**User Manual**

**The LFS Algorithm**

1. This folder includes Matlab codes for my paper entitled “Localized Feature section and Data Classification” (indicated below in 8.a).
2. For better understanding of the properties of the localized classifier, I recommend reading Part III-B of my paper entitled “Logistic Localized Modeling of the Sample Space for Feature Selection and Classification” (indicated below in 8.b).
3. Try demo.m first to see if the code works on your computer (a sample dataset Data.mat is included).
4. This version includes both feature selection and classification. For the classification part, I used a very simple technique-- i.e. each localized region is considered as a hypersphere. You may develop/use more powerful classification techniques (based on e.g. SVM, decision tree, etc.) for the classification part to be used beside the selected localized feature sets.
5. I recommend normalizing the input data to have zero mean and unit standard deviation (using “zscore” command in Matlab). The sample dataset is already normalized.
6. There might be a slight difference between the results reported in my TPAMI paper and what you may obtain using this code, due to the differences between Matlab2012 (used for my TPAMI paper) and the newer versions of Matlab software (e.g. Matlab 2019).
7. The code can be run very fast if you have a computer with multiple cores or GPU, because the feature selection process for each representative point is independent of the others and can be performed in parallel.
8. **CITATION**: If you find the LFS method useful, please cite it as follows:
   1. N. Armanfard, JP. Reilly, and M. Komeili, "Local Feature Selection for Data Classification", IEEE Trans. on Pattern Analysis and Machine Intelligence, vol. 38, no. 6, pp. 1217-1227, 2016.
   2. N. Armanfard, JP. Reilly, and M. Komeili, "Logistic Localized Modeling of the Sample Space for Feature Selection and Classification", IEEE Transactions on Neural Networks and Learning Systems, vol. 29, no. 5, pp. 1396-1413, 2018.

Enjoy!

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