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Screening for Factors Affecting Application Performance in Profiling Measurements

This report provides an example application of screening techniques in experimental computer science, including validation and selection of metrics and measures, the screening experiment itself, and supporting statistical methods. Together with related references, it is intended to encourage other computer scientists to make more use of established statistical methods in performance evaluations.

The described screening experiment sought to identify which of three factors (environment, frame pointers, and profiler options) affected the performance of the application under test. The results showed that they all had a measurable impact, but the shapes and ranges of the distributions of measurement results would likely make their impacts immaterial in experiments using smaller samples. The validation phase of this experiment yielded evidence that the ill-behaved distributions are attributable to actual performance variations rather than measurement error.

The attached zip file includes:

- Intro Page.pdf
- Terms and Conditions.pdf
- Factors Affecting App Performance.pdf