Image Toolbox Manual

Chapter 1

Introduction

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A. The Image Toolbox

The Image toolbox contains general image processing operators, and the kimage_proc library.

These routines provide processing of multiband images (images with pixel vectors). The programs adhere to the data relationships defined by the image model, which directly maps onto the polymorphic data model. All kimage_proc functions are written to operate on width-height planes of the polymorphic model. If the depth, time, or elements dimensions of data object are greater than one, the operation is repeated for each width-height plane. Since the image model is a subset of the polymorphic model, Image toolbox programs are interoperable with other polymorphic model-based toolbox programs. The Image toolbox is implemented using the polymorphic data services, which is contained in the dataserv toolbox.

The Image toolbox requires that the bootstrap, dataserv, and datamanip toolboxes be installed.

B. Image Operators Organized by Category/Subcategory

The following table contains a listing of the image processing operators that are available in the Image toolbox. Table entries are organized by category and subcategory. A brief description of each operator is given, followed by name of the executable.

`IMAGE` — **Image Processing & Analysis Operators**			
Category Subcategory	**Operator**	**Description**	**Executable**
Image Proc Data Compression	Compress Colors	Compress Color Multiband Image to Single Band with Map	`igamut`
Image Proc	Band-Pass	2-Dimensional Band-Pass Filter Design	`ibpf`
Frequency Filter	Band-Stop	2-Dimensional Band-Stop Filter Design	`ibsf`
	High-Pass	2-Dimensional High-Pass Filter Design	`ihpf`
	Low-Pass	2-Dimensional Low-Pass Filter Design	`ilpf`
Image Proc	GeoWarp	Perform Direct Bilinear Geometric Warping	`igeowarp`
Geometric Operators	Rotate	Rotate Object by Arbitrary Angle	`irotate`
Image Proc Nonlinear Filters	Median	Median Filter for Image Data	`imedian`
Image Proc Spatial Filters	Gradient Operator	Gradient Operators (Roberts, Sobel, Prewitt, Isotrophic)	`igradient`
Input/Output Generate Data	2D Gaussian	Generate Gaussian Function Image	`igauss_func`
Input/Output			

`IMAGE` — **Image Processing & Analysis Operators**			
Category Subcategory	**Operator**	**Description**	**Executable**
Hardcopy Output	Postscript	Convert Image to Postscript	`ipostscr`

C. Alphabetical Listing of Image Operators

The following table contains a listing of the image processing operators that are available in the Image toolbox. Table entries are organized alphabetically by the binary name, followed by the name and a brief description of each operator.

`IMAGE` — **Image Processing & Analysis Operators**		
Executable	**Operator**	**Description**
`ibpf`	Band-Pass	2-Dimensional Band-Pass Filter Design
`ibsf`	Band-Stop	2-Dimensional Band-Stop Filter Design
`ifilt_design`	Design Filter	General 2-Dimensional Image Filter Design
`igamut`	Compress Colors	Compress Color Multiband Image to Single Band with Map
`igauss_func`	2D Gaussian	Generate Gaussian Function Image
`igeowarp`	GeoWarp	Perform Direct Bilinear Geometric Warping
`igradient`	Gradient Operator	Gradient Operators (Roberts, Sobel, Prewitt, Isotrophic)
`ihpf`	High-Pass	2-Dimensional High-Pass Filter Design
`ilpf`	Low-Pass	2-Dimensional Low-Pass Filter Design
`imedian`	Median	Median Filter for Image Data
`ipostscr`	Postscript	Convert Image to Postscript
`irotate`	Rotate	Rotate Object by Arbitrary Angle
`itexture`	Texture	Texture Feature Extraction Using LAW Metrics

D. Installation Guide

This section is incomplete, and will be updated as we approach the cd release and become more familiar with what is involved with the installation process. For now, refer to the Khoros installation guide.

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