

ImgDiff

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1 Namespace Index	1
1.1 Packages	1
2 Hierarchical Index	3
2.1 Class Hierarchy	3
3 Class Index	5
3.1 Class List	5
4 Namespace Documentation	7
4.1 ImgDiff Namespace Reference	7
4.2 ImgDiff.Algorithms Namespace Reference	7
4.3 ImgDiff.Algorithms.Clustering Namespace Reference	7
4.4 ImgDiff.Algorithms.Highlighting Namespace Reference	8
4.5 ImgDiff.Algorithms.PixelBuffer Namespace Reference	8
4.6 ImgDiff.Algorithms.PixelDelta Namespace Reference	8
4.7 ImgDiff.Common Namespace Reference	8
4.8 ImgDiff.Preprocessing Namespace Reference	9
4.9 ImgDiff.Progress Namespace Reference	9
4.10 ImgDiff.Progress.Report Namespace Reference	9
5 Class Documentation	11
5.1 ImgDiff.Algorithms.PixelDelta.ArgbPixelDelta Class Reference	11
5.1.1 Detailed Description	11
5.1.2 Member Function Documentation	11
5.1.2.1 GetPixelDelta()	11
5.2 ImgDiff.Common.Bgra Struct Reference	12
5.2.1 Detailed Description	12
5.3 ImgDiff.Algorithms.PixelDelta.CieLabPixelDelta Class Reference	13
5.3.1 Detailed Description	13
5.3.2 Member Function Documentation	13
5.3.2.1 GetPixelDelta()	13
5.4 ImgDiff.Algorithms.Clustering.ClusterByDistance Class Reference	14
5.4.1 Detailed Description	14
5.4.2 Member Function Documentation	14
5.4.2.1 GetClusters()	14
5.4.2.2 GetClustersAsync()	15
5.5 ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor > Class Template Reference	15
5.5.1 Detailed Description	16
5.5.2 Member Function Documentation	16
5.5.2.1 GetDifferentPixels()	16
5.5.2.2 GetDifferentPixelsAsync()	17
5.6 ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer > Class Template Reference	17
5.6.1 Detailed Description	18

5.6.2 Member Function Documentation	18
5.6.2.1 Rent()	18
5.6.2.2 Return()	18
5.7 ImgDiff.Preprocessing.EmptyProcessor Class Reference	19
5.7.1 Detailed Description	19
5.7.2 Member Function Documentation	19
5.7.2.1 Process()	19
5.7.2.2 ProcessAsync()	20
5.8 ImgDiff.Algorithms.PixelDelta.HsvPixelDelta Class Reference	20
5.8.1 Detailed Description	21
5.8.2 Member Function Documentation	21
5.8.2.1 GetPixelDelta()	21
5.9 ImgDiff.Algorithms.IDiffAlgorithm Interface Reference	21
5.9.1 Detailed Description	22
5.9.2 Member Function Documentation	22
5.9.2.1 GetDifferentPixels()	22
5.9.2.2 GetDifferentPixelsAsync()	23
5.9.3 Property Documentation	23
5.9.3.1 ImagePreprocessor	23
5.9.3.2 PixelDeltaAlgorithm	23
5.10 ImgDiff.Algorithms.Highlighting.IDiffHighlighter Interface Reference	24
5.10.1 Detailed Description	24
5.10.2 Member Function Documentation	24
5.10.2.1 Highlight()	24
5.10.2.2 HighlightAsync()	25
5.10.3 Property Documentation	25
5.10.3.1 ClusteringAlgorithm	25
5.11 ImgDiff.IDiffProgressObserver Interface Reference	26
5.11.1 Detailed Description	26
5.11.2 Member Function Documentation	26
5.11.2.1 Report()	26
5.11.2.2 ReportAsync()	26
5.12 ImgDiff.Preprocessing.IImagePreprocessor Interface Reference	27
5.12.1 Detailed Description	27
5.12.2 Member Function Documentation	27
5.12.2.1 Process()	27
5.12.2.2 ProcessAsync()	28
5.13 ImgDiff.ImgDiffCalculator Class Reference	28
5.13.1 Detailed Description	29
5.13.2 Member Function Documentation	29
5.13.2.1 Calculate()	29
5.13.2.2 CalculateAsync()	29

5.13.2.3 Create()	30
5.14 ImgDiff.ImageDiffOptions Class Reference	30
5.14.1 Detailed Description	31
5.14.2 Property Documentation	31
5.14.2.1 DiffAlgorithm	31
5.14.2.2 Highlighter	31
5.14.2.3 LeftFile	31
5.14.2.4 ProgressObserver	31
5.14.2.5 RightFile	31
5.15 ImgDiff.Algorithms.PixelBuffer.IPixelBuffer Interface Reference	32
5.15.1 Detailed Description	32
5.15.2 Member Function Documentation	32
5.15.2.1 Add()	32
5.15.2.2 Remove()	33
5.15.3 Property Documentation	33
5.15.3.1 Capacity	33
5.15.3.2 Count	33
5.15.3.3 this[int index]	33
5.16 ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool Interface Reference	34
5.16.1 Detailed Description	34
5.16.2 Member Function Documentation	34
5.16.2.1 Rent()	35
5.16.2.2 Return()	35
5.17 ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm Interface Reference	35
5.17.1 Detailed Description	36
5.17.2 Member Function Documentation	36
5.17.2.1 GetClusters()	36
5.17.2.2 GetClustersAsync()	36
5.17.3 Property Documentation	37
5.17.3.1 Precision	37
5.18 ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm Interface Reference	37
5.18.1 Detailed Description	37
5.18.2 Member Function Documentation	37
5.18.2.1 GetPixelDelta()	37
5.19 ImgDiff.Preprocessing.MedianPreprocessor Class Reference	38
5.19.1 Detailed Description	38
5.19.2 Member Function Documentation	38
5.19.2.1 Process()	38
5.19.2.2 ProcessAsync()	39
5.20 ImgDiff.Common.Pixel Class Reference	39
5.20.1 Detailed Description	40
5.20.2 Member Function Documentation	40

5.20.2.1 Get() [1/2]	40
5.20.2.2 Get() [2/2]	40
5.21 ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer Class Reference	41
5.21.1 Detailed Description	41
5.21.2 Member Function Documentation	41
5.21.2.1 Add()	41
5.21.2.2 Remove()	42
5.22 ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter Class Reference	42
5.22.1 Detailed Description	43
5.22.2 Member Function Documentation	43
5.22.2.1 Highlight()	43
5.22.2.2 HighlightAsync()	43
5.23 ImgDiff.Common.SimplePool< T > Class Template Reference	44
5.23.1 Detailed Description	44
5.23.2 Member Function Documentation	44
5.23.2.1 Rent()	44
5.23.2.2 Return()	44
Index	47

Chapter 1

Namespace Index

1.1 Packages

Here are the packages with brief descriptions (if available):

ImgDiff	7
ImgDiff.Algorithms	7
ImgDiff.Algorithms.Clustering	7
ImgDiff.Algorithms.Highlighting	8
ImgDiff.Algorithms.PixelBuffer	8
ImgDiff.Algorithms.PixelDelta	8
ImgDiff.Common	8
ImgDiff.Preprocessing	9
ImgDiff.Progress	9
ImgDiff.Progress.Report	9

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

ImgDiff.Common.Bgra	12
ImgDiff.IDiffProgressObserver	26
IDisposable	
ImgDiff.Algorithms.Highlighting.IDiffHighlighter	24
ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter	42
ImgDiff.Algorithms.IDiffAlgorithm	21
ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >	15
ImgDiff.Algorithms.PixelBuffer.IPixelBuffer	32
ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer	41
ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm	37
ImgDiff.Algorithms.PixelDelta.ArgbPixelDelta	11
ImgDiff.Algorithms.PixelDelta.CieLabPixelDelta	13
ImgDiff.Algorithms.PixelDelta.HsvPixelDelta	20
ImgDiff.Common.Pixel	39
ImgDiff.ImgDiffCalculator	28
ImgDiff.ImgDiffOptions	30
ImgDiff.Preprocessing.IImagePreprocessor	27
ImgDiff.Preprocessing.EmptyProcessor	19
ImgDiff.Preprocessing.MedianPreprocessor	38
ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool	34
ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >	17
ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm	35
ImgDiff.Algorithms.Clustering.ClusterByDistance	14
ImgDiff.Common.SimplePool< T >	44
ImgDiff.Common.SimplePool< ImgDiff.Common.Pixel >	44
ImgDiff.Common.SimplePool< TBuffer >	44

