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| method | HOSVD with energy | QR | SVD ON FREQUENCY SPACE | PCA | pca method errors with out first k samples: |
| details | data=data.iloc[:2000]  window\_size=100  testSize=500 #for test train split  tol\_u1=.9  tol\_u2=.98  tensorized data shape is (100, 10, 1901)  reduced\_window\_size= 21  num\_comp= 4  reduced data size is (21, 4, 1901)  unfolded data size is (1901, 84) | data=data.iloc[:2000]  window\_size=100  testSize=500  tol\_u0=.95 # to find reduced window size using energy  tol\_u1=.97 # to find reduced feature numbers  reduced window size is 42 out of 100  reduced feature size is 4 out of 10 | data=data.iloc[:2000]  window\_size=100  testSize=500  num\_comp=4  tensorized data shape is (10, 100, 1901)  reduced size transpose =(80, 4, 1901) | data=data.iloc[:2000]  num\_comp= 4 | data=data.iloc[window\_size-1:2000]  num\_comp= 4 |
| result | linear regression  mae = 58.77  mse = 6556.59  xgboost regression  mae = 70.59  mse = 8373.37 | linear regression  mae = 56.25  mse = 6347.17  xgboost regression  mae = 61.48  mse = 6569.43 | linear regression  mae = 61.85  mse = 7122.27  xgboost regression  mae = 60.23  mse = 6738.87 | linear regression  mae = 50.53  mse = 5874.98  xgboost regression  mae = 68.37  mse = 9148.82 | linear regression  mae =50.83  mse =5893.82  xgboost regression  mae =68.93  mse =9835.01 |

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| Method | HOSVD with energy | QR | SVD ON FREQUENCY SPACE | PCA | pca method errors without first k samples: |
| Details | data=data.iloc[:2000]  window\_size=50  testSize=500 #for test train split  tol\_u1=.9  tol\_u2=.98  reduced\_window\_size= 10 num\_comp= 4 reduced data size is (10, 4, 1951) unfolded data size is (1951, 40) | data=data.iloc[:2000]  window\_size=50  testSize=500  tensorized data shape is (50, 10, 1951)  reduced window size is 19 out of 50 reduced feature size is 4 out of 10  data size is (19, 4, 1951) unfolded data size is (1951, 76) | data=data.iloc[:2000]  window\_size=50  #window\_size  testSize=500  num\_comp=4  tensorized data shape is (10, 50, 1951)  reduced size transpose = (40, 4, 1951) | data=data.iloc[:2000]  num\_comp= 4 | data=data.iloc[window\_size-1:2000]  num\_comp= 4 |
| Results | linear regression  mae = 61.67  mse = 7226.89  xgboost regression mae = 62.33  mse = 6929.85 | linear regression  mae =55.46  mse =6352.48 xgboost regression mae =61.73  mse =6820.32 | new method errors:  linear regression  mae =54.16  mse =5913.55  xgboost regression  mae =70.20  mse =9405.77 | linear regression mae =50.53  mse =5874.98 xgboost regression mae =68.37  mse =9148.83 | linear regression  mae =50.83  mse =5893.82  xgboost regression  mae =68.93  mse =9835.01 |