Authors' Response to Reviews of

An Improved Minimum-Distance Texture Estimator for Speckled Data under the $\mathcal{G}^0$ Model

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RC: *Reviewers' Comment*, AR: Authors' Response, ☐ Manuscript Text

1. Reviewer #1

1.1. Summary

> This paper addresses the proposal of new estimators based on the minimum distance for the roughness parameter of the $\mathcal{G}^0$ distribution, as an extension of [1]. Particularly, authors combine the triangular distance with the gamma and log-normal asymmetric kernels to develop their estimators. Synthetic and real experiments indicate the proposals are more robust than the estimators based on maximum likelihood and log cumulant.
>
> In my opinion, the problem to be tackled is very interesting and the paper is well written and presents convincent practical results. However, some questions in the presentation of the novel method need to be answered. My recommendation is "accepted before major revisions".

AR: We would like to thank the reviewer for the careful analysis of our work. We agree with the suggestions, and we have proceeded accordingly.

1.2. Critical comments

> - In works of statistical inference, the proposal of estimators need to be accompanied of their respective standard error. I think that author should explore meaningfully this aspect in your proposal. I know that authors presented the Figure 13 on which it is made a study on asymptotic confidence interval via bootstrap for the proposed estimators, but several issues need to be answered.
>   - It is known that the maximum likelihood estimators has minimum asymptotic variance. What about $\widehat{\alpha}_{LC}$, $\widehat{\alpha}_{\Gamma}$, and $\widehat{\alpha}_{LN}$?
>   - What about the asymptotic distributions on the considered estimators? Please furnish a discussion about this point.
>   - Why were the intervals due to $\widehat{\alpha}_{ML}$ and $\widehat{\alpha}_{LC}$ not approached?
>   - When increasing n of 9 to 25, should the length of intervals not diminish?
>
> For instance, Tables 4–7 must present their respective standard errors.

AR: Ok, I changed this:

> The cat in the box is ~~dead~~alive.
>
> $$E = mc^2 \tag{1}$$
>
> $$m \cdot a = Fv = p. \tag{2}$$

1.3. Detailed comments

- (page, column, line)=(p,c,l)=(1,2,33): Present citation for the next sentence:
  "...which appears from the use of coherent illumination [?,?]. "
- (page, column, line)=(p,c,l)=(2,1,16): I think the next phrase is not always true. Please, rewrite.
  "Tison et al. [50] showed that estimators based on logcu- mulants outperform the ML estimator for the parameters of the amplitude G 0 distribution. "
- (page, column, line)=(p,c,l)=(2,1,16): Replace "...proposed an MDE estimator ..." by "...proposed a MDE estimator ...".
- Define Ω in Equation (1).
- (page, column, line)=(p,c,l)=(2,2,18): What does the term "distribution functions" mean?
- (page, column, line)=(p,c,l)=(3,1,55): $\alpha \in (1, -3)$? Is it correct?
- (page, column, line)=(p,c,l)=(3,2,17): It is known that the variance of $X \sim \mathcal{G}^0$ is infinity for $\alpha \geq -2$. If authors go to consider the interval $\alpha \in (-2, -1)$, it is important to mention this problem.
- Equation (6): Is it correct?
- (page, column, line)=(p,c,l)=(3,2,24-35): It is not enough to mention only the used interactive method. How was it made the initial input?
- Equation (8): This expression should be rewritten, the integration operation is pretty informal.
- (page, column, line)=(p,c,l)=(4,1,45-52): This text was mentioned in the introduction section. Please remove it.

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- (page, column, line)=(p,c,l)=(4,2,35-39): With respect "It can be seen that these kernels fit well the theoretical density function even for a small sample size.", it is not clear why the IG kernel is a good proposal.
- (page, column, line)=(p,c,l)=(4,2,58): Please, rewrite "It is essential to have measures that quality the quality of the estimation."
- (page, column, line)=(p,c,l)=(9,1,43): Replace "...techniques methods..." by "...methods..."