EWNETs and Signal decomposition

Paper link

GOALS

1. Reproduce the paper above.
2. Use the following signal decomposition techniques:
    a. STL (Seasonal and Trend decomposition using Loess)
    b. EMD (Empirical Mode Decomposition)
    c. EWT (Empirical Wavelet Transform)
    d. Singular Spectral Analysis (SSA)
    e. Hilbert Huang Transform
3. You may start by implementing the four techniques in the github link here given (2.f), taking the R code as a reference.
4. Following that, implement more techniques (2.[a-e]), you may choose to implement more techniques mentioned in the introduction of the main paper.
5. Understand the physical significance of each signal decomposition technique, compare and critique them, both in context of their nature and the performance in prediction.
6. Brownie points if you can implement the paper in python instead (R has many inbuilt libraries that python doesn't yet)

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