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

ImgDiff.Algorithms.PixelDelta.ArgbPixelDelta	
Simple argb pixel delta	11
ImgDiff.Common.Bgra	
Bgra color struct. Used for fast color packing/unpacking	12
ImgDiff.Algorithms.PixelDelta.CieLabPixelDelta	
CieLab pixel delta	13
ImgDiff.Algorithms.Clustering.ClusterByDistance	
Simple clustering by distance between cluster rectangle and pixels around it	14
ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >	
Default generic algorithm for calculating diff of two images	15
ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >	
Simple generic IPixelBuffer pool	17
ImgDiff.Preprocessing.EmptyProcessor	
Empty image process that does nothing with image	19
ImgDiff.Algorithms.PixelDelta.HsvPixelDelta	
Hsv pixel delta	20
ImgDiff.Algorithms.IDiffAlgorithm	
Image different pixels calculation algorithm	21
ImgDiff.Algorithms.Highlighting.IDiffHighlighter	
Pixel highlighting algorithm interface which is used to highlight different pixels of images	24
ImgDiff.IDiffProgressObserver	
Image diff progress observer interface which is used to report progress of differences calculation	26
ImgDiff.Preprocessing.IImagePreprocessor	
Image preprocessor interface which is used to apply changes on image before further analyzing in order to reduce errors such as noise	27
ImgDiff.ImageDiffCalculator	
Image differences calculator	28
ImgDiff.ImageDiffOptions	
Options for setting up ImageDiffCalculator	30
ImgDiff.Algorithms.PixelBuffer.IPixelBuffer	
Pixel buffer interface which is used as placement of List<Pixel>	32
ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool	
Pool of IPixelBuffer	34
ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm	
Pixel clustering algorithm interface which is used to merge pixels into clusters for further highlighting	35

ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm	
Pixel delta algorithm interface which is used to calculate difference between two pixels	37
ImgDiff.Preprocessing.MedianPreprocessor	
Preprocessor which applies median (blur) filter to source image	38
ImgDiff.Common.Pixel	
Pixel coordinate	39
ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer	
Simple IPixelBuffer implementation with inner array pooling	41
ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter	
Simple algorithm to surround differences by rectangles	42
ImgDiff.Common.SimplePool< T >	
Simple generic object pool	44

Chapter 4

Namespace Documentation

4.1 ImgDiff Namespace Reference

Classes

- class [ImgDiffCalculator](#)
Image differences calculator
- class [ImgDiffOptions](#)
Options for setting up [ImgDiffCalculator](#)
- interface [IDiffProgressObserver](#)
Image diff progress observer interface which is used to report progress of differences calculation

4.2 ImgDiff.Algorithms Namespace Reference

Classes

- class [DefaultDiffAlgorithm](#)
Default generic algorithm for calculating diff of two images
- interface [IDiffAlgorithm](#)
Image different pixels calculation algorithm

4.3 ImgDiff.Algorithms.Clustering Namespace Reference

Classes

- class [ClusterByDistance](#)
Simple clustering by distance between cluster rectangle and pixels around it
- interface [IPixelClusteringAlgorithm](#)
Pixel clustering algorithm interface which is used to merge pixels into clusters for further highlighting

4.4 ImgDiff.Algorithms.Highlighting Namespace Reference

Classes

- interface [IDiffHighlighter](#)
Pixel highlighting algorithm interface which is used to highlight different pixels of images
- class [RectangleDiffHighlighter](#)
Simple algorithm to surround differences by rectangles

4.5 ImgDiff.Algorithms.PixelBuffer Namespace Reference

Classes

- class [DefaultPixelBufferPool](#)
Simple generic [IPixelBuffer](#) pool
- interface [IPixelBuffer](#)
Pixel buffer interface which is used as placement of `List<Pixel>`
- interface [IPixelBufferPool](#)
Pool of [IPixelBuffer](#)
- class [PooledPixelBuffer](#)
Simple [IPixelBuffer](#) implementation with inner array pooling

4.6 ImgDiff.Algorithms.PixelDelta Namespace Reference

Classes

- class [ArgbPixelDelta](#)
Simple argb pixel delta
- class [CieLabPixelDelta](#)
CieLab pixel delta
- class [HsvPixelDelta](#)
Hsv pixel delta
- interface [IPixelDeltaAlgorithm](#)
Pixel delta algorithm interface which is used to calculate difference between two pixels

4.7 ImgDiff.Common Namespace Reference

Classes

- struct [Bgra](#)
[Bgra](#) color struct. Used for fast color packing/unpacking
- class [Pixel](#)
[Pixel](#) coordinate
- class [SimplePool](#)
Simple generic object pool

4.8 ImgDiff.Preprocessing Namespace Reference

Classes

- class [EmptyProcessor](#)
Empty image process that does nothing with image
- interface [IImagePreprocessor](#)
Image preprocessor interface which is used to apply changes on image before further analyzing in order to reduce errors such as noise
- class [MedianPreprocessor](#)
Preprocessor which applies median (blur) filter to source image

4.9 ImgDiff.Progress Namespace Reference

4.10 ImgDiff.Progress.Report Namespace Reference

Classes

- interface **IReportBuilder**
Interface which is used to generate progress report images
- class **ReportBuilder**
Simple report image builder

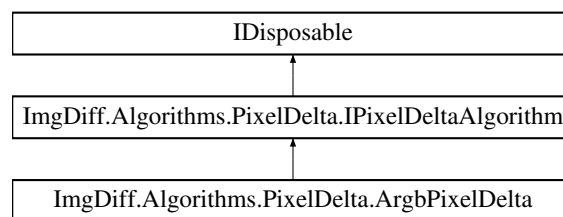
Chapter 5

Class Documentation

5.1 ImgDiff.Algorithms.PixelDelta.ArgbPixelDelta Class Reference

Simple argb pixel delta

Inheritance diagram for ImgDiff.Algorithms.PixelDelta.ArgbPixelDelta:



Public Member Functions

- double `GetPixelDelta` (in `Bgra` left, in `Bgra` right)
Calculate difference between two pixels
- void `Dispose` ()

5.1.1 Detailed Description

Simple argb pixel delta

5.1.2 Member Function Documentation

5.1.2.1 GetPixelDelta()

```
double ImgDiff.Algorithms.PixelDelta.ArgbPixelDelta.GetPixelDelta (
    in Bgra left,
    in Bgra right )
```

Calculate difference between two pixels

Parameters

<i>left</i>	Left pixel color
<i>right</i>	Right pixel color

Returns

Delta

Implements [ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm](#).

The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/PixelDelta/ArgbPixelDelta.cs

5.2 ImgDiff.Common.Bgra Struct Reference

[Bgra](#) color struct. Used for fast color packing/unpacking

Public Member Functions

- **Bgra** (byte b, byte g, byte r, byte a)

Public Attributes

- byte **B**
- byte **G**
- byte **R**
- byte **A**

5.2.1 Detailed Description

[Bgra](#) color struct. Used for fast color packing/unpacking

Be aware of endianness when using this struct

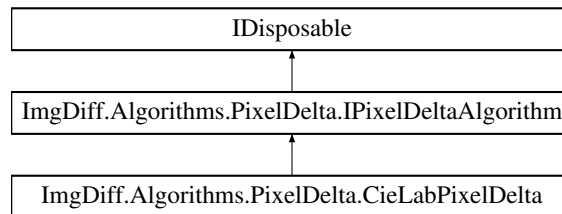
The documentation for this struct was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Common/Bgra.cs

5.3 ImgDiff.Algorithms.PixelDelta.CieLabPixelDelta Class Reference

CieLab pixel delta

Inheritance diagram for ImgDiff.Algorithms.PixelDelta.CieLabPixelDelta:



Public Member Functions

- double [GetPixelDelta](#) (in [Bgra](#) left, in [Bgra](#) right)
Calculate difference between two pixels
- void **Dispose** ()

5.3.1 Detailed Description

CieLab pixel delta

5.3.2 Member Function Documentation

5.3.2.1 GetPixelDelta()

```
double ImgDiff.Algorithms.PixelDelta.CieLabPixelDelta.GetPixelDelta (
    in Bgra left,
    in Bgra right )
```

Calculate difference between two pixels

Parameters

<i>left</i>	Left pixel color
<i>right</i>	Right pixel color

Returns

Delta

Implements [ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm](#).

