We would like to thank you and appreciate your clear review, important points and invested time. Before going through your comments, we want to inform you that we have added the results of another high dimensional experiment, visual odometry task. Please note that these results were almost ready at the time of the submission, but due to the page limit we decided to cover two high dimensional experiments, single-double pendulum, and two low dimensional experiments, Lorenz and NCLT. But, because of the concerns of some reviewers about higher dimensional experiment results, we have merged single-double pendulum experiment and added visual odometry results in the rebuttal version.

We try to clarify point by point based on your comments and feedback.

The paper does not have sufficient support to claim that the proposed method is preferred for the cases, where the underlying dynamics is non-linear (lines 38-43). It needs to include at least one high-dimensional application with non-linear dynamics and compare against VAE or GP-SSMs techniques, which can handle high-dimensional cases with non-linear dynamics.

R1.

We think newly added experiment for visual odometry can address your concern, where the observations ($1241 \times 376 \times 3$) are comparatively larger than single-double pendulum experiment. The results are also compared with KVAE(a GP-VAE approach). Please see page 8.

The paper claims that the proposed approach has less computational issues (line 347), however this is not supported neither theoretically (e.g. providing computational complexity analysis) nor empirically (e.g. reporting running times).

R2.

Complexity analysis for both the number of parameters and running time is provided in the appendix A.8.1 now. We provide the long version of the paper and table of complexity analysis here.

The writing of the paper can be improved ...

R3.

Thanks for finding the writing issues and letting us know. We have corrected the mentioned typos and reviewed the paper several times more to correct other potential typos.

No instructions for running the code.

R3.

We have provided an anonymous Github repository, including new added figures, tables and code instructions.

The text 'Conv2D' in Figure 2 is way too small;

R4.
To address your concern, we have proposed three new figures for fig2:

1- An overall structure 1, without subfigures in this link

2- An overall structure 2, without subfigures in this link

3- An overall structure with three separated subfigures in this link

We like to have your opinion about them.

Please use square brackets for citations and round brackets for referring to equations;

R5. Thanks for your recommendation about the citations and equations. We have addressed the mentioned concern in the rebuttal version.

Please use authors names along with citations when no additional information about the work is given, as in lines 30-31.;

R6. Thanks for your point about the author names. We have addressed the mentioned concern as well.