



[Go to old article view](#)

[Get access](#)

Statistical Analysis and Data Mining: The ASA Data Science Journal [Explore this journal >](#)

Volume 10, Issue 3

June 2017

Pages 166–181

[View issue TOC](#)

Special Issue:

CoDA 2016 Special Issue: Selected Papers from the Conference on Data Analysis 2016 – Part I

Original Article

Panning for gold: Enhancing the precision of sensitivity test data

David H. Collins [Brian P. Weaver](#), [Michael S. Hamada](#)

First published:

17 May 2017 [Full publication history](#)

DOI:

10.1002/sam.11345 [View/save citation](#)

Cited by (CrossRef):

0 articles [Check for updates](#) [Citation tools](#)

Abstract

Sensitivity tests apply a range of stimulus values to experimental subjects and record binary responses in order to estimate the distribution of threshold values in the subject population, where thresholds delineate responses from nonresponses. In many applications, such as explosives engineering, individual tests are expensive and are conducted in small runs. Scarcity of data results in nonexistence of estimates, or estimates with low precision. We discuss various methods, such as combining test runs, covariate analysis, and penalized maximum likelihood, for enhancing precision and “mining more gold” from expensive test results.

[Get access to the full text of this article](#)

» Article Information

» Related content

Articles related to the one you are viewing

WILEY

[Browse Publications](#)

[Browse by Subject](#)

[Resources](#)

[Help & Support](#)

[Cookies & Privacy](#)

[Terms of Service](#)

[About Us](#)

[Wiley Job Network](#)

