Envision Toolbox Manual

Chapter 1

Introduction

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A. Overview of the Envision Toolbox

The *envision* toolbox provides a number of applications for interactively exploring multidimensional data. The data can be visualized as images, surfaces, 2D plots, or 3D plots. The envision toolbox requires that the bootstrap, dataserv, and design toolboxes be installed. Some of the applications provided in the *envision* toolbox are listed below.

Animate is an image sequence display tool.

Editcmap is a tool for the interactive manipulation of colormaps.

Editimage is an interactive image display, exploration, and manipulation program.

Getimage is a tool for the capturing of images, or the creating of screen dumps.

Putdata is a non-interactive data display tool; it supports display of data in a variety of forms, including images, animation sequences, 2D plots, 3D plots, icons, zoom windows, and palettes.

Spectrum is an interactive program for exploring multi-dimensional data. spectrum simultaneously presents the user with multiple methods of visualizing the data and its statistics.

Xprism provides fifteen different 2D plot types and nine different 3D plot types. It supports multiple plots per area and multiple plot areas. All details of the axis, tic marks, labels, colors, line styles, and annotations are easily modified by the user. The built-in expression parser allows the user to create complex data arrays interactively. Xprism is used in conjunction with animate to produce animations of 2D and 3D data.

Feature	Animate	Editcmap	Editimage	Extractor	Putdata	Getimage	Spectrum	Xprism
Animation	x							
Autocolor Procedures	x		x					x
Clip Mask Support	x		x		x			
Colormap Operations	x		x					x
Colormap Normalization			x				x	
Colormap Functions			x				x	
Comment Modification			x					
Data Set Creation	x		x					
Function Evaluation								x
Image Capture			x			x		
Image Classification							x	
Image Display	x		x	x	x		x	
Image Icon Display					x			
Image Zoom			x		x		x	
Input File Detection	x	x	x		x			
Map Data Value Display			x		x			
Pixel Value Display			x		x			
Pseudocoloring		x	x					
ReadOnly/ReadWrite Visual		x				x		
ROI Extraction			x	x				
Thresholding		x	x					
2D Plot Display					x		x	x
3D Plot Display					x			x

A summary of the applications provided in the *envision* toolbox are listed in the table below.

`Envision` — Interactive Data Exploration Tools

Category Subcategory	Operator	Description	Executable
Visualization Image Capture	Get Image	Capture Khoros 2.0 VIFF Image From Screen	`getimage`
Visualization Interactive Display	Animate	Interactive Animation of Image Sequence	`animate`
	Edit Image	Interactive Image Display and Manipulation	`editimage`
Visualization Interactive ROI Extraction	Extract ROI	interactive image ROI extraction	`extractor`
Visualization Map Display & Manip	Autocolor	Automatically Color Data Object by Manipulating the Map	`kautocolor`
	Display Palette	Non-Interactive Display of Pseudo Color Palette	`putpalette`
	Print Map	Print Map Values Associated with Image Pixel Value	`putmapval`
	Pseudo Color	Interactively Modify Colormap Using PseudoColor Palette	`editpseudo`
Visualization Non-Interactive Display	Display Image	Non-Interactive Image Display	`putimage`
	Icon	Non-Interactive Display of Iconified Image	`puticon`
	Print Pixels	Display Pixel Values Associated with Region of Image	`putpixel`
	Put Animation	Non-Interactive Animation of Image Sequence	`putanimate`
	Zoom	Non-Interactive Display of a Zoom Image	`putzoom`
Visualization Plot Display	2D Plot	Non-Interactive 2D Plot Display	`putplot2`
	3D Plot	Non-Interactive 3D Plot Display	`putplot3`
	Interactive 2D/3D Plot	Interactive 2D & 3D Plotting	`xprism`
Visualization Spectral Analysis	Spectrum	Interactive Image Classification System	`spectrum`

The next sections of this chapter cover issues which are common to many or all of the applications available in the *envision* toolbox.

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