

# Supplementary write-up for MSiCOR codes :

## Instructions on how to generate the tables and figures in the MSiCOR draft

**Dataset :** Due to confidential issues MS patient data is shared in a de-identified format within 'MSiCOR\_REAL\_DATA' folder. However, the CLIMB data, which is used for post-analysis in the real data analysis section, is beyond our scope of sharing due to confidentiality issues.

**Tables :** Please follow the following steps for generating Table 1-8 in MSiCOR draft.

- Table 1 : Go to 'MSiCOR\_benchmark\_comparisons'. For outputs corresponding to Ackley's function, go to 'Ackley' -> 'Table\_1\_low\_dimensional' folder, then run '[Ackley\\_n\\_5\\_d\\_5.m](#)' and '[Ackley\\_n\\_5\\_d\\_5.m](#)'. Similarly for the other 3 functions, go to the corresponding folders and run the codes.
- Table 2 : Go to 'MSiCOR\_benchmark\_comparisons'. For outputs corresponding to Ackley's function, go to 'Ackley' -> 'Table\_2\_high\_dimensional' folder, then run '[Ackley\\_n\\_20\\_d\\_10.m](#)', '[Ackley\\_n\\_20\\_d\\_20.m](#)', '[Ackley\\_n\\_50\\_d\\_10.m](#)' and '[Ackley\\_n\\_50\\_d\\_20.m](#)'. Similarly for the other 3 functions, go to the corresponding folders and run the codes.
- Table 3 : Go to 'MSiCOR\_simulation\_study' -> 'MSiCOR\_with\_covariates' then follow the instructions in the '[README.txt](#)' file.
- Table 4 : Go to 'MSiCOR\_simulation\_study' -> 'MSiCOR\_with\_covariates' then follow the instructions in the '[README.txt](#)' file.
- Table 5 : Go to 'MSiCOR\_simulation\_study' -> 'MSiCOR\_without\_covariates\_EM\_comparison' then follow the instructions in the '[README.txt](#)' file.
- Table 6 : Go to 'MSiCOR\_REAL\_DATA' -> 'STEP\_1\_Finding\_number\_of\_clusters' then follow the instructions in the '[README.txt](#)' file.
- Table 7 : Go to 'MSiCOR\_REAL\_DATA' -> 'STEP\_2\_REAL\_DATA\_result' then follow the instructions in the '[README.txt](#)' file. The standard errors are calculated separately using bootstrap. For that, go to 'MSiCOR\_REAL\_DATA' -> 'STEP\_3\_Bootstrap\_for\_se' then follow the instructions in the '[README.txt](#)' file.

- Table 8 : In Table 8 we derived summary statistics based on CLIMB data, which we won't be able to share at this point of time due to confidentiality issues (may share in near future).

**Figures** : Please follow the following steps for generating Figure 1-4 in MSiCOR draft.

- Figure 1 : No codes involved
- Figure 2 : Go to '*MSiCOR\_simulation\_study*' -> '*MSiCOR\_without\_covariates\_EM\_comparison*' then follow the instructions in the '[README.txt](#)' file.
- Figure 3 : Figure 3 is not made using any programming software, rather special software for plotting. Go to '*MSiCOR\_REAL\_DATA*' -> '*STEP\_2\_REAL\_DATA\_result*'. The figure is plotted using the files '[Cluster\\_membership\\_ordered.csv](#)' and '[MSiCOR\\_DATA\\_after\\_2006\\_10\\_codes\\_have\\_covariates.csv](#)'.
- Figure 4 : Based on CLIMB data, unable to share the data/code.