How to use

```
[matrixProfile, profileIndex, motifIndex, discordIndex] =
interactiveMatrixProfile(data, subLen);
```

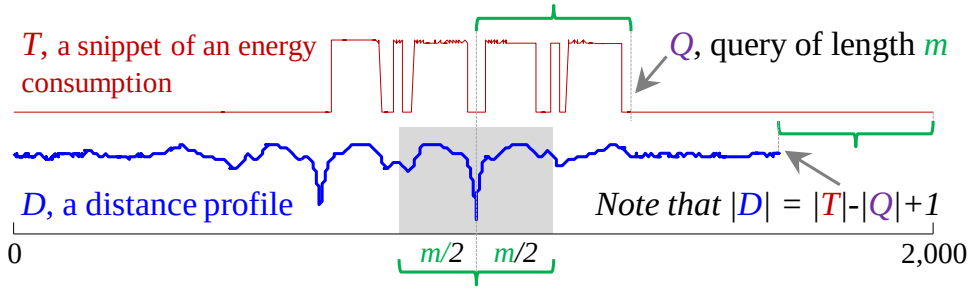
- Input
  - `data`: input time series
  - `subLen`: subsequence length
- Output
  - `matrixProfile`: the approximated matrix profile when stopped or complete
  - `profileIndex`: the approximated matrix profile index when stopped or complete
  - `motifIndex`: the detected motif index when stopped or complete (3x2 cell)

1st motif	1st motif's NN within certain radius
2nd motif	2nd motif's NN within certain radius
3rd motif	3rd motif's NN within certain radius

  - `discordIndex`: vector contains the discord's index when stop or complete

Exclusion zone

Remember we have talk about exclusion zone in the paper with the following graph.



It can be used to avoid matching the query with subsequence within certain time difference (e.g., if we set it to 10 sec, any two event happens in +-10 sec will not be recognized as motif set). The size of exclusion zone can be change if you look at line 10 in the source code. Currently, it is set to half of the subsequence length as shown in the figure below.

```
7   function [matrixProfile, profileIndex, motifIdxs, discordIdx] = ...
8       interactiveMatrixProfile(data, subLen)
9   %% set trivial match exclusion zone
10  exclusionZone = round(subLen/2);
11  % exclusionZone = round(subLen/4);
12  radius = 2;
```

