API Documentation

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February 27, 2015

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1 Module CsTransform.pynufft

package docstring author: Jyh-Miin Lin (Jimmy), Cambridge University address: jyhmiinlin at gmail.com Created on 2013/1/21

First, see test_1D(),test_2D(), test_3D(), examples

1.1 Functions

DFT_slow(x)

Compute the discrete Fourier Transform of the 1D array x
https://jakevdp.github.io/blog/2013/08/28/understanding-the-fft/

DFT_point(x, k)

Compute the discrete Fourier Transform of the 1D array x
https://jakevdp.github.io/blog/2013/08/28/understanding-the-fft/

show_3D()

test_3D()

test_prolate()

test_2D()

rFOV_2D()

test_radial()

test_1D()

test_2D_multiprocessing()

test_wavelet()

histeq(*im*, *nbr_bins*=256)

Histogram equalization of a grayscale image.

test_SR()

1.2 Variables

Name	Description
cmap	**Value:** `matplotlib.cm.gray`
norm	**Value:** `matplotlib.colors.Normalize(vmin= 0.0, vmax= 1.0)`
__package__	**Value:** `'CsTransform'`
bpass	**Value:** `array([ 6.85477291e-13, 6.85293298e-13, 6.84956443e-...`
dirichlet	**Value:** `<scipy.interpolate.interpolate.interp1d object at 0x7f6b3...`
t	**Value:** `array([-49.9875, -49.975 , -49.9625, ..., 49.975 , 49.9...`

1.3 Class pynufft

CsTransform.nufft.nufft

CsTransform.pynufft.pynufft

1.3.1 Methods

__**init**__(*self*, *om*, *Nd*, *Kd*, *Jd*, *n_shift*=None)

constructor of pyNufft

Overrides: CsTransform.nufft.nufft.__init__ extit(inherited documentation)

initialize_gpu(*self*)

Overrides: CsTransform.nufft.nufft.initialize_gpu

gpu_k_deconv(*self*)

gpu_k_modulate(*self*)

gpu_Nd2KdWKd2Nd(*self*, *x*, *weight_flag*)

Now transform Nd grids to Kd grids(not be reshaped)

gpu_forwardbackward(*self*, *x*)

true_forward(*self*, *my_phantom*)

compute the exact NUFT without sparse approximation only for simulation

forwardbackward(*self*, *x*)

pseudoinverse2(*self*, *data*)

density compensation

pseudoinverse3(*self*, *data*, *mu*, *LMBD*, *gamma*, *nInner*, *nBreg*)

pseudoinverse(*self*, *data*, *mu*, *LMBD*, *gamma*, *nInner*, *nBreg*)

forwardbackward2(*self*, *x*)

Update the data-space

maxrowsum(*self*)

backward2(*self*, *X*)

backward2(x): method of class pyNufft

from [M x Lprod] shaped input, compute its adjoint(conjugate) of Non-uniform Fourier transform

INPUT: X: ndarray, [M, Lprod] (Lprod=1 in case 1) where M =st['M']

OUTPUT: x: ndarray, [Nd[0], Nd[1], ... , Kd[dd-1], Lprod]

adjoint(*self*, *f*)

adjoint operator to calcualte AT*y

adjoint2(*self*, *f*)

adjoint operator to calcualte AT*y

Inherited from CsTransform.nufft.nufft

Kd2Nd(), Nd2Kd(), backward(), emb_fftn(), emb_ifftn(), finalization(), forward(), gpufftn(), gpuifftn(), linear_phase(), pipe_density()

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