Constant Variant in Fourier Transformation Using Digital Image Processing

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Abstract: In digital image processing each and every image expand from its origin. That origin is called pixel. Each pixel expands from it exist pixel. That picture combined with pixel. That is also called voxel(volume + pixel).How long extend from the pixel that is equal to expand the pictures. This is applied by Fourier transformation in mathematics, and tensor transformation rule in physics. Varied the pixel size and equal to the varied the picture in an image processing. So, because it is called invariant /zero variant. Put invariant processed by Wigner distribution in image processing

Key words: Pixel, Voxel, Tensor, vector.

INTRODUCTION

This paper of image processing magnitude view of the object from the single pixel . That means maximum extend with the size of an object. This is magnitude form in vector or scalar quantities. The pixel means single dot on the screen. The dot together with more than one which means image. That image are called picture. Which increase the size of the pixel and also image will be increased. That magnitude of pixels and pictures.

In tensor transformation rules in a scalar and tensor field to represent a certain interaction between the tensor field to scalar field is followed by the pixel. The pixel like as earth. The tensor field is interaction earth and object with certain pixel and pictures. So we will use rules or theory are applied.

Zero invariant by the pixel enlarge or extend from its particle. Fourier transformation is applied in mathematics. The decision of magnitude – wise of the pixel.Wigner distribution are applied which also applied to extended from its origin(pixel) of the pictures.

Thse three rules and applied to change the pictures via pixel.Which exten pixcel equal to extend the picture.So,invariant inbetween picture and pixel.While pixel size increase(magnitude) and also increase the picture size.Because used its picture size and pixel size are equal. So it is invariant of image processing from the pixel to picture.The gap between pixel and picture there is no change magnitude -wise

Of object in image processing Linear shift invariant magnitude -wise property.

A shift invariant system in once when shift in the independent variable of the input signal comes corresponding shift in the out put signal .So if the represent of signal to and input Po[n] is Qo[n] the represent to an input Po[n-no] is Qo[n-no]

The decompose is the spatial frequency does not depend on the position of the picture with in the image. If it was pixel also image for the defferent positions. The magnitude of the Fourier transformation does not change [shift invariants].P[t] as Q[t-τ].where τ is delay mode the Fourier transformation of the shifted vectors.

$$J[Q(t-\tau)] = e^{-i\omega\tau}\,(\omega)$$

Magnitude of Fourier transformation

$$|J[Q(t-\tau)]| = |e^{-i\omega\tau}\,(\omega)| = |e^{-i\omega\tau}\,(\omega)|.\,|Q(\omega)| = Q|\,\omega\,|$$

No prepared size (Scale invariant)

The dimension analysis is basic relation between the physical entities or solve the problem. First made a matrix form in the derivation units. N die mention case, in the Fourier domain the variables are W = with gap in the special domain. α special frequency vector D0 = outside of the luminance. D = Lluminance after observation through the piezotropy axiom state that there is no prepared for derivation. Only the length of vector W $\overrightarrow{\propto}$ = W α, which is scalar.

Quality/Derived quality	W	α	D	D0
Length	+1	-1	0	0
Intensity	0	0	+1	+1

Two fundamental quality and four derived quality which may be raised arbitrary powers Pi theorem.

Maximum mode is physical variable minimum role of the matrix =

4 -2 =2

Two dimensional qualities we choose D/D0 and W α,So,

D/D0 = G((W α)^{p})

Gap possible location of the image.

D($\vec{s}$,W) = D0*G(s;W)

Conversion operation F*G = $\int_{-\infty}^{+\infty} F(u) * G(s-u)du$

The Fourier domain convolution because multipicture.

D (α; W) = D0(α)*G(α;W)

Asymptomatic behavior of a system at the board scales. We find that invariant scale that the image is not scaled at all.

$$\lim_{W\alpha\downarrow 0} G(W\alpha) \to 1$$

Outer scale complete

$$\lim_{W\alpha\uparrow 0} G(W\alpha) \downarrow 0$$

The total scaling of such a case cade of scale invariant must consider rescaling of two G($W1, \alpha$) and G($W2, \alpha$) Rescaling G($W3, \alpha$)

W3=W2⊕W1comutative semi group G(α1W)* G(α2W) = G(α1W)* G(α2W)

Commutative semigroup

G(αW)* G(αW) = G(αW1)* G(α2W)^{P}

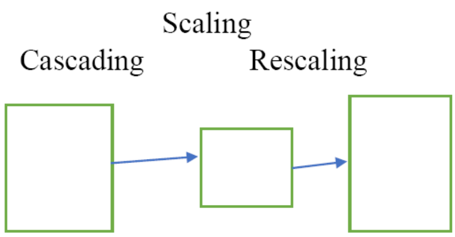
Solution is constraint G(αW)= exp(βαW)^{P}

W = Real length

Cascading properties

Linear differential equation $\frac{\partial c}{\partial d} = \underset{\nabla}{\rightarrow} . \underset{\nabla}{\rightarrow}_{c} = \Delta c = c_{xx} + c_{yy}$.

