Experiment Reports on ASL dataset

Implementation Details:

- Paper implemented: http://vlm1.uta.edu/~athitsos/publications/wang_sga2010.pdf

- I have used python 3.6 for implementing the above paper

- Below I have compared my results with DTW and FastDTW (http://cs.fit.edu/~pkc/papers/tdm04.pdf)

- DTW matrix is calculated if and only if both the videos have dominant hands only or both the videos have dominant hands with non-dominants hands

- Training file used:
    # TRAIN NOTATION = annotation_gb1113.mat
    # TRAIN HAND = handface_manual_gb1113.mat

- Testing files used:
    # TEST NOTATION = annotation_lb1113.mat
    # TEST HAND = handface_manual_lb1113.mat

GITHUBLINK :

You can view the code at the following GITHUB link:
https://github.com/jayshah19949596/American_Sign_Language_Recognition

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Experimental Results are as follows:

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First time it took 4.625 hours ***[DTW]***
Got an accuracy of 0.3926325247079964
Features used only Dominant hands
Got 437 videos correct out of 1113
These results are with DTW

Sixth time it took 2.3 hours ***[FAST DTW]***
Got an accuracy of 0.39802336028751123
Features used Dominant hands
Got 443 videos correct out of 1113
These results are with fast_dtw
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Second time it took 7.6 hours ***[DTW]***
Got an accuracy of 0.48247978436657685
Features used Dominant hands and Non-Dominant Hands
Got 534 videos correct out of 1113
These results are with DTW

Fifth time it took 4.34 hours ***[FAST DTW]***
Got an accuracy of 0.4950584007187781
Features used Dominant hands, Non-Dominant Hands, and LDelta
Got 599 videos correct out of 1113
These results are with fast_dtw
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Third time it took 10.8 hours ***[DTW]***
Got an accuracy of 0.5381850853548967
Features used Dominant hands, Non-Dominant Hands, and LDelta
Got 599 videos correct out of 1113
These results are with DTW

Fourth time it took 6.12 hours ***[FAST DTW]***
Got an accuracy of 0.5381850853548967
Features used Dominant hands, Non-Dominant Hands, and LDelta
Got 599 videos correct out of 1113
These results are with fast_dtw

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Eight time it took 11.09 hours
Got an accuracy of 0.5579514824797843
Features used Ld, Lnd, and Ldelta
Got 621 videos correct out of 1113
These results are with DTW

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Ninth time it took 11.09 hours
Got an accuracy of 0.5669362084456424
Features used [Ld, Lnd, Ldelta, Od, Ond, correct co-ordinates]
Got 631 videos correct out of 1113
These results are with DTW

Conclusion :

- FastDTW Is Faster than DTW and FastDTW gives almost same accuracy as DTW
- FastDTW can not perform better than DTW in terms of accuracy
- FastDTW takes almost half the time for training than what DTW takes
- If you see my last two experimental results Using 3 features Ld, Lnd, and Ldelta and using 5 features Ld, Lnd, Ldelta, Od, Ond didn't give much difference in the accuracy but the accuracy did improve
- Everytime a new feature was added the accuracy of the program improved