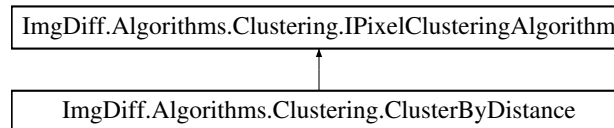
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/PixelDelta/CieLabPixelDelta.cs

5.4 ImgDiff.Algorithms.Clustering.ClusterByDistance Class Reference

Simple clustering by distance between cluster rectangle and pixels around it

Inheritance diagram for ImgDiff.Algorithms.Clustering.ClusterByDistance:



Public Member Functions

- IEnumerable< Rectangle > [GetClusters](#) (IPixelBuffer pixels, int limit)
Clusterize pixel buffer and remove all process pixels from it
- async IAsyncEnumerable< Rectangle > [GetClustersAsync](#) (IPixelBuffer pixels, int limit)
Asynchronously clusterize pixel buffer and remove all process pixels from it

Properties

- int **Precision** [get, set]

5.4.1 Detailed Description

Simple clustering by distance between cluster rectangle and pixels around it

5.4.2 Member Function Documentation

5.4.2.1 GetClusters()

```

IEnumerable<Rectangle> ImgDiff.Algorithms.Clustering.ClusterByDistance.GetClusters (
    IPixelBuffer pixels,
    int limit )
  
```

Clusterize pixel buffer and remove all process pixels from it

Parameters

<i>pixels</i>	Source pixel buffer
<i>limit</i>	Maximum clusters to return

Returns

Rectangle containing all pixels from cluster

Implements [ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm](#).

5.4.2.2 GetClustersAsync()

```
async IAsyncEnumerable<Rectangle> ImgDiff.Algorithms.Clustering.ClusterByDistance.GetClusters←
Async (
    IPixelBuffer pixels,
    int limit )
```

Asynchronously clusterize pixel buffer and remove all process pixels from it

Parameters

<i>pixels</i>	Source pixel buffer
<i>limit</i>	Maximum clusters to return

Returns

Rectangle containing all pixels from cluster

Implements [ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm](#).

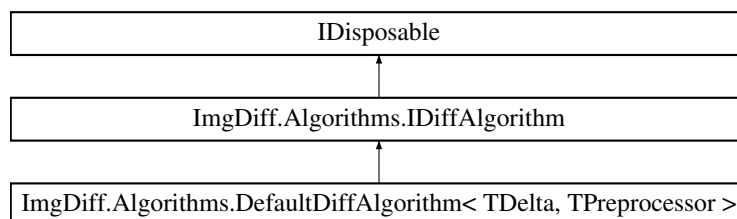
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/Clustering/ClusterByDistance.cs

5.5 ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor > Class Template Reference

Default generic algorithm for calculating diff of two images

Inheritance diagram for `ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >`:



Public Member Functions

- unsafe [IPixelBuffer](#) [GetDifferentPixels](#) (double *errorTolerance*, [BitmapData](#) *left*, [BitmapData](#) *right*, [IDiffProgressObserver](#) *progress*=null)
Calculate difference between two images with error tolerance
- async Task< [IPixelBuffer](#) > [GetDifferentPixelsAsync](#) (double *errorTolerance*, [BitmapData](#) *left*, [BitmapData](#) *right*, [IDiffProgressObserver](#) *progress*=null)
Asynchronously calculate difference between two images with error tolerance
- void **Dispose** ()

Properties

- [IPixelDeltaAlgorithm](#) **PixelDeltaAlgorithm** = new [TDelta](#)() [get]
- [IImagePreprocessor](#) **ImagePreprocessor** = new [TPreprocessor](#)() [get]
- [IPixelBufferPool](#) **PixelBufferPool** [get, set]

5.5.1 Detailed Description

Default generic algorithm for calculating diff of two images

Template Parameters

<i>TDelta</i>	
<i>TPreprocessor</i>	

Type Constraints

***TDelta* : [IPixelDeltaAlgorithm](#)**

***TDelta* : [new\(\)](#)**

***TPreprocessor* : [IImagePreprocessor](#)**

***TPreprocessor* : [new\(\)](#)**

5.5.2 Member Function Documentation

5.5.2.1 GetDifferentPixels()

```
unsafe IPixelBuffer ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >.Get↔
DifferentPixels (
    double errorTolerance,
    BitmapData left,
    BitmapData right,
    IDiffProgressObserver progress = null )
```

Calculate difference between two images with error tolerance

Parameters

<i>errorTolerance</i>	Maximum pixel delta allowed
<i>left</i>	Left image data
<i>right</i>	Right image data
<i>progress</i>	Instance of IDiffProgressObserver for progress reporting

Returns

IPixelBuffer filled with different pixels

Implements [ImgDiff.Algorithms.IDiffAlgorithm](#).

5.5.2.2 GetDifferentPixelsAsync()

```
async Task<IPixelBuffer> ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >.Get↵
DifferentPixelsAsync (
    double errorTolerance,
    BitmapData left,
    BitmapData right,
    IDiffProgressObserver progress = null )
```

Asynchronously calculate difference between two images with error tolerance

Parameters

<i>errorTolerance</i>	Maximum pixel delta allowed
<i>left</i>	Left image data
<i>right</i>	Right image data
<i>progress</i>	Instance of IDiffProgressObserver for progress reporting

Returns

IPixelBuffer filled with different pixels

Implements [ImgDiff.Algorithms.IDiffAlgorithm](#).

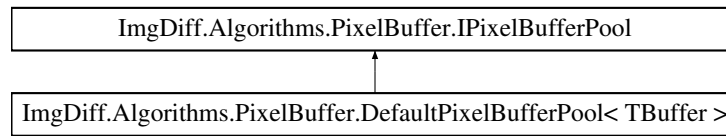
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/DefaultDiffAlgorithm.cs

5.6 ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer > Class Template Reference

Simple generic [IPixelBuffer](#) pool

Inheritance diagram for `ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >`:



Public Member Functions

- **DefaultPixelBufferPool** (Func< TBuffer > factory, int defaultCapacity=0)
- [IPixelBuffer Rent](#) ()
Rent a [IPixelBuffer](#) instance from pool
- void [Return](#) ([IPixelBuffer](#) buffer)
Return a [IPixelBuffer](#) instance to pool

5.6.1 Detailed Description

Simple generic [IPixelBuffer](#) pool

Template Parameters

TBuffer	Implementation of IPixelBuffer
-------------------------	--

Type Constraints

TBuffer : [IPixelBuffer](#)

5.6.2 Member Function Documentation

5.6.2.1 Rent()

```
IPixelBuffer ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >.Rent ( )
```

Rent a [IPixelBuffer](#) instance from pool

Returns

[IPixelBuffer](#) instance

Implements [ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool](#).

5.6.2.2 Return()

```
void ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >.Return (
    IPixelBuffer buffer )
```

Return a [IPixelBuffer](#) instance to pool

Parameters

<i>buffer</i>	Rented IPixelBuffer instance
---------------	--

Implements [ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool](#).

