Title (en)

SELF-STABILIZING, PORTABLE AND EFFICIENT COMPUTER ARITHMETIC USING MAPPINGS OF D SCALE POINTS

Title (de)

SELBSTSTABILISIERENDE, TRAGBARE UND EFFIZIENTE COMPUTER-ARITHMETIK MIT "D SCALE POINT"-ABBILDUNGEN

Title (fr)

ARITHMETIQUE AUTO-STABILISANTE, PORTATIVE ET EFFICACE UTILISANT DES MAPPAGES DE POINTS D'ECHELLE D

Publication

EP 1236087 A1 20020904 (EN)

Application

EP 00970970 A 20001017

Priority

- US 0028721 W 20001017
- US 16258899 P 19991028

Abstract (en)

[origin: WO0133335A1] A signal and noise processor and method for signal and noise processing that employs a D Scale, which assigns the results of arithmetic operations to a set of values of controlled density and value. The signal processor that employs repetitive mapping calculations based on a D Arithmetic has two components. The first is its set of mappings from each pair of points in a D Scale into a point in a D Scale. Thus, the processor generates a set of predetermined, arithmetic operation mappings, stored in a computer database or its equivalent. The second component is a map of measured values, into D Scale points. The minimum resolution of resolution of a D Arithmetic is determined by the reciprocal of the maximum prime number in the D Scale. However, most important, the average resolution can be orders of magnitude higher because of the irregular pattern of points in a D Scale. A tighter variance of the resolution is achieved by using more prime sub-scales to fill in the D Scale. It amplifies the effect of far fewer sample points to attain the same mean resolution, with a tight variance, as the naive, high uniform sampling rate. Further, its self stabilizing property controllably bound the round-off errors of sequential calculations. This thereby decouples actual noise from the artifact created by calculation round-off errors. The invention provides a Discrete Fourier Transform (DFT) of a signal or image as an example of any continuous-to-discrete transformation.

IPC 1-7

G06F 7/72

IPC 8 full level

G06F 7/38 (2006.01)

CPC (source: EP)

G06F 7/38 (2013.01); G06F 7/483 (2013.01); G06F 7/49947 (2013.01)

Citation (search report)

See references of WO 0133335A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

WO 0133335 A1 20010510; **WO 0133335 A9 20020801**; AU 8027400 A 20010514; CA 2390478 A1 20010510; EP 1236087 A1 20020904; HK 1048531 A1 20030404

DOCDB simple family (application)

US 0028721 W 20001017; AU 8027400 A 20001017; CA 2390478 A 20001017; EP 00970970 A 20001017; HK 02109429 A 20021231