

Rowing Monitor

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Chapter 1

Namespace Index

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Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

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Class Index

3.1 Class List

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

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RowingMonitor.Model.CalculatedFrameArrivedEventArgs	
Represents the arguments for a calculated frame arrived event.	18
RowingMonitor.Model.ColorFrameArrivedEventArgs	
Represents the arguments for a KinectReader's ColorFrameArrived event.	19
RowingMonitor.Model.Pipeline.DTWSegmentDetector	20
RowingMonitor.Model.Pipeline.KinectJointFilter.FilterDoubleExponentialData	21
RowingMonitor.Model.FrontalView	
This class shows a frontal view of the tracked skeleton. Also it shows the color image sequence which is recorded by the kinect sensor.	22
XamlGeneratedNamespace.GeneratedInternalTypeHelper	
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RowingMonitor.Model.Util.JointData	28
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RowingMonitor.Model.KinectFrameArrivedEventArgs	
Represents the arguments for a KinectReader's FrameArrived event.	31
RowingMonitor.Model.Pipeline.KinectJointFilter	
Adapted default Kinect smoothing filter to work with the pipeline. https://social.msdn.microsoft.com/Forums/en-US/ffbc8ec7-7551-4462-88aa-2fab69eac38f/joint-smoothing	32
RowingMonitor.Model.KinectReader	
The KinectReader class connects the application to the Kinect device	34
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Represents the arguments for a finished Kleshnev analysis.	38
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RowingMonitor.ViewModel.MainViewModel	
Represents the view-model for the main window.	40
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RowingMonitor.Model.SegmentDetectedEventArgs Represents the arguments for a detected segment event.	56
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RowingMonitor.Model.Util.SegmentHit	58
RowingMonitor.Model.ShiftedFrameArrivedEventArgs Represents the arguments for a shifted frame arrived event.	60
RowingMonitor.Model.Shifter Shifts the origin to the middle point between the foot ankle joints. Also rotates all joints until origin and hip joint form a horizontal line.	61
RowingMonitor.Model.SideView	62
RowingMonitor.Model.SmoothedFrameArrivedEventArgs Represents the arguments for a smoothed joint data arrived event.	63
RowingMonitor.Model.Util.Subsequence Subsequence in a data stream which suits a given template.	64
RowingMonitor.Model.Util.SubsequenceDTW Compares an online data stream with a template stream. Uses the SPRING DTW algorithm.	65
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File Index

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Here is a list of all files with brief descriptions:

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Chapter 5

Namespace Documentation

5.1 RowingMonitor Namespace Reference

Namespaces

- namespace [Model](#)
- namespace [Properties](#)
- namespace [ViewModel](#)

Classes

- class [App](#)
Interaktionslogik für "App.xaml"
- class [MainWindow](#)
Interaktionslogik für MainWindow.xaml
- class [RelayCommand](#)

5.2 RowingMonitor.Model Namespace Reference

Namespaces

- namespace [Pipeline](#)
- namespace [Util](#)

Classes

- class [BodyNotFullyTrackedException](#)
- class [CalculatedFrameArrivedEventArgs](#)

Represents the arguments for a calculated frame arrived event.
- class [ColorFrameArrivedEventArgs](#)

Represents the arguments for a [KinectReader](#)'s ColorFrameArrived event.
- class [FrontalView](#)

This class shows a frontal view of the tracked skeleton. Also it shows the color image sequence which is recorded by the kinect sensor.
- class [KinectFrameArrivedEventArgs](#)

Represents the arguments for a [KinectReader](#)'s FrameArrived event.
- class [KinectReader](#)

The [KinectReader](#) class connects the application to the Kinect device.
- class [KleshnevEventArgs](#)

Represents the arguments for a finished Kleshnev analysis.
- class [LowPassFilter](#)
- class [OneEuroFilterSmoothing](#)
- class [Plot](#)
- struct [PlotData](#)
- class [SegmentDetectedEventArgs](#)

Represents the arguments for a detected segment event.
- class [ShiftedFrameArrivedEventArgs](#)

Represents the arguments for a shifted frame arrived event.
- class [Shifter](#)

Shifts the origin to the middle point between the foot ankle joints. Also rotates all joints until origin and hip joint form a horizontal line.
- class [SideView](#)
- class [SmoothedFrameArrivedEventArgs](#)

Represents the arguments for a smoothed joint data arrived event.
- class [VelocityCalculator](#)

5.3 RowingMonitor.Model.Pipeline Namespace Reference

Classes

- class [DTWSegmentDetector](#)
- class [KinectJointFilter](#)

Adapted default Kinect smoothing filter to work with the pipeline. <https://social.msdn.microsoft.com/Forums/en-US/fb8ec7-7551-4462-88aa-2fab69eac38f/joint-smoothing-code-c-errors-in-kinect>
- struct [KleshnevData](#)
- class [KleshnevVelocityCalculator](#)
- class [RowingMonitorPipeline](#)
- class [SegmentDetector](#)
- class [ZVCSegmentDetector](#)

5.4 RowingMonitor.Model.Util Namespace Reference

Classes

- struct [JointData](#)
- class [KinectDataHandler](#)
- struct [SegmentHit](#)
- struct [Subsequence](#)
[Subsequence](#) in a data stream which suits a given template.
- class [SubsequenceDTW](#)
Compares an online data stream with a template stream. Uses the SPRING DTW algorithm.