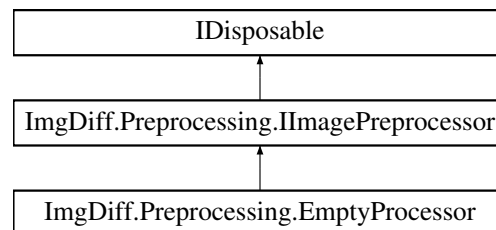
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/PixelBuffer/DefaultPixelBufferPool.cs

5.7 ImgDiff.Preprocessing.EmptyProcessor Class Reference

Empty image process that does nothing with image

Inheritance diagram for `ImgDiff.Preprocessing.EmptyProcessor`:



Public Member Functions

- void [Process](#) (BitmapData imgData)
Process image
- async Task [ProcessAsync](#) (BitmapData imgData)
Asynchronously process image
- void **Dispose** ()

5.7.1 Detailed Description

Empty image process that does nothing with image

5.7.2 Member Function Documentation

5.7.2.1 Process()

```
void ImgDiff.Preprocessing.EmptyProcessor.Process (
    BitmapData imgData )
```

Process image

Parameters

<i>imgData</i>	Source image data
----------------	-------------------

Implements [ImgDiff.Preprocessing.ImagePreprocessor](#).

5.7.2.2 ProcessAsync()

```
async Task ImgDiff.Preprocessing.EmptyProcessor.ProcessAsync (
    BitmapData imgData )
```

Asynchronously process image

Parameters

<i>imgData</i>	Source image data
----------------	-------------------

Implements [ImgDiff.Preprocessing.ImagePreprocessor](#).

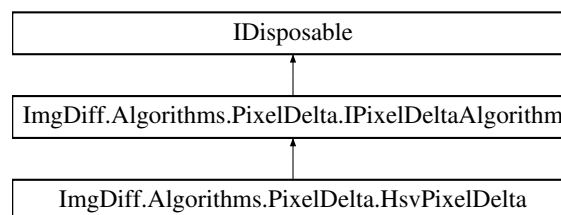
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Preprocessing/EmptyProcessor.cs

5.8 ImgDiff.Algorithms.PixelDelta.HsvPixelDelta Class Reference

Hsv pixel delta

Inheritance diagram for `ImgDiff.Algorithms.PixelDelta.HsvPixelDelta`:



Public Member Functions

- double [GetPixelDelta](#) (in [Bgra](#) left, in [Bgra](#) right)
Calculate difference between two pixels
- void **Dispose** ()

5.8.1 Detailed Description

Hsv pixel delta

5.8.2 Member Function Documentation

5.8.2.1 GetPixelDelta()

```
double ImgDiff.Algorithms.PixelDelta.HsvPixelDelta.GetPixelDelta (
    in Bgra left,
    in Bgra right )
```

Calculate difference between two pixels

Parameters

<i>left</i>	Left pixel color
<i>right</i>	Right pixel color

Returns

Delta

Implements [ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm](#).

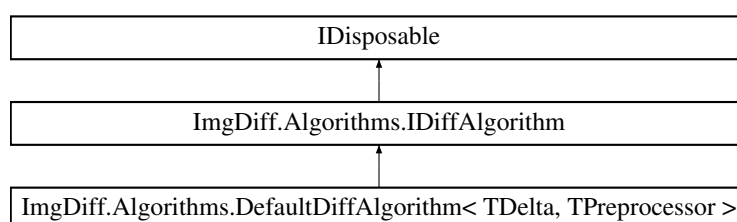
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/PixelDelta/HsvPixelDelta.cs

5.9 ImgDiff.Algorithms.IDiffAlgorithm Interface Reference

Image different pixels calculation algorithm

Inheritance diagram for `ImgDiff.Algorithms.IDiffAlgorithm`:



Public Member Functions

- [IPixelBuffer](#) [GetDifferentPixels](#) (double errorTolerance, BitmapData left, BitmapData right, [IDiffProgressObserver](#) progress=null)
Calculate difference between two images with error tolerance
- Task< [IPixelBuffer](#) > [GetDifferentPixelsAsync](#) (double errorTolerance, BitmapData left, BitmapData right, [IDiffProgressObserver](#) progress=null)
Asynchronously calculate difference between two images with error tolerance

Properties

- [IPixelDeltaAlgorithm](#) [PixelDeltaAlgorithm](#) [get]
Valid implementation of IPixelDeltaAlgorithm
- [ImagePreprocessor](#) [ImagePreprocessor](#) [get]
Implementation of IImagePreprocessor. Can be null.

5.9.1 Detailed Description

Image different pixels calculation algorithm

5.9.2 Member Function Documentation

5.9.2.1 GetDifferentPixels()

```
IPixelBuffer ImgDiff.Algorithms.IDiffAlgorithm.GetDifferentPixels (
    double errorTolerance,
    BitmapData left,
    BitmapData right,
    IDiffProgressObserver progress = null )
```

Calculate difference between two images with error tolerance

Parameters

<i>errorTolerance</i>	Maximum pixel delta allowed
<i>left</i>	Left image data
<i>right</i>	Right image data
<i>progress</i>	Instance of IDiffProgressObserver for progress reporting

Returns

[IPixelBuffer](#) filled with different pixels

Implemented in [ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >](#).

5.9.2.2 GetDifferentPixelsAsync()

```
Task<IPixelBuffer> ImgDiff.Algorithms.IDiffAlgorithm.GetDifferentPixelsAsync (
    double errorTolerance,
    BitmapData left,
    BitmapData right,
    IDiffProgressObserver progress = null )
```

Asynchronously calculate difference between two images with error tolerance

Parameters

<i>errorTolerance</i>	Maximum pixel delta allowed
<i>left</i>	Left image data
<i>right</i>	Right image data
<i>progress</i>	Instance of IDiffProgressObserver for progress reporting

Returns

IPixelBuffer filled with different pixels

Implemented in [ImgDiff.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >](#).

5.9.3 Property Documentation

5.9.3.1 ImagePreprocessor

```
IImagePreprocessor ImgDiff.Algorithms.IDiffAlgorithm.ImagePreprocessor [get]
```

Implementation of IImagePreprocessor. Can be null.

5.9.3.2 PixelDeltaAlgorithm

```
IPixelDeltaAlgorithm ImgDiff.Algorithms.IDiffAlgorithm.PixelDeltaAlgorithm [get]
```

Valid implementation of IPixelDeltaAlgorithm

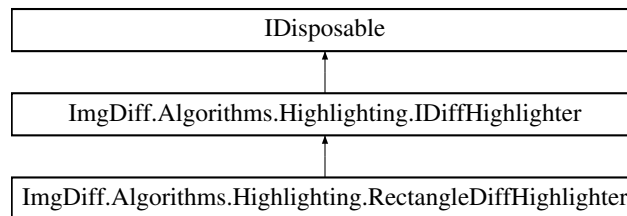
The documentation for this interface was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/IDiffAlgorithm.cs

5.10 ImgDiff.Algorithms.Highlighting.IDiffHighlighter Interface Reference

Pixel highlighting algorithm interface which is used to highlight different pixels of images

Inheritance diagram for `ImgDiff.Algorithms.Highlighting.IDiffHighlighter`:



Public Member Functions

- void [Highlight](#) (Image target, [IPixelBuffer](#) pixels, int limit, [IDiffProgressObserver](#) progress=null)
Highlight pixels buffer on target Image
- Task [HighlightAsync](#) (Image target, [IPixelBuffer](#) pixels, int limit, [IDiffProgressObserver](#) progress=null)
Asynchronously highlight pixels buffer on target Image

Properties

- [IPixelClusteringAlgorithm ClusteringAlgorithm](#) [get]
Implementation of IPixelClusteringAlgorithm

5.10.1 Detailed Description

Pixel highlighting algorithm interface which is used to highlight different pixels of images

5.10.2 Member Function Documentation

5.10.2.1 Highlight()

```

void ImgDiff.Algorithms.Highlighting.IDiffHighlighter.Highlight (
    Image target,
    IPixelBuffer pixels,
    int limit,
    IDiffProgressObserver progress = null )
  
```

Highlight pixels buffer on target Image

Parameters

<i>target</i>	Image to draw differences on
<i>pixels</i>	Source pixel buffer
<i>limit</i>	Maximum differences to highlight
<i>progress</i>	Instance of IDiffProgressObserver for progress reporting

Implemented in [ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter](#).

