The folder contains four MATLAB files. The files ‘ESSA\_I.m’ and ‘ESSA\_F.m’ are the raw interfaces of the proposed ESSA approaches, i.e., ESSA (Identity) and ESSA (Weight), respectively. The file ‘run\_single’ is the script conducting the single experiment to intuitively show the applicability of our approach on analyzing the incomplete time series with different percentage of missing data (10% - 60%). The file ‘run\_repeated’ is the script conducting the repeated simulations to obtain the statistical performance of the ESSA method.

For uses of ‘ESSA\_I.m’ and ‘ESSA\_F.m’, one may type the two commands:

|  |
| --- |
| Signal\_I = ESSA\_I(timeseries, index\_miss L, k ) |
| Signal\_F = ESSA\_F(formalerror, timeseries, index\_miss L, k ) |

Input:

timeseries: the incomplete(available) time series;

index\_miss: the locations of data missing,

L: window size

k: reconstruction order

Output:

signal: estimated signals

For example, given a complete noisy time series , the associated formal errors are . If some data in are missing, i.e., , then we will obtain the incomplete data, and . To use ESSA(Identity) or ESSA(Weight) to filter the time series , one may type the command,

|  |
| --- |
| Signal\_I = ESSA\_I(, 2:10, L, k ) |
| Signal\_F = ESSA\_F(, 2:10, L, k ) |