Generating multicover representation is also known as image evaluation



TENSOR THEORY

The center of coordinate independent physics. The tensor analysis give as an easy way to construct the invariant to one real. Actually, list of lists of …etc. One tensor is a single item of member. The two tensor represented by matrix. It should be transfer vector in a vector. The excellent introduction tensor analysis special partial derivative as tensor.One tensor t_i denotes gradient retrolaminar function t(p,q,r), odder representation to p,q&r.

Two tensor t_{ij} differential noble operators

$$\left\{ \frac{\partial t}{\partial p}, \frac{\partial t}{\partial q}, \frac{\partial t}{\partial r}, \right\}$$

There are two constant tensors

- Kronecker delta tensorδ_{ij},Defined as unit or symmetry operator. This tensor has value one. When the induces has same value and another zero others.
- Lacy Ciritnepsilon tensor $\sum_{ij}$ defined as antisymmetric operators. One element of this tensor takes the sign of the permutation of indices(I,j,..).

$$\Sigma^{ij} \equiv \begin{Bmatrix} -I & 0 \\ 0 & -I \end{Bmatrix}$$

$$\varrho^{ij} \equiv \begin{Bmatrix} 0 & I \\ I & 0 \end{Bmatrix}$$

Linear transformation to the displacement vectors.

$\underset{x}{\sim} i = a_{ij}\, x_{j(and}\, x_{i=} a_{ij}^{-1} \underset{x}{\sim} j)$

Chain rules says

$\underset{\nabla}{\sim} it = a_{ij}^{-1} x_j$

Generally, X_i and L_i transfer differently

X_i is said to be contravat vectors

L_i is said to be covariant vectors. Center variant upper indices $X_i = X^i$

Becomes centurion frames convert and contra tensor.

$$a_{ij}^{-1} = a_{ij}$$

Invariant properties.

Form inner product in such a way scalar value rank out. Summing over previous indices. The summation symbol is often omitted and centric is known as Einstein convention

3D indices $t_i t_i \equiv \Sigma\, t_i t_i = t_x^2 + t_y^2 + t_z^2$ Square gradient.

$t_{ii} \equiv \sum_{i=x,y,z} t_{ij} = t_{xx} + t_{yy} + t_{zz}$ Laplacian

Where t_x denotes $\frac{\partial t}{\partial x}$.Invariant is called manifest invariant. Important compute vision area in front of polynomial expression of a set of unreducible invariant 2D

$t, t_i t_i, t_{ii}, t_i t_{ij} t_j$ and $t_{ij} t_{ji}$ irreducible invariant form is fixel of brain structure dissector such as texture description and pattern classification.

HUMAN VISION

Pre attentive stage eyes respective field of strikes range of size sensitive resembles profile closely resembles a Laplacian off Gaussian(resolution 256x256 pixels, scalar range 256 level from 1-15 pixel not the free structure while is increasing scale) from the projection of visual context good taxonomy for the kind of cells found

Simple cell, complex cell, hyper complex cell, and stopped cells.

Differential properties of image

N-jet j^N

Visual system can be consider a cascade of level (v1&v2) etc…..

MORPHOLOGICAL

In method of morphology represented by state of image structure element inverting size .The flexible and changing the size of element is related to the flexibility. That is convex structure of element state is differentiate semi-group properties.

CONCLUSION AND FUTURE SCOPE

X (V) -> g(V) ->shift$_x$(V,t)

This process easily identified the object by long sight or short sight .because we can enlarge picture or object by the pixel wise (magnitude-wise) .so such a pixel enlarge by its size .equal to the extended image or picture .Its invariant by the role of tensor. Satisfied by the tensor transformation. the image extended pixel also extended picture. But is suitable for the eye sights. Because varying the eye sight .equalant to either picture resultant of eye sight. The form of transformation represented of image of complex magnitude image and picture Fourier transformation is plays critical role of broad range of imaging processing approaches.

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