5.10.2.2 HighlightAsync()

```
Task ImgDiff.Algorithms.Highlighting.IDiffHighlighter.HighlightAsync (
    Image target,
    IPixelBuffer pixels,
    int limit,
    IDiffProgressObserver progress = null )
```

Asynchronously highlight pixels buffer on target Image

Parameters

<i>target</i>	Image to draw differences on
<i>pixels</i>	Source pixel buffer
<i>limit</i>	Maximum differences to highlight
<i>progress</i>	Instance of IDiffProgressObserver for progress reporting

Implemented in [ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter](#).

5.10.3 Property Documentation

5.10.3.1 ClusteringAlgorithm

```
IPixelClusteringAlgorithm ImgDiff.Algorithms.Highlighting.IDiffHighlighter.ClusteringAlgorithm
[get]
```

Implementation of IPixelClusteringAlgorithm

The documentation for this interface was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/Highlighting/IDiffHighlighter.cs

5.11 ImgDiff.IDiffProgressObserver Interface Reference

Image diff progress observer interface which is used to report progress of differences calculation

Public Member Functions

- void [Report](#) (Image img, string stepName)
This method called on next step of calculation
- Task [ReportAsync](#) (Image img, string stepName)
This method asynchronously called on next step of calculation

5.11.1 Detailed Description

Image diff progress observer interface which is used to report progress of differences calculation

5.11.2 Member Function Documentation

5.11.2.1 Report()

```
void ImgDiff.IDiffProgressObserver.Report (
    Image img,
    string stepName )
```

This method called on next step of calculation

Parameters

<i>img</i>	Progress report image
<i>stepName</i>	Name of the step

5.11.2.2 ReportAsync()

```
Task ImgDiff.IDiffProgressObserver.ReportAsync (
    Image img,
    string stepName )
```

This method asynchronously called on next step of calculation

Parameters

<i>img</i>	Progress report image
<i>stepName</i>	Name of the step

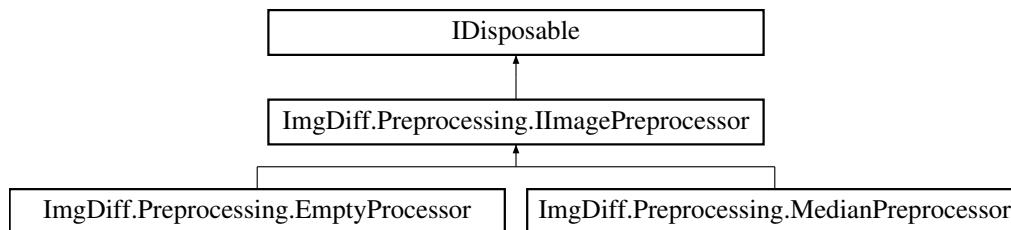
The documentation for this interface was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Progress/IDiffProgressObserver.cs

5.12 ImgDiff.Preprocessing.IImagePreprocessor Interface Reference

Image preprocessor interface which is used to apply changes on image before further analyzing in order to reduce errors such as noise

Inheritance diagram for ImgDiff.Preprocessing.IImagePreprocessor:



Public Member Functions

- void [Process](#) (BitmapData imgData)
Process image
- Task [ProcessAsync](#) (BitmapData imgData)
Asynchronously process image

5.12.1 Detailed Description

Image preprocessor interface which is used to apply changes on image before further analyzing in order to reduce errors such as noise

5.12.2 Member Function Documentation

5.12.2.1 Process()

```
void ImgDiff.Preprocessing.IImagePreprocessor.Process (
    BitmapData imgData )
```

Process image

Parameters

<i>imgData</i>	Source image data
----------------	-------------------

Implemented in [ImgDiff.Preprocessing.MedianPreprocessor](#), and [ImgDiff.Preprocessing.EmptyProcessor](#).

5.12.2.2 ProcessAsync()

```
Task ImgDiff.Preprocessing.IImagePreprocessor.ProcessAsync (
    BitmapData imgData )
```

Asynchronously process image

Parameters

<i>imgData</i>	Source image data
----------------	-------------------

Implemented in [ImgDiff.Preprocessing.MedianPreprocessor](#), and [ImgDiff.Preprocessing.EmptyProcessor](#).

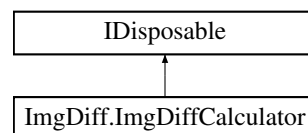
The documentation for this interface was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Preprocessing/IImagePreprocessor.cs

5.13 ImgDiff.ImgDiffCalculator Class Reference

Image differences calculator

Inheritance diagram for `ImgDiff.ImgDiffCalculator`:



Public Member Functions

- Image [Calculate](#) (double errorTolerance, int maxDifferences=int.MaxValue)
Calculate difference between provided images
- async Task< Image > [CalculateAsync](#) (double errorTolerance, int maxDifferences=int.MaxValue)
Asynchronously calculate difference between provided images
- void **Dispose** ()

Static Public Member Functions

- static [ImgDiffCalculator Create](#) (ImgDiffOptions options)
Create [ImgDiffCalculator](#) with [ImgDiffOptions](#) options

5.13.1 Detailed Description

Image differences calculator

5.13.2 Member Function Documentation

5.13.2.1 Calculate()

```
Image ImgDiff.ImgDiffCalculator.Calculate (
    double errorTolerance,
    int maxDifferences = int.MaxValue )
```

Calculate difference between provided images

Parameters

<i>errorTolerance</i>	Maximum allowed pixel delta
<i>maxDifferences</i>	Maximum differences to recognize

Returns

Image with highlighted differences

5.13.2.2 CalculateAsync()

```
async Task<Image> ImgDiff.ImgDiffCalculator.CalculateAsync (
    double errorTolerance,
    int maxDifferences = int.MaxValue )
```

Asynchronously calculate difference between provided images

Parameters

<i>errorTolerance</i>	Maximum allowed pixel delta
<i>maxDifferences</i>	Maximum differences to recognize

Returns

Image with highlighted differences

5.13.2.3 Create()

```
static ImgDiffCalculator ImgDiff.ImgDiffCalculator.Create (
    ImgDiffOptions options ) [static]
```

Create [ImgDiffCalculator](#) with [ImgDiffOptions](#) options

Parameters

<i>options</i>	Valid ImgDiffOptions options
----------------	--

Returns

Instance of [ImgDiffCalculator](#)

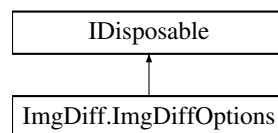
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/ImgDiffCalculator.cs

5.14 [ImgDiff](#).[ImgDiffOptions](#) Class Reference

Options for setting up [ImgDiffCalculator](#)

Inheritance diagram for [ImgDiff](#).[ImgDiffOptions](#):



Public Member Functions

- **[ImgDiffOptions](#)** (string leftFile, string rightFile)
- void **Dispose** ()

Properties

- string [LeftFile](#) [get, set]
Left image file path
- string [RightFile](#) [get, set]
Right image file path
- [IDiffAlgorithm](#) [DiffAlgorithm](#) [get, set]
Instance of IDiffAlgorithm. Default value is DefaultDiffAlgorithm<TDelta, TPreprocessor>
- [IDiffHighlighter](#) [Highlighter](#) [get, set]
Instance of IDiffHighlighter. Default value is RectangleDiffHighlighter
- [IDiffProgressObserver](#) [ProgressObserver](#) [get, set]
Instance of IDiffProgressObserver. Default value is null

5.14.1 Detailed Description

Options for setting up [ImgDiffCalculator](#)

5.14.2 Property Documentation

5.14.2.1 DiffAlgorithm

[IDiffAlgorithm](#) `ImgDiff.ImgDiffOptions.DiffAlgorithm` [get], [set]

Instance of IDiffAlgorithm. Default value is DefaultDiffAlgorithm<TDelta, TPreprocessor>

