Vsip Functions described in the manual

Chapter	Function	Types					
		Real				Complex	
		bit	byte	int	float	int	float
Convolution	Convolution	x	x	x	x	x	x
Discrete Difference	Sobel Gradient	x	x	x	x	x	x
Discrete Difference	Roberts Gradient	x	x	x	x	x	x
Discrete Difference	Prewitt Gradient	x	x	x	x	x	x
Histogram	Density Equalization			x	x		
Histogram	Histogram Equalization		x	x	x		
Histogram	Histogram		x	x	x		
Histogram	Moving Histogram	x	x	x	x		
Histogram	Median Filter	x	x	x	x		
Morphological	Dilation	x	x	x	x	x	x
Morphological	Erosion	x	x	x	x	x	x
Morphological	Opening	x	x	x	x	x	x
Morphological	Closing	x	x	x	x	x	x
Pad	With Constant	x	x	x	x	x	x
Pad	By Reflection	x	x	x	x	x	x
Pad	By Extension	x	x	x	x	x	x
Resize	Expand	x	x	x	x	x	x
Resize	Shrink	x	x	x	x	x	x
Other	Statistics	x	x	x	x	x	x
Other	LookUpTable		x	x			
Other	Cosine Transform	x	x	x	x	x	x
Other	Connected Components	x	x				
Other	Create Image View	x	x	x	x	x	x
Other	Create Image	x	x	x	x	x	x
Other	Destroy Image View	x	x	x	x	x	x
Other	Get Offset	x	x	x	x	x	x
Other	Get Row Stride	x	x	x	x	x	x
Other	Get Col Stride	x	x	x	x	x	x
Other	Get Row Length	x	x	x	x	x	x
Other	Get Col Length	x	x	x	x	x	x

Implementations

Chapter	Function	Types						Comments
		Real				Complex		
		bit	byte	int	float	int	float	
Auxiliary	Sqrt		x	x				(6, 8, 10, 12, 14, 16, 18 and 32 bits)
Auxiliary	Complex Sqrt					x	x	
Auxiliary	Max				x			
Auxiliary	Min			x				
Auxiliary	Min4			x				minimum of 4 values
Auxiliary	Abs			x				
Auxiliary	Round			x				
Auxiliary	Round Division			x				
Auxiliary	Complex Division					x	x	Division of complex by real
Auxiliary	Prefixed Vector Sum		x	x				Two versions (small image and big image)
Auxiliary	Cumulative Density		x	x				Two versions (small image and big image)
Auxiliary	Perimeter	x	x	x	x	x	x	
Convolution	Convolution	x	x	x	x	x	x	
Discrete Difference	Sobel Gradient	x	x	x	x	x	x	
Discrete Difference	Roberts Gradient	x	x	x	x	x	x	
Discrete Difference	Prewitt Gradient	x	x	x	x	x	x	
Histogram	Density Equalization			x	x			Two versions (small image and big image)
Histogram	Histogram Equalization		x	x	x			Two versions (small image and big image)
Histogram	Histogram		x	x	x			Two versions (small image and big image)
Histogram	Median Filter	x	x	x	x			Different Version for bit
Morphological	Dilation	x	x	x	x	x	x	
Morphological	Erosion	x	x	x	x	x	x	

Implementations (cont)

Chapter	Function	Types						Comments
		Real				Complex		
		bit	byte	int	float	int	float	
Morphological	Opening	x	x	x	x	x	x	
Morphological	Closing	x	x	x	x	x	x	
Pad	With Constant	x	x	x	x	x	x	
Pad	By Reflection	x	x	x	x	x	x	
Pad	By Extension	x	x	x	x	x	x	
Resize	Expand	x	x	x	x	x	x	
Resize	Shrink	x	x	x	x	x	x	
Other	Statistics	x	x	x	x	x	x	
Other	LookUpTable		x	x				
Other	Cosine Transform	x	x	x	x	x	x	
Other	Inverse Cosine Transform	x	x	x	x	x	x	Not included in the Vsip Manual
Other	Connected Components	x	x					

Not Implemented

Chapter	Function	Types						Reason
		Real				Complex		
		bit	byte	int	float	int	float	
Histogram	Moving Histogram	x	x	x	x	x	x	Needs Pointer for function
Other	Create Image View	x	x	x	x	x	x	Needs record structure
Other	Create Image	x	x	x	x	x	x	Needs record structure
Other	Destroy Image View	x	x	x	x	x	x	Needs record structure
Other	Get Offset	x	x	x	x	x	x	Needs record structure
Other	Get Row Stride	x	x	x	x	x	x	Needs record structure
Other	Get Col Stride	x	x	x	x	x	x	Needs record structure
Other	Get Row Length	x	x	x	x	x	x	Already function of Sa-C
Other	Get Col Length	x	x	x	x	x	x	Already function of Sa-C