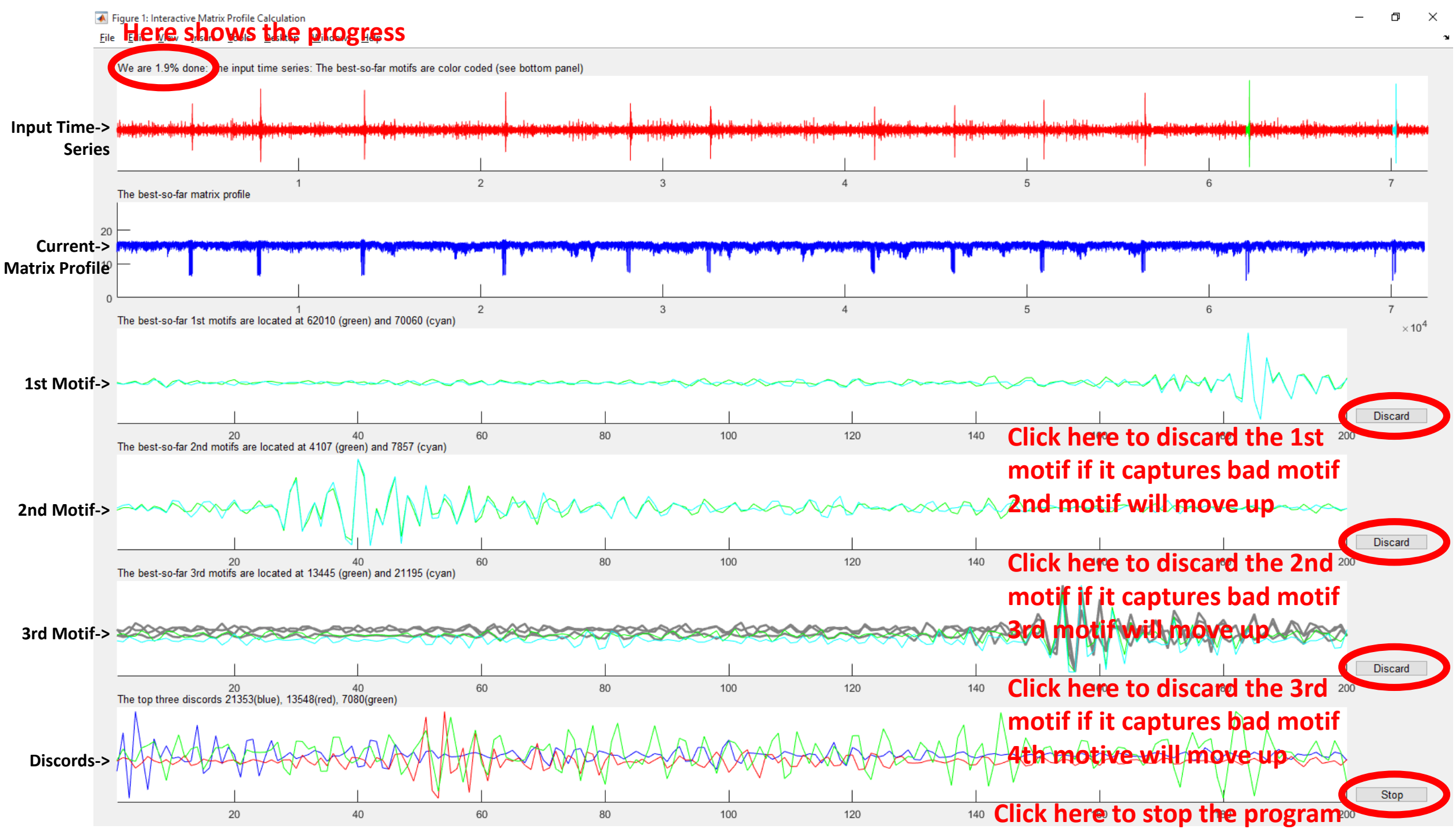


Figure 1: Interactive Matrix Profile Calculation
Here shows the progress
File Edit View Insert Tools Desktop Windows Help
We are 1.9% done: he input time series: The best-so-far motifs are color coded (see bottom panel)
Input Time-> Series
The best-so-far matrix profile
Current-> Matrix Profile
The best-so-far 1st motifs are located at 62010 (green) and 70060 (cyan)
1st Motif->
Discard
Click here to discard the 1st motif if it captures bad motif 2nd motif will move up
The best-so-far 2nd motifs are located at 4107 (green) and 7857 (cyan)
2nd Motif->
Discard
Click here to discard the 2nd motif if it captures bad motif 3rd motif will move up
The best-so-far 3rd motifs are located at 13445 (green) and 21195 (cyan)
3rd Motif->
Discard
Click here to discard the 3rd motif if it captures bad motif 4th motive will move up
The top three discords 21353(blue), 13548(red), 7080(green)
Discords->
Stop
Click here to stop the program

