

Review Form 3

Journal Name:	Journal of Advances in Mathematics and Computer Science
Manuscript Number:	Ms_JAMCS_126625
Title of the Manuscript:	Computational Aspects Of Determinant And Inverse Of Tridiagonal Toeplitz Matrix
Type of the Article	Original Research Article

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	The importance of calculating the inverse of matrices in general is to improve the computational cost, efficiency and numerical stability of algorithms. For this reason, for a matrix with a particular structure (Tridiagonal, band, Toeplitz, circulant, Hankel, Gauss, Vandermonde, etc.), it is advisable to always use specific algorithms, which are more efficient than standard algorithms. In addition to the structure of matrices, there is sometimes the problem of large size. In fact, the mathematical models used today are of ever-increasing size, due to the computational precision typically required: greater precision calls for finer discretization and therefore very large matrices. Unfortunately, classical methods such as, for example, the famous Gauss elimination, which are of the order of $O(n^3)$ flops, are no longer the best methods of choice in this case. Consequently, the design of efficient, fast and robust algorithms is crucial.	
Is the title of the article suitable? (If not please suggest an alternative title)	In my opinion, it's better to choose the following title: On the determinant of a tridiagonal Toeplitz matrix	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The summary does not describe the methodology for solving the problem in detail.	
Are subsections and structure of the manuscript appropriate?	Unfortunately, no	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	The abstract does not describe the methodology for solving the problem in detail.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. -	References are not sufficient for everything in section 1 and 2, other references must be added and quoted in lemmas or theorems... Here are a few references for this type of problem: <ol style="list-style-type: none"> 1- F. Aoulad Omar and C. Tajani, A new algorithm for solving Toeplitz linear systems, <i>Mathematical Modelling and Computing</i> 10(3), 807–815 (2023). 2- F. Aoulad Omar and C. Tajani, Numerical algorithm to compute the inverse of tridiagonal quasi-Toeplitz matrix, <i>Palestine Journal of Mathematics</i>. Volume 13 (2024), 113-126. 3- Rojo O. A new method for solving symmetric circulant tridiagonal systems of linear equations. <i>Computers and</i> 	

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	<p>Mathematics with Applications. 20 (12), 61-67 (1990). 4- S. Noschese, L. Pasquini and L. Reichel, Tridiagonal Toeplitz matrices: properties and novel applications, Numer. Linear Algebra Appl., 20 (2013): 302-326.</p>	
<p>Minor REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>Yes</p>	
<p>Optional/General comments</p>	<p>After studying this article, I have the following comments:</p> <ol style="list-style-type: none"> 1- In the introductory section we note that the form of the problem matrix does not satisfy the structure of the Toeplitz matrix. 2- Part 2 does not provide a clear and detailed survey of previously published research into this type of problem, in this part is not complete and lacks explanations and citations of articles as well as discussions of previously published work. 3- The Theorems presented in section 3, are they new theorems or are they from other authors, so if the case, we must quote these works 4- Algorithm steps unclear 5- We need to add a section of numerical results after the algorithms section, and this article lacks the numerical section, so how can we validate these results if we don't have numerical simulations? 6- The performance and efficiency of this algorithm can be proven, if we have compared it with other existing algorithms (several numerical simulations), which is unfortunately lacking in this paper 	

PART 2:

	<p>Reviewer's comment</p>	<p>Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</p>
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

Reviewer Details:

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