

3 May 2023

Editors
Journal of Computational and Graphical Statistics

Dear Dr Jones and Dr Liang,

Please consider our manuscript "A Plot is Worth a Thousand Tests: Assessing Residual Diagnostics with the Lineup Protocol" for publication in the Journal of Computational and Graphical Statistics.

The paper describes a problem with conventional testing for doing residual diagnostics. The work arose from preliminary research into building a computer vision model to process residual plots. When collecting the training data, from crowd-sourcing evaluations of lineups on simulated residuals, we discovered that the power of the conventional tests are much higher than the visual test. The difference was even bigger than reported in the validation of visual inference study conducted by Majumder, Hofmann and Cook (2013) in JASA, where the comparison was on regression coefficients. So we initially thought, oh this is bad for visual inference, but actually it's good for visual evaluation of residual plots and bad for conventional testing. The paper explains why this is. It should be of interest to readers, especially for analysts interested in diagnosing their models.

Thank you for the consideration of this manuscript. We believe that it is a good fit for the Journal of Computational and Graphical Statistics.

Sincerely



Weihao Li, B.Comm (Hons)
PhD student
Department of Econometrics & Business Statistics
Monash University, Victoria 3800, Australia.

✉ patrick.li@monash.edu ☎ +61 3 9905 2608

🏠 <https://github.com/TengMCing>

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