Title and author of the paper

Blind Separation of Spatial Audio using Projection-based Method
By Narges Mohammadi

Summary of the paper

This paper is about separation of multi-channel audio signal using a projection-based approach. The author first project the original spatial mixture onto the complex plane, which makes it easier to handle in the next process. Then they performed proposed separation approach using the estimated parameters and the projection tensor. In the evaluation process, the author generated 150 test mixtures containing 600 separated sources. The experimental result is expected to outperform the baselines.

Good things about the paper

The proposed method is good because it managed to make use the advantages of the two kinds of models it combined: non-negative tensor factorization and probabilistically methods. Which means, the proposed approach is computational efficient, and theoretically adequate. Even if there are many formulas in this paper, the authors managed to illustrate the process clearly with explicit notations and good logical structure.

Major comments

The overall structure of the method description needs improvement. It seems a little bit confusing to me, that the 'method', 'spatial' and 'separation' sections appears equally. If I understand it right, the special projection part and the separation approach are both the core of this article, which means they are the 'method' the author intend to propose. So, I suggest merge these two parts and call it 'method', and fond another name for the existing 'method' section. Also, evaluation section can be addressed and form an independent section. Because it is important, and the evaluation is for the whole proposed process, not only the separation part.

Furthermore, it would be helpful if the author can give an explicit description about the relationship between the 'punctual anechoic model' and 'diffuse object model' described in section 2.

Besides, the authors may want to add further illustration for the table 1 and table 2. There are two three problems about the two tables. The first is the authors did not define what the abbreviations in the tables are, how they are calculated and what information they indicate. The second problem is, in table 1, the abbreviation is bold but table 2 did not. The last concern is, the author may want to give a further analysis of the result presented in this two table, which includes the different influences of Angle and Delay to the result, how different evaluation changes in response to the Angle and Delay change, etc.

Minor comments

1. In the second sentence of the Evaluation part, the author may want to delete the '-' between the 'test' and 'set'.
2. There is no full stop for the last sentence of the conclusion.