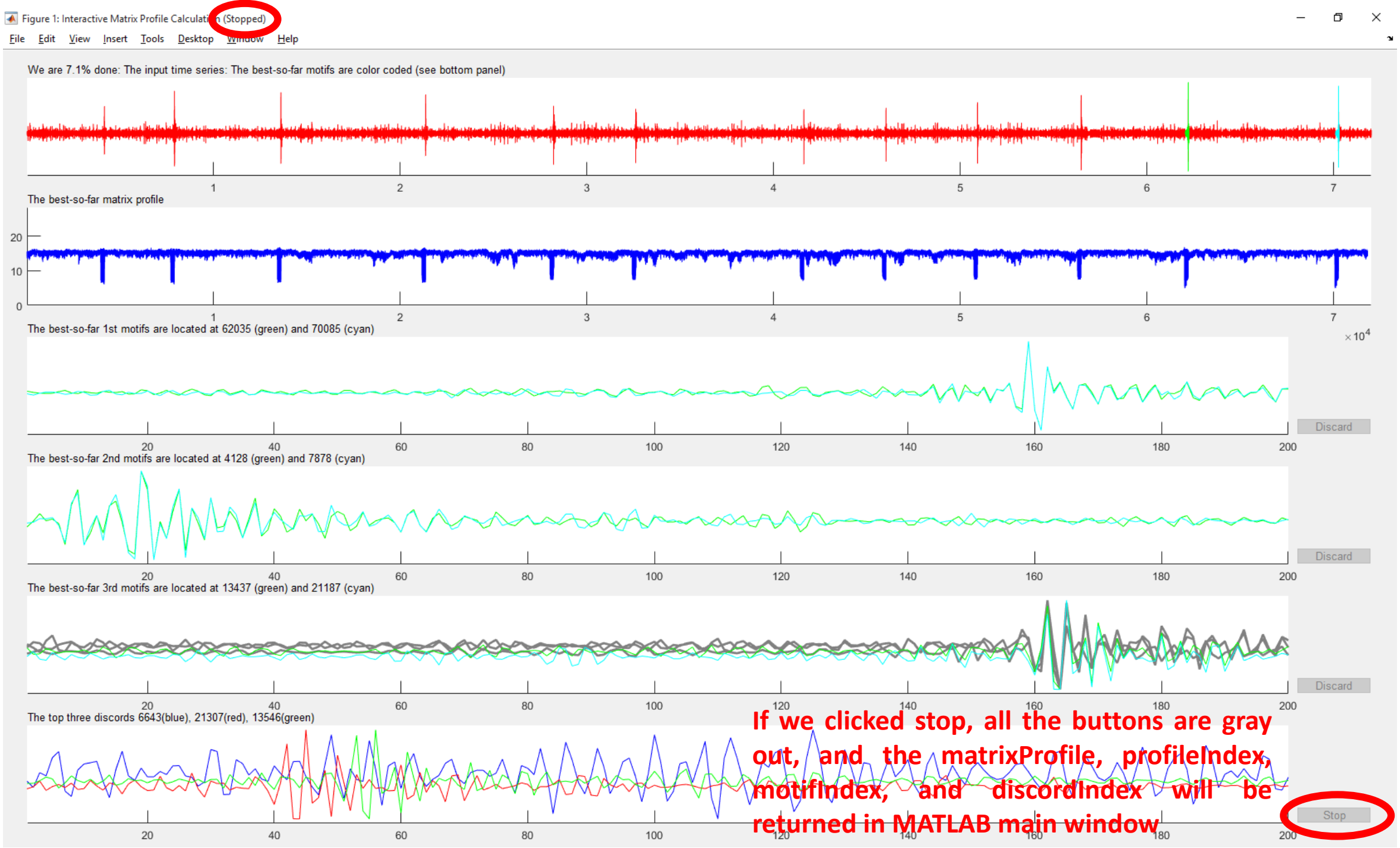


Figure 1: Interactive Matrix Profile Calculation (Stopped)
File Edit View Insert Tools Desktop Window Help
We are 7.1% done: The input time series: The best-so-far motifs are color coded (see bottom panel)
The best-so-far matrix profile
The best-so-far 1st motifs are located at 62035 (green) and 70085 (cyan)
The best-so-far 2nd motifs are located at 4128 (green) and 7878 (cyan)
The best-so-far 3rd motifs are located at 13437 (green) and 21187 (cyan)
The top three discords 6643(blue), 21307(red), 13546(green)
Discard
Discard
Discard
Stop
If we clicked stop, all the buttons are gray out, and the matrixProfile, profileIndex, motifIndex, and discordIndex will be returned in MATLAB main window