5.14.2.2 Highlighter

[IDiffHighlighter](#) `ImgDiff.ImgDiffOptions.Highlighter` [get], [set]

Instance of IDiffHighlighter. Default value is RectangleDiffHighlighter

5.14.2.3 LeftFile

`string` `ImgDiff.ImgDiffOptions.LeftFile` [get], [set]

Left image file path

5.14.2.4 ProgressObserver

[IDiffProgressObserver](#) `ImgDiff.ImgDiffOptions.ProgressObserver` [get], [set]

Instance of [IDiffProgressObserver](#). Default value is null

5.14.2.5 RightFile

`string` `ImgDiff.ImgDiffOptions.RightFile` [get], [set]

Right image file path

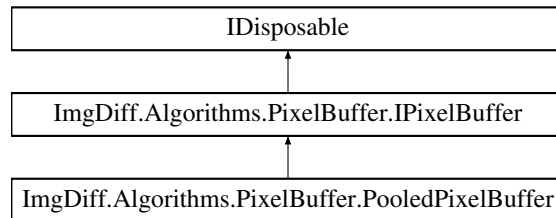
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/ImgDiffOptions.cs

5.15 ImgDiff.Algorithms.PixelBuffer.IPixelBuffer Interface Reference

Pixel buffer interface which is used as placement of List<Pixel>

Inheritance diagram for ImgDiff.Algorithms.PixelBuffer.IPixelBuffer:



Public Member Functions

- void **Add** (Pixel px)
Add pixel to buffer
- void **Remove** (int index)
Remove pixel from buffer by index and dispose it

Properties

- int **Count** [get]
Count of pixels currently in buffer
- int **Capacity** [get]
Size of inner array
- Pixel **this[int index]** [get]
Access pixels in buffer by index

5.15.1 Detailed Description

Pixel buffer interface which is used as placement of List<Pixel>

5.15.2 Member Function Documentation

5.15.2.1 Add()

```
void ImgDiff.Algorithms.PixelBuffer.IPixelBuffer.Add (
    Pixel px )
```

Add pixel to buffer

Parameters

<i>px</i>	Pixel to add
-----------	--------------

Implemented in [ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer](#).

5.15.2.2 Remove()

```
void ImgDiff.Algorithms.PixelBuffer.IPixelBuffer.Remove (
    int index )
```

Remove pixel from buffer by index and dispose it

Parameters

<i>index</i>	Valid index in range of 0- Count
--------------	--

Implemented in [ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer](#).

5.15.3 Property Documentation

5.15.3.1 Capacity

```
int ImgDiff.Algorithms.PixelBuffer.IPixelBuffer.Capacity [get]
```

Size of inner array

5.15.3.2 Count

```
int ImgDiff.Algorithms.PixelBuffer.IPixelBuffer.Count [get]
```

Count of pixels currently in buffer

5.15.3.3 this[int index]

```
Pixel ImgDiff.Algorithms.PixelBuffer.IPixelBuffer.this[int index] [get]
```

Access pixels in buffer by index

Parameters

<i>index</i>	Valid index in range of 0- Count
--------------	--

Returns

Pixel at index

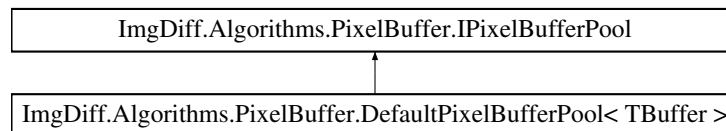
The documentation for this interface was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/PixelBuffer/IPixelBuffer.cs

5.16 ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool Interface Reference

Pool of [IPixelBuffer](#)

Inheritance diagram for ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool:



Public Member Functions

- [IPixelBuffer](#) [Rent](#) ()
Rent a [IPixelBuffer](#) instance from pool
- void [Return](#) ([IPixelBuffer](#) buffer)
Return a [IPixelBuffer](#) instance to pool

5.16.1 Detailed Description

Pool of [IPixelBuffer](#)

5.16.2 Member Function Documentation

5.16.2.1 Rent()

```
IPixelBuffer ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool.Rent ( )
```

Rent a [IPixelBuffer](#) instance from pool

Returns

[IPixelBuffer](#) instance

Implemented in [ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >](#).

5.16.2.2 Return()

```
void ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool.Return (
    IPixelBuffer buffer )
```

Return a [IPixelBuffer](#) instance to pool

Parameters

<i>buffer</i>	Rented IPixelBuffer instance
---------------	--

Implemented in [ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >](#).

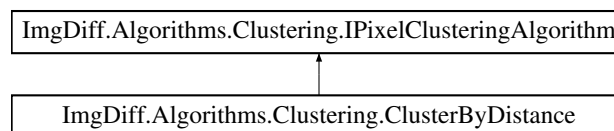
The documentation for this interface was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/PixelBuffer/IPixelBufferPool.cs

5.17 ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm Interface Reference

Pixel clustering algorithm interface which is used to merge pixels into clusters for further highlighting

Inheritance diagram for `ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm`:



Public Member Functions

- `IEnumerable< Rectangle > GetClusters (IPixelBuffer pixels, int limit)`
Clusterize pixel buffer and remove all process pixels from it
- `IAsyncEnumerable< Rectangle > GetClustersAsync (IPixelBuffer pixels, int limit)`
Asynchronously clusterize pixel buffer and remove all process pixels from it

Properties

- int [Precision](#) [get, set]
Precision of algorithm. Lower - better

5.17.1 Detailed Description

Pixel clustering algorithm interface which is used to merge pixels into clusters for further highlighting

5.17.2 Member Function Documentation

5.17.2.1 GetClusters()

```
IEnumerable<Rectangle> ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm.GetClusters (
    IPixelBuffer pixels,
    int limit )
```

Clusterize pixel buffer and remove all process pixels from it

Parameters

<i>pixels</i>	Source pixel buffer
<i>limit</i>	Maximum clusters to return

Returns

Rectangle containing all pixels from cluster

Implemented in [ImgDiff.Algorithms.Clustering.ClusterByDistance](#).

5.17.2.2 GetClustersAsync()

```
IAsyncEnumerable<Rectangle> ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm.Get↵
ClustersAsync (
    IPixelBuffer pixels,
    int limit )
```

Asynchronously clusterize pixel buffer and remove all process pixels from it

Parameters

<i>pixels</i>	Source pixel buffer
<i>limit</i>	Maximum clusters to return

Returns

Rectangle containing all pixels from cluster

Implemented in [ImgDiff.Algorithms.Clustering.ClusterByDistance](#).

5.17.3 Property Documentation**5.17.3.1 Precision**

```
int ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm.Precision [get], [set]
```

Precision of algorithm. Lower - better

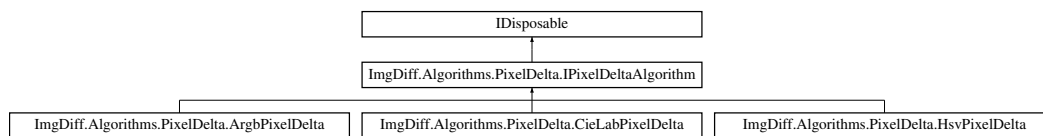
The documentation for this interface was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/Clustering/IPixelClusteringAlgorithm.cs

5.18 ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm Interface Reference

Pixel delta algorithm interface which is used to calculate difference between two pixels

Inheritance diagram for ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm:

**Public Member Functions**

- double [GetPixelDelta](#) (in [Bgra](#) left, in [Bgra](#) right)
Calculate difference between two pixels

5.18.1 Detailed Description

Pixel delta algorithm interface which is used to calculate difference between two pixels

5.18.2 Member Function Documentation**5.18.2.1 GetPixelDelta()**

```
double ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm.GetPixelDelta (
    in Bgra left,
    in Bgra right )
```

Calculate difference between two pixels

Parameters

<i>left</i>	Left pixel color
<i>right</i>	Right pixel color

Returns

Delta

Implemented in [ImgDiff.Algorithms.PixelDelta.HsvPixelDelta](#), [ImgDiff.Algorithms.PixelDelta.CieLabPixelDelta](#), and [ImgDiff.Algorithms.PixelDelta.ArgbPixelDelta](#).

