permute: A Python Package for Randomization Inference

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Abstract. *Software packages for randomization inference are few and far between. This forces people either to write one-off programs or to rely on classical statistical tests that may be inappropriate for their particular data. As Python picks up steam as a language for data analysis, the absence of a package for randomization inference presents a severe gap in the software's statistical capabilities. We develop* `permute`*, the first (to our knowledge) comprehensive package for randomization inference in Python. We illustrate the program's capabilities with three examples:*

- *a randomized experiment comparing the student evaluations of male and female instructors (MacNell et al., 2014)*
- *a study of the correlation between salt consumption and mortality on the level of nations*
- *assessing inter-rater reliability of eight raters who rated multiple time points in ten videos*
- ***potential other option: constrained matrix permutation with Stefan's shark data, or other education evaluation data***

We discuss future plans for the software's development.

Keywords. *Software; Permutation tests; Python; up to 2 more*

References

MacNell, L. and Driscoll, A. and Hunt, A. N. (2014). What's in a Name: Exposing Gender Bias in Student Ratings of Teaching. *Innovative Higher Education*, 1–13.