring the predictability of life outcomes with a scientific mass collaboration
- [Schweinsberg et al., 2020](#) Radical dispersion in estimates when independent scientists operationalize and test the same hypothesis with the same data
- [Silberzahn et al., 2018](#) Many Analysts, One Data Set: Making Transparent How Variations in Analytic Choices Affect Results
- [Starns et al., 2019](#) Assessing theoretical conclusions with blinded inference to investigate a potential inference crisis
- [van Dongen et al., 2019](#) Multiple Perspectives on Inference for Two Simple Statistical Scenarios

Unpublished projects

- [MAPS: Mapping the Analytical Paths of a Crowdsourced Data Analysis](#)
- [Breznau, Nate, Eike Mark Rinke, and Alexander Wuttke et al. 2018.](#) How Many Replicators Does It Take to Achieve Reliability? Investigating Researcher Variability in a Crowdsourced Replication. Working Paper. [SocArXiv](#).
- [Breznau, Nate, Eike Mark Rinke, Alexander Wuttke, et al. 2021.](#) Observing Many Researchers Using the Same Data and Hypothesis Reveals a Hidden Universe of Data Analysis. Working Paper. [MetaArXiv](#).
- The MARP Team (in preparation). A Many Analysts Approach to the Relation Between Religiosity and Well-being. <https://osf.io/qbdce/>

Ongoing projects

- Multi100: 100 results from 100 published social science papers will be re-analysed by independent analysts. A call for collaboration will be advertised soon.
- [EEGManyPipelines \(https://www.eegmanypipelines.org/\)](https://www.eegmanypipelines.org/). "Participants in this project will get access to an EEG dataset and are invited to [analyze](#) the data with an analysis pipeline they deem sensible and representative of their own research. Participants will then report their results and a detailed description of the analysis pipeline back to us. We will use these reports to map the diversity of analysis pipelines and the effect of pipeline parameters on obtained results."
- Many Speech Analyses <https://many-speech-analyses.github.io/>
- Many [EcoEvo](#) Analysts <https://osf.io/mn5aj/>

List of many analyst projects, created by Aczél Balázs and team

https://docs.google.com/document/d/12XICX0UWKLH1RJ9NsSciWxXn4DD0oh4slqd_TmKjp0A/edit#

Key questions for future research (and current debate)

- Replicate the replicators: Analysis-contingent results appear to be replicable, but more extensions are needed (current project in Finance most welcome!)
- Aggregation or parsing: Should we average across analyses or try to explain dispersion? McGuire's (1983) perspectivism suggests massive moderation, but...
- The parsing problem: What explains the variability in results?
 - Hypothesis characteristics, e.g., latitude of construal (Menkveld et al., 2021)
 - Operationalization of variables (Schweinsberg et al., 2021)
 - Covariates (Silberzahn et al., 2018)
 - Specificity of the research question (Auspurg & Brüderl 2021; ongoing adversarial collaboration)
 - Analyst characteristics, e.g., expertise (Breznau et al., 2021; Menkveld et al., 2021; Silberzahn et al., 2018)
- Confirmation bias or rational belief updating? (Menkveld et al., 2021; Silberzahn et al., 2018)
- Crowd analysis or multiverse? (Auspurg & Brüderl 2021)