

Review of: "On a New Two Point Taylor Expansion With Applications"

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Potential competing interests: No potential competing interests to declare.

I don't know what the stars mean here---what the baseline is. So take my "two stars" with a grain of salt.

The main fault I find with the paper is that it does not engage with the literature. Two-point Taylor series have been in use since the time of Hermite in 1873. I have written about them myself (I don't care that the author has not cited my paper---I am retired, and it doesn't matter.) You can find my paper at <https://doi.org/10.5206/mt.v3i1.15890> if you like; what matters here is that I cited prior work. I also spent time and effort on the numerical stability of the formula as well as its efficiency. The formula of Hermite, which I use, is different from the author's formula, and so this paper under review has a novel contribution (at least, I think it's novel---there are a *lot* of papers on Hermite interpolation, which is surely related, and the author's formulation is reminiscent of at least some of them).

I also prefer plots of the error, $f(x) - \text{approximation}$, rather than plotting the two things on the same graph, which at best supplies visual agreement.

Last, I wonder about efficiency. One can rewrite the formula so that it is a sum of terms of the form $(x-x_0)^{m_1}(x-x_1)^{m_2} \dots (x-x_{n-1})^{m_{n-1}}$, and perhaps that would lead to better efficiency or stability. But these ideas were not addressed in the paper, at all, as far as I could see.