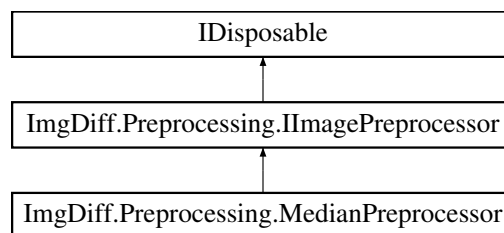
The documentation for this interface was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/PixelDelta/IPixelDeltaAlgorithm.cs

5.19 ImgDiff.Preprocessing.MedianPreprocessor Class Reference

Preprocessor which applies median (blur) filter to source image

Inheritance diagram for ImgDiff.Preprocessing.MedianPreprocessor:



Public Member Functions

- void [Process](#) (BitmapData imgData)
Process image
- async Task [ProcessAsync](#) (BitmapData imgData)
Asynchronously process image
- void **Dispose** ()

5.19.1 Detailed Description

Preprocessor which applies median (blur) filter to source image

5.19.2 Member Function Documentation

5.19.2.1 Process()

```
void ImgDiff.Preprocessing.MedianPreprocessor.Process (
    BitmapData imgData )
```

Process image

Parameters

<i>imgData</i>	Source image data
----------------	-------------------

Implements [ImgDiff.Preprocessing.IImagePreprocessor](#).

5.19.2.2 ProcessAsync()

```
async Task ImgDiff.Preprocessing.MedianPreprocessor.ProcessAsync (
    BitmapData imgData )
```

Asynchronously process image

Parameters

<i>imgData</i>	Source image data
----------------	-------------------

Implements [ImgDiff.Preprocessing.IImagePreprocessor](#).

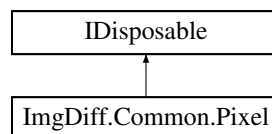
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Preprocessing/MedianPreprocessor.cs

5.20 ImgDiff.Common.Pixel Class Reference

[Pixel](#) coordinate

Inheritance diagram for `ImgDiff.Common.Pixel`:



Public Member Functions

- void **Dispose** ()

Static Public Member Functions

- static [Pixel Get](#) (int x, int y)
Get pixel from pool and set it's coordinate
- static [Pixel Get](#) ([Pixel](#) px)
Get pixel from pool and copy coordinates from px

Public Attributes

- int **X**
- int **Y**

5.20.1 Detailed Description

[Pixel](#) coordinate

5.20.2 Member Function Documentation

5.20.2.1 `Get()` [1/2]

```
static Pixel ImgDiff.Common.Pixel.Get (
    int x,
    int y ) [static]
```

Get pixel from pool and set it's coordinate

Parameters

<i>x</i>	
<i>y</i>	

Returns

Rented [Pixel](#) which should be disposed later

5.20.2.2 `Get()` [2/2]

```
static Pixel ImgDiff.Common.Pixel.Get (
    Pixel px ) [static]
```

Get pixel from pool and copy coordinates from *px*

Parameters

<i>px</i>	
-----------	--

Returns

Rented [Pixel](#) which should be disposed later

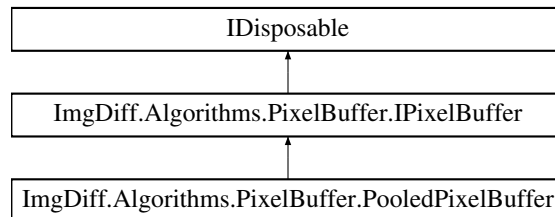
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Common/Pixel.cs

5.21 ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer Class Reference

Simple [IPixelBuffer](#) implementation with inner array pooling

Inheritance diagram for ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer:



Public Member Functions

- **PooledPixelBuffer** ([IPixelBufferPool](#) bufferPool, int capacity=DefaultCapacity)
- void **Add** ([Pixel](#) px)
Add pixel to buffer
- void **Remove** (int index)
Remove pixel from buffer by index and dispose it
- void **Dispose** ()

Properties

- int **Count** [get]
- int **Capacity** [get]
- [Pixel](#) **this[int index]** [get]

5.21.1 Detailed Description

Simple [IPixelBuffer](#) implementation with inner array pooling

5.21.2 Member Function Documentation

5.21.2.1 Add()

```
void ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer.Add (
    Pixel px )
```

Add pixel to buffer

Parameters

<i>px</i>	Pixel to add
-----------	--------------

Implements [ImgDiff.Algorithms.PixelBuffer.IPixelBuffer](#).

5.21.2.2 Remove()

```
void ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer.Remove (
    int index )
```

Remove pixel from buffer by index and dispose it

Parameters

<i>index</i>	Valid index in range of 0-Count
--------------	---------------------------------

Implements [ImgDiff.Algorithms.PixelBuffer.IPixelBuffer](#).

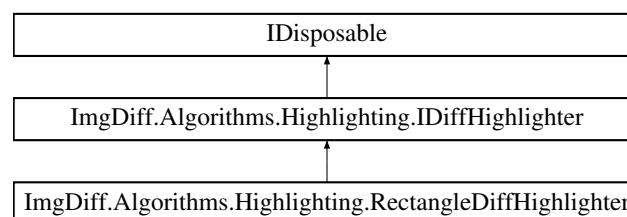
The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/PixelBuffer/PooledPixelBuffer.cs

5.22 ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter Class Reference

Simple algorithm to surround differences by rectangles

Inheritance diagram for `ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter`:



Public Member Functions

- **RectangleDiffHighlighter** (Pen pen, [IPixelClusteringAlgorithm](#) clusteringAlgorithm)
- void **Highlight** (Image target, [IPixelBuffer](#) pixels, int limit, [IDiffProgressObserver](#) progress=null)
Highlight pixels buffer on target Image
- async Task **HighlightAsync** (Image target, [IPixelBuffer](#) pixels, int limit, [IDiffProgressObserver](#) progress=null)
Asynchronously highlight pixels buffer on target Image
- void **Dispose** ()

Properties

- [IPixelClusteringAlgorithm](#) **ClusteringAlgorithm** [get]

5.22.1 Detailed Description

Simple algorithm to surround differences by rectangles

5.22.2 Member Function Documentation

5.22.2.1 Highlight()

```
void ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter.Highlight (
    Image target,
    IPixelBuffer pixels,
    int limit,
    IDiffProgressObserver progress = null )
```

Highlight pixels buffer on target Image

Parameters

<i>target</i>	Image to draw differences on
<i>pixels</i>	Source pixel buffer
<i>limit</i>	Maximum differences to highlight
<i>progress</i>	Instance of IDiffProgressObserver for progress reporting

Implements [ImgDiff.Algorithms.Highlighting.IDiffHighlighter](#).

5.22.2.2 HighlightAsync()

```
async Task ImgDiff.Algorithms.Highlighting.RectangleDiffHighlighter.HighlightAsync (
    Image target,
    IPixelBuffer pixels,
    int limit,
    IDiffProgressObserver progress = null )
```

Asynchronously highlight pixels buffer on target Image

Parameters

<i>target</i>	Image to draw differences on
<i>pixels</i>	Source pixel buffer
<i>limit</i>	Maximum differences to highlight
<i>progress</i>	Instance of IDiffProgressObserver for progress reporting

Implements [ImgDiff.Algorithms.Highlighting.IDiffHighlighter](#).

