We would like to sincerely thank the reviewers, the editors, and everyone else involved in the processing of our paper. We have been preparing an adjusted version of the paper, with a significantly shorter introduction, and more emphasis on the technical ideas, in accordance with comments from the reviewers, to the best of our abilities. It can be accessed in this link: Matrix_Completion_COLT2025__Copy_1_.pdf

We admit that the main body is still longer than 12 pages, even after removing the table of content page. We will continue to fix and trim it in the next 2 days, and will appreciate greatly if the reviewers can check back in the same link after 2 days. We put the current version online first to allow reviewers to have a look immediately. We hope this new version can eventually be deemed above the threshold for acceptance, in which case we will continue to improve the paper should the reviewers have more comments and suggestions.

1 Response to Reviewer 1

We sincerely apologize for the excessive length of our paper, especially the introduction and the literature review part. Our original version was written with a submission to a Math journal in mind, which usually favors a more thorough survey of the subject over conciseness. At the time of submission, we tried our best to meet the length requirement. Our new version will meet the length requirement and will have a more concise structure and more emphasis on the technical idea behind our algorithm.

Secondly, partly due to our inexperience as mathematicians, partly due to the vastness and activeness of the field of Matrix Completion, we were not fully aware of recent development and have missed several notable papers in our short survey. We are conducting additional reviews on the paper you mentioned and other works based on singular value thresholding, and will integrate them into our paper within one week.

Thirdly, we further thank you for the advice on using `\citet` and `\citep`. Previously, we only used `\cite`, which caused semantical conflicts with our writings in the conference's style, such as doubling the names of authors in each citation. Our new version fixed these issues.

We will be grateful if you could take the time checking the new version, and hope it comes closer to your standards. We will appreciate and try our best to follow any further comments and suggestions you have.

2 Response to Reviewer 2

We would like to thank you again for reviewing and giving a favorable opinion on our paper. We hope our new version still meets your standards and alleviates your concerns about the length and structure.

Regarding our technical novelties, we acknowledge the role of Tran and Vu (2024) as a heavy inspiration for our approach (our apologies for the incorrect year in our previous version). Our technique, while still based on their contour integral and power series ideas, already diverges from theirs in the way we expand the series. Let us summarize below:

- To serve the purpose of bounding the infinity norm of the error matrix ($(A+E)_s - A_s$ in the matrix completion case), we need an entry-wise bound on its power series expansion. Thus we fix two indices j, k and analyze $e_j^T \mathcal{T} e_{n+k}$, where $\mathcal{T}$ is the power series for the *symmetrized* error matrix.
- To bound this quantity, we need to alter the series expansion from (Tran and Vu; 2024) to give rise to powers of E instead of the alternating products of the form $EQEQ\dots QE$ (where $Q = I - WW^T$ with W being the eigenvectors of the symmetrized A).
- Besides requiring the novel semi-isotropic bounds, the step above also alters the formulae of the scalar contour integral coefficients, leading to us having to find and prove a new bound for the new coefficients.

We have tried to place more emphasis on these technical novelties in the new version. We will make further changes should you require.

3 Response to Reviewer 3

We would like to thank you again for reviewing and giving a favorable opinion on our paper. We hope our new version still meets your standards, and will try our best to follow any additional comments and suggestions you may have.