Introduction to Wavele

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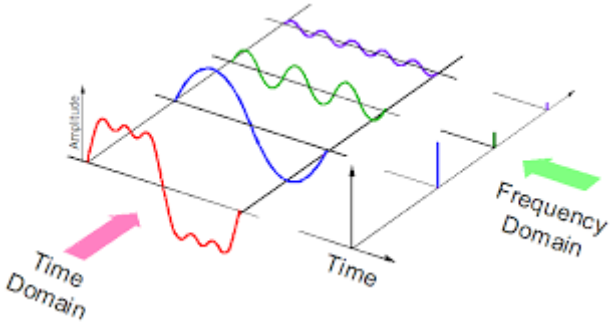
Time-series data owes its name to its data points being a function of time. If this function is sufficiently well-behaved, it can be alternatively represented as a Wavelet Series.

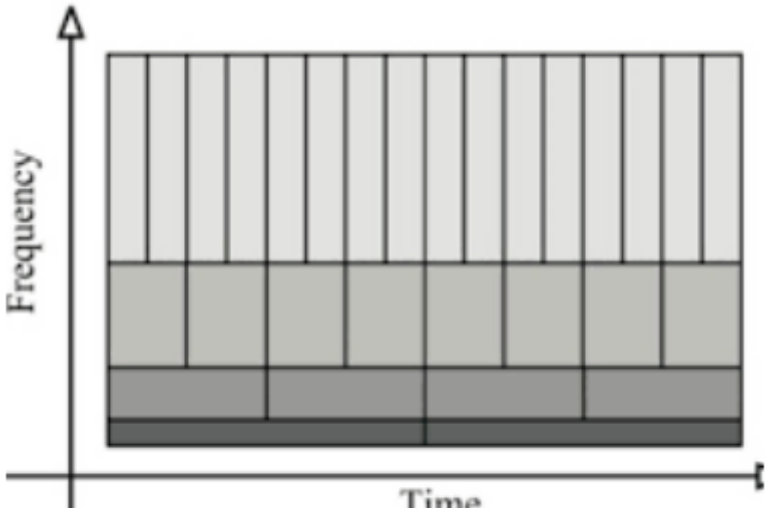
What is a Wavelet Series?

Signals bear representation in both the time and frequency domains.



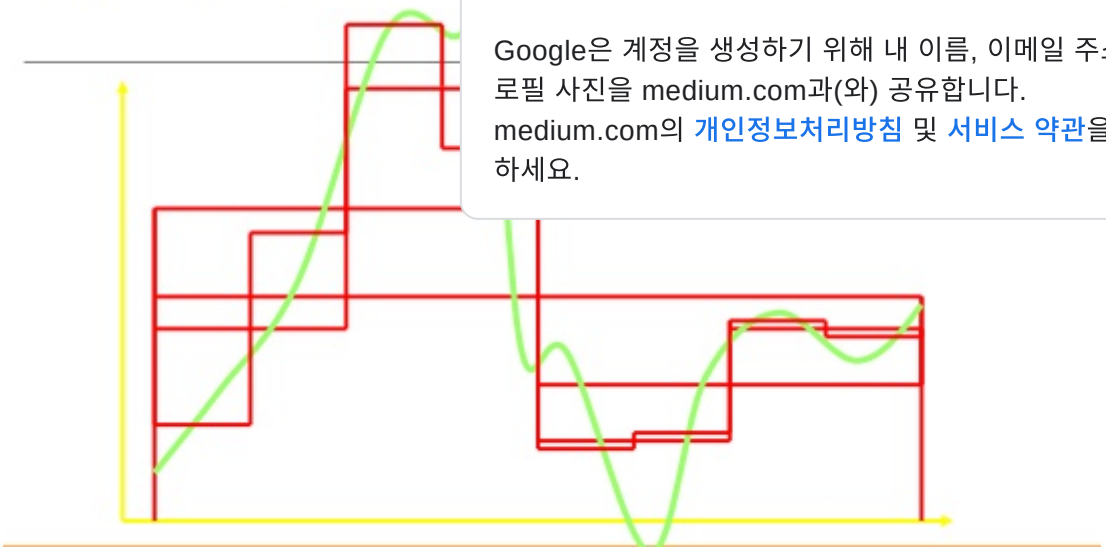
Time and Frequency Domain Representations of a Signal

Wavelet Transforms decompose a signal at multiple resolutions, and thus convey information from both the time and frequency domain:



Dyadic

In this tutorial, we will be using the D
Function:



The Haar Transform

One advantage of using the DWT with the Haar Basis Function is that the computational complexity is only linear: O(n).

One disadvantage is that, as a *discrete* wavelet transform, frequency localization is poor.

In the next tutorial, I will show you how to perform the Discrete Wavelet Transformation on Financial Time-Series Data from Quandl with Python.

Thanks!

Data Science Machine Learning Finance Timeseries Python