

Learning Summary

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Contents

HHT (Hilbert-Huang Transform)

The main contents of the HHT includes two parts:

- The complicated signal can be divided into limited IMFs (Intrinsic Mode Function) by the EMD (Empirical Mode Decomposition) method.
- Using the Hilbert transform to solve the instantaneous frequency of IMFs and getting the energy-frequency-time distribution.

The advantages of the HHT:

- It is designed to analyze nonlinear and non-stationary data.
- Adaptive, uniqueness of the signal decomposition and good local properties both in time-domain and frequency-domain.

EMD-Empirical Mode Decomposition

- The EMD is a procedure that complicated signal can be decomposed into several IMFs, it's also called the sifting process. Assume the signal is $s(t)$,

$$s(t) = \sum_{i=1}^n c_i(t) + r_n(t)$$

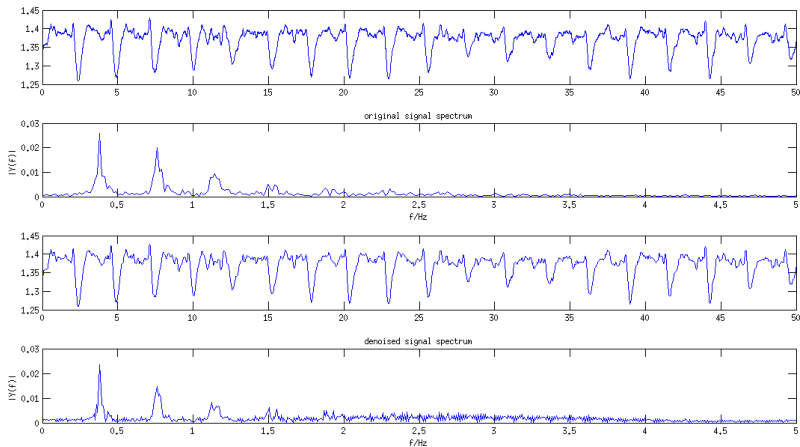
$c_i(t)$ is the IMF components, and the $r_n(t)$ is the residual term.

EMD-Empirical Mode Decomposition

The existing problem of EMD:

- Stopping criterion : Component termination conditions and Decomposition termination conditions
- Curve fitting method : Cubic splines interpolation
- Boundary conditions : Endpoint extension and Mirror symmetry

Scallops Heartbeat Analysis



Scallops Heartbeat Analysis

Contents

What did it tell us?

Four information practice:

- Information Acquisition
 - Information Consciousness and Search Consciousness
 - Search engine, Database and RSS
- Information Management
 - Endnote, WIZ and Total Commander
- Information Analysis
 - HistCite
- Sharing, Cooperation and Innovation
 - Mind Mapping

What did it tell us?

Three consciousness:

- Utilizing the tools to increase efficiency
- Time investment
 - More preparation may quicken the speed in doing work.
- Sharing consciousness
 - Sharing is the best learning style
 - Sharing can let yourself make progress
 - Sharing is a happy thing

What did it tell us?

- Develop a new method of one's own-Determine the direction
- Go ahead boldly-Do it now
- Perseverance-Make a sustain effort
- Presence of mind-Success will come when conditions are ripe

What have we learned from it?



What have we learned from it?

About the presentation-Sharing the questions and thought with others

- Communicating with teamers before the report, determine the topic and ensure the continuity.
- Try to explain the complex things as simply as we can.
- Talk about something beyond the knowledge itself, and discuss the questions and thought with the audiences.

Contents

Introduction to Computing



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