The documentation for this class was generated from the following file:

- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Algorithms/Highlighting/RectangleDiffHighlighter.cs

5.23 ImgDiff.Common.SimplePool< T > Class Template Reference

Simple generic object pool

Public Member Functions

- **SimplePool** (Func< T > factory, int initialCapacity=0)
- T **Rent** ()
Rent object from the pool
- void **Return** (T value)
Return object to the pool

5.23.1 Detailed Description

Simple generic object pool

Template Parameters

<i>T</i>	
----------	--

Thread-safe

5.23.2 Member Function Documentation

5.23.2.1 Rent()

```
T ImgDiff.Common.SimplePool< T >.Rent ( )
```

Rent object from the pool

Returns

Rented object which should be returned later

5.23.2.2 Return()

```
void ImgDiff.Common.SimplePool< T >.Return (
    T value )
```

Return object to the pool



Parameters


<i>value</i>	
--------------	--


The documentation for this class was generated from the following file:


- C:/Users/Revan/source/repos/ImgDiff/ImgDiff/Common/SimplePool.cs


Index


Add
 .Algorithms.PixelBuffer.IPixelBuffer, [32](#)
 .Algorithms.PixelBuffer.PooledPixelBuffer, [41](#)


Calculate
 .ImgDiffCalculator, [29](#)


CalculateAsync
 .ImgDiffCalculator, [29](#)


Capacity
 .Algorithms.PixelBuffer.IPixelBuffer, [33](#)



ClusteringAlgorithm
 .Algorithms.Highlighting.IDiffHighlighter, [25](#)



Count
 .Algorithms.PixelBuffer.IPixelBuffer, [33](#)



Create
 .ImgDiffCalculator, [29](#)



DiffAlgorithm
 .ImgDiffOptions, [31](#)





Get
 .Common.Pixel, [40](#)

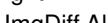
GetClusters
 .Algorithms.Clustering.ClusterByDistance, [14](#)
 .Algorithms.Clustering.IPixelClusteringAlgorithm, [36](#)


GetClustersAsync
 .Algorithms.Clustering.ClusterByDistance, [15](#)
 .Algorithms.Clustering.IPixelClusteringAlgorithm, [36](#)



GetDifferentPixels
 .Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >, [16](#)
 .Algorithms.IDiffAlgorithm, [22](#)

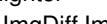
GetDifferentPixelsAsync
 .Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >, [17](#)
 .Algorithms.IDiffAlgorithm, [22](#)


GetPixelDelta
 .Algorithms.PixelDelta.ArgbPixelDelta, [11](#)
 .Algorithms.PixelDelta.CieLabPixelDelta, [13](#)
 .Algorithms.PixelDelta.HsvPixelDelta, [21](#)
 .Algorithms.PixelDelta.IPixelDeltaAlgorithm, [37](#)


Highlight
 .Algorithms.Highlighting.IDiffHighlighter, [24](#)

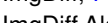
.Algorithms.Highlighting.RectangleDiffHighlighter, [43](#)

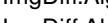
HighlightAsync
 .Algorithms.Highlighting.IDiffHighlighter, [25](#)
 .Algorithms.Highlighting.RectangleDiffHighlighter, [43](#)


Highlighter
 .ImgDiffOptions, [31](#)


ImagePreprocessor
 .Algorithms.IDiffAlgorithm, [23](#)

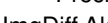
Diff, [7](#)


.Algorithms, [7](#)

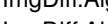
.Algorithms.Clustering, [7](#)


.Algorithms.Clustering.ClusterByDistance, [14](#)
 GetClusters, [14](#)
 GetClustersAsync, [15](#)

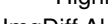
.Algorithms.Clustering.IPixelClusteringAlgorithm, [35](#)
 GetClusters, [36](#)
 GetClustersAsync, [36](#)
 Precision, [37](#)

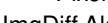
.Algorithms.DefaultDiffAlgorithm< TDelta, TPreprocessor >, [15](#)
 GetDifferentPixels, [16](#)
 GetDifferentPixelsAsync, [17](#)

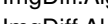
.Algorithms.Highlighting, [8](#)

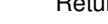
.Algorithms.Highlighting.IDiffHighlighter, [24](#)
 ClusteringAlgorithm, [25](#)
 Highlight, [24](#)
 HighlightAsync, [25](#)

.Algorithms.Highlighting.RectangleDiffHighlighter, [42](#)
 Highlight, [43](#)
 HighlightAsync, [43](#)

.Algorithms.IDiffAlgorithm, [21](#)
 GetDifferentPixels, [22](#)
 GetDifferentPixelsAsync, [22](#)
 ImagePreprocessor, [23](#)
 PixelDeltaAlgorithm, [23](#)

.Algorithms.PixelBuffer, [8](#)

.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >, [17](#)
 Rent, [18](#)
 Return, [18](#)

.Algorithms.PixelBuffer.IPixelBuffer, [32](#)
 Add, [32](#)
 Capacity, [33](#)
 Count, [33](#)
 Remove, [33](#)

- this[int index], 33
- ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool, 34
 - Rent, 34
 - Return, 35
- ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer, 41
 - Add, 41
 - Remove, 42
- ImgDiff.Algorithms.PixelDelta, 8
- ImgDiff.Algorithms.PixelDelta.ArgbPixelDelta, 11
 - GetPixelDelta, 11
- ImgDiff.Algorithms.PixelDelta.CieLabPixelDelta, 13
 - GetPixelDelta, 13
- ImgDiff.Algorithms.PixelDelta.HsvPixelDelta, 20
 - GetPixelDelta, 21
- ImgDiff.Algorithms.PixelDelta.IPixelDeltaAlgorithm, 37
 - GetPixelDelta, 37
- ImgDiff.Common, 8
- ImgDiff.Common.Bgra, 12
- ImgDiff.Common.Pixel, 39
 - Get, 40
- ImgDiff.Common.SimplePool< T >, 44
 - Rent, 44
 - Return, 44
- ImgDiff.IDiffProgressObserver, 26
 - Report, 26
 - ReportAsync, 26
- ImgDiff.ImgDiffCalculator, 28
 - Calculate, 29
 - CalculateAsync, 29
 - Create, 29
- ImgDiff.ImgDiffOptions, 30
 - DiffAlgorithm, 31
 - Highlighter, 31
 - LeftFile, 31
 - ProgressObserver, 31
 - RightFile, 31
- ImgDiff.Preprocessing, 9
- ImgDiff.Preprocessing.EmptyProcessor, 19
 - Process, 19
 - ProcessAsync, 20
- ImgDiff.Preprocessing.IImagePreprocessor, 27
 - Process, 27
 - ProcessAsync, 28
- ImgDiff.Preprocessing.MedianPreprocessor, 38
 - Process, 38
 - ProcessAsync, 39
- ImgDiff.Progress, 9
- ImgDiff.Progress.Report, 9
- LeftFile
 - ImgDiff.ImgDiffOptions, 31
- PixelDeltaAlgorithm
 - ImgDiff.Algorithms.IDiffAlgorithm, 23
- Precision
 - ImgDiff.Algorithms.Clustering.IPixelClusteringAlgorithm, 37
- Process
 - ImgDiff.Preprocessing.EmptyProcessor, 19
- ImgDiff.Preprocessing.IImagePreprocessor, 27
 - ImgDiff.Preprocessing.MedianPreprocessor, 38
- ProcessAsync
 - ImgDiff.Preprocessing.EmptyProcessor, 20
 - ImgDiff.Preprocessing.IImagePreprocessor, 28
 - ImgDiff.Preprocessing.MedianPreprocessor, 39
- ProgressObserver
 - ImgDiff.ImgDiffOptions, 31
- Remove
 - ImgDiff.Algorithms.PixelBuffer.IPixelBuffer, 33
 - ImgDiff.Algorithms.PixelBuffer.PooledPixelBuffer, 42
- Rent
 - ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >, 18
 - ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool, 34
 - ImgDiff.Common.SimplePool< T >, 44
- Report
 - ImgDiff.IDiffProgressObserver, 26
- ReportAsync
 - ImgDiff.IDiffProgressObserver, 26
- Return
 - ImgDiff.Algorithms.PixelBuffer.DefaultPixelBufferPool< TBuffer >, 18
 - ImgDiff.Algorithms.PixelBuffer.IPixelBufferPool, 35
 - ImgDiff.Common.SimplePool< T >, 44
- RightFile
 - ImgDiff.ImgDiffOptions, 31
- this[int index]
 - ImgDiff.Algorithms.PixelBuffer.IPixelBuffer, 33