Universal Forecasting Scheme

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Abstract- **In this research investigation, the author has detailed a novel method of forecasting.**

INTRODUCTION

The best known methodology of Forecasting is that of Time Series Forecasting. A lot of literature is available in this domain.

THEORY

Firstly, we define the definitions of Similarity and Dissimilarity as follows:

Given any two real numbers a and b, their Similarity is given by

$$Similarity(a,b) = \begin{array}{l} a^2 \; if \; a < b \\ b^2 \; if \; b < a \end{array}$$

and their Dissimilarity is given by

$$Dissimilarity(a,b) = \begin{array}{l} ab - a^2 \; if \; a < b \\ ab - b^2 \; if \; b < a \end{array}$$

Given any time series or non-time series sequence of the kind

$$S = \{y_1, y_2, y_3, \ldots\ldots\ldots, y_{n-1}, y_n\}$$

We can now write y_{n+1} as

$$y_{(n+1)} = y_{(n+1)S} + y_{(n+1)DS} \quad \text{where}$$

And

The definitions of Total Exhaustive Similarity and Total Exhaustive Dissimilarity are detailed as follows:

$Total\ Exhaustive\ Similarity(y_i, y_j) = Similarity(y_i, y_j) + Similarity(S_1, S_2) + Similarity(S_3, S_4) + Similarity(S_4, S_5) + \ldots\ldots + Similarity(S_k, S_{k+1})$ till $S_k = S_{k+1}$ for some k

where $S_1 = \{Smaller(y_i, y_j)\}$ and $S_2 = \{Larger(y_i, y_j) - Smaller(y_i, y_j)\}$

where $S_3 = \{Smaller(S_1, S_2)\}$ and $S_4 = \{Larger(S_1, S_2) - Smaller(S_1, S_2)\}$

where $S_4 = \{Smaller(S_3, S_4)\}$ and $S_5 = \{Larger(S_3, S_4) - Smaller(S_3, S_4)\}$

....

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and so on so forth

where $S_k = \{Smaller(S_{k-1}, S_k)\}$ and $S_{k+1} = \{Larger(S_{k-1}, S_k) - Smaller(S_{k-1}, S_k)\}$

Similarly, we write

$Total\ Exhaustive\ Dissimilarity(y_i, y_j) = Dissimilarity(y_i, y_j) + Dissimilarity(S_1, S_2) + Dissimilarity(S_3, S_4) + Dissimilarity(S_4, S_5) + \ldots\ldots + Dissimilarity(S_k, S_{k+1})$ till $S_l = S_{l+1}$ for some l

where $S_1 = \{Smaller(y_i, y_j)\}$ and $S_2 = \{Larger(y_i, y_j) - Smaller(y_i, y_j)\}$

where $S_3 = \{Smaller(S_1, S_2)\}$ and $S_4 = \{Larger(S_1, S_2) - Smaller(S_1, S_2)\}$

where $S_4 = \{Smaller(S_3, S_4)\}$ and $S_5 = \{Larger(S_3, S_4) - Smaller(S_3, S_4)\}$

....

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and so on so forth

where $S_i = \{Smaller(S_{i-1}, S_i)\}$ and $S_{i+1} = \{Larger(S_{i-1}, S_i) - Smaller(S_{i-1}, S_i)\}$

Similarly, we can write the Total Exhaustive Similarity and Total Exhaustive Dissimilarity for

REFERENCES

[1] Universal Forecasting Scheme http://vixra.org/abs/1803.0069