Possible Problems

Chapter	Function	Types						Comment
		Real				Complex		
		bit	byte	int	float	int	float	
Convolution	Convolution		x					Possible Overflow
Discrete Difference	Sobel Gradient		x					Possible Overflow
Discrete Difference	Roberts Gradient		x					Possible Overflow
Discrete Difference	Prewitt Gradient		x					Possible Overflow
Histogram	Histogram		x	x	x			Lower bound is inclusive and upper bound is exclusive
Histogram	Density Equalization		x	x				Range used is max - min + 1
Histogram	Density Equalization				x			Range used is max (1, max - min)
Histogram	Histogram Equalization		x	x				Range used is max - min + 1 Error when pixel= 255
Histogram	Histogram Equalization				x			Range used is max (1, max - min) Error when pixel= 255
Histogram	Median Filter	x	x	x	x			Size of padding differ from manual
Morphological	Dilation	x						Same definition of Gray-scale
Morphological	Dilation					x	x	The max is defined over $(r^2 + i^2)$. Different values can generate the same max.
Morphological	Erosion	x						Same definition of Gray-scale
Morphological	Erosion					x	x	The min is defined over $(r^2 + i^2)$. Different values can generate the same min.
Resize	Expand	x	x	x	x			Use size -1 instead of size as in the definition
Resize	Expand					x	x	Use size -1 instead of size as in the definition. Code needs promotion to complex (too ugly)

Possible Problems (cont)

Chapter	Function	Types						Comment
		Real				Complex		
		bit	byte	int	float	int	float	
Resize	Shrink	x						Mean option returns 0 except when all pixels are 1
Resize	Shrink					x	x	The min, max and median are defined over (r^2+i^2). Different values can generate same min,max or median. The mean is defined for each part (r , i) separately.
Other	Cosine Transform	x	x					Output defined in manual too short
Other	Inv Cosine Transform	x	x					Uses as Input the output of the cosine transform
Other	Statistics	x	x					No use for Positive and negative Integral
Other	Statistics					x	x	The min, max and median are used over (r^2+i^2). Different values can generate the same min, max or median. The mean is defined for each part (r , i) separately. Positive Integral and Negative Integral are computed only for the real part.

Distributions

Chapter	Function	Types						Comments
		Real				Complex		
		bit	byte	int	float	int	float	
Auxiliary	Sqrt		y	y				
Auxiliary	Complex Sqrt					y	y	
Auxiliary	Max				y			
Auxiliary	Min			y				
Auxiliary	Min4			y				
Auxiliary	Abs			y				
Auxiliary	Round			y				
Auxiliary	Round Division			y				
Auxiliary	Complex Division					y	y	
Auxiliary	Prefixed Vector Sum		y	y				
Auxiliary	Cumulative Density		y	y				
Auxiliary	Perimeter	y	y	y	y	y	y	
Convolution	Convolution	y	y	y	y	y	y	
Discrete Difference	Sobel Gradient	y	y	y	y			
Discrete Difference	Sobel Gradient					n	n	Problems with Semantic of Cxsqrt
Discrete Difference	Roberts Gradient	y	y	y	y			
Discrete Difference	Roberts Gradient					n	n	Problems with Semantic of Cxsqrt
Discrete Difference	Prewitt Gradient	y	y	y	y			
Discrete Difference	Prewitt Gradient					n	n	Problems with Semantic of Cxsqrt
Histogram	Density Equalization			y	y			
Histogram	Histogram Equalization		n	n	n			Problems with Definition
Histogram	Histogram		y	y	y			
Histogram	Median Filter	y	y	y	y			
Morphological	Dilation	n						Problems with Semantic of Operation
Morphological	Dilation		y	y	y			
Morphological	Dilation					n	n	Problems with Semantic of Cx max

Distributions (cont)

Chapter	Function	Types						Comments
		Real				Complex		
		bit	byte	int	float	int	float	
Morphological	Erosion	n						Problems with Semantic of Operation
Morphological	Erosion		y	y	y			
Morphological	Erosion					n	n	Problems with Semantic of Cx min
Morphological	Opening		y	y	y			
Morphological	Opening	n				n	n	No Erosion and Deletion Provided
Morphological	Closing		y	y	y			
Morphological	Closing	n				n	n	No Erosion and Deletion Provided
Pad	With Constant	y	y	y	y	y	y	
Pad	By Reflection	n	n	n	n	n	n	Problems with Definition
Pad	By Extension	y	y	y	y	y	y	
Resize	Expand	y	y	y	y			
Resize	Expand					n	n	Problems with code
Resize	Shrink	y	y	y	y			
Resize	Shrink					n	n	Problems with Semantic of operation
Other	Statistics	y	y	y	y			
Other	Statistics					n	n	Problems with Semantic of operations
Other	LookUpTable		y	y				
Other	Cosine Transform	n	n					Problems with Definition
Other	Cosine Transform		*	y	y			
Other	Cosine Transform					n	n	Problems with Semantic of operations
Other	Inverse Cosine Transform	n						Problems with Definition of cosine transform

Distributions (cont)

Chapter	Function	Types						Comments
		Real				Complex		
		bit	byte	int	float	int	float	
Other	Inverse Cosine Transform					n	n	Problems with Semantic of operations
Other	Inverse Cosine Transform		*	*	*			
Other	Connected Components	y	y					
Other	Connected Components		*					