Enumerations

- enum [KleshnevVelocityType](#) {
[KleshnevVelocityType.Legs](#), [KleshnevVelocityType.HandleRight](#), [KleshnevVelocityType.HandleLeft](#), [KleshnevVelocityType.Trunk](#),
[KleshnevVelocityType.ArmsRight](#), [KleshnevVelocityType.ArmsLeft](#) }
- enum [DataStreamType](#) {
[DataStreamType.RawPosition](#), [DataStreamType.SmoothedPosition](#), [DataStreamType.Velocity](#), [DataStreamType.SegmentHits](#),
[DataStreamType.Other](#) }
- enum [HitType](#) { [HitType.SegmentStart](#), [HitType.SegmentInternal](#), [HitType.SegmentEnd](#), [HitType.SegmentEndStart](#) }
- enum [SubsequenceStatus](#) { [SubsequenceStatus.NOT_SET](#), [SubsequenceStatus.NOT_OPTIMAL](#), [SubsequenceStatus.OPTIMAL](#) }
Status of detected subsequence.

5.4.1 Enumeration Type Documentation

5.4.1.1 DataStreamType

```
enum RowingMonitor.Model.Util.DataStreamType [strong]
```

Enumerator

RawPosition	
SmoothedPosition	
Velocity	
SegmentHits	
Other	

5.4.1.2 HitType

enum `RowingMonitor.Model.Util.HitType` [strong]

Enumerator

SegmentStart	
SegmentInternal	
SegmentEnd	
SegmentEndStart	

5.4.1.3 KleshnevVelocityType

enum `RowingMonitor.Model.Util.KleshnevVelocityType` [strong]

Enumerator

Legs	
HandleRight	
HandleLeft	
Trunk	
ArmsRight	
ArmsLeft	

5.4.1.4 SubsequenceStatus

enum `RowingMonitor.Model.Util.SubsequenceStatus` [strong]

Status of detected subsequence.

Enumerator

NOT_SET	No subsequence was detected.
NOT_OPTIMAL	A subsequence with smaller distance can occur.
OPTIMAL	No more exact subsequence can occur.

5.5 RowingMonitor.Properties Namespace Reference

Classes

- class **Resources**

Eine stark typisierte Ressourcenklasse zum Suchen von lokalisierten Zeichenfolgen usw.

- class **Settings**

5.6 RowingMonitor.ViewModel Namespace Reference

Classes

- class [MainViewModel](#)
Represents the view-model for the main window.

5.7 XamlGeneratedNamespace Namespace Reference

Classes

- class [GeneratedInternalTypeHelper](#)
GeneratedInternalTypeHelper

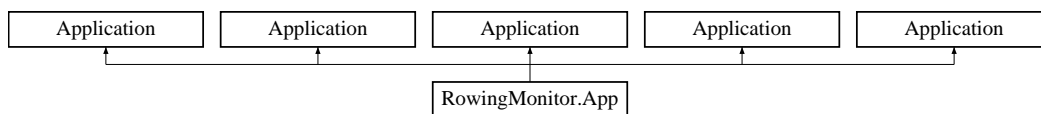
Chapter 6

Class Documentation

6.1 RowingMonitor.App Class Reference

Interaktionslogik für "App.xaml"

Inheritance diagram for RowingMonitor.App:



Public Member Functions

- void [InitializeComponent](#) ()
InitializeComponent
- void [InitializeComponent](#) ()
InitializeComponent
- void [InitializeComponent](#) ()
InitializeComponent
- void [InitializeComponent](#) ()
InitializeComponent

Static Public Member Functions

- static void [Main](#) ()
Application Entry Point.
- static void [Main](#) ()
Application Entry Point.
- static void [Main](#) ()
Application Entry Point.
- static void [Main](#) ()
Application Entry Point.

6.1.1 Detailed Description

Interaktionslogik für "App.xaml"

[App](#)

6.1.2 Member Function Documentation

6.1.2.1 InitializeComponent() [1/4]

```
void RowingMonitor.App.InitializeComponent ( )
```

InitializeComponent

6.1.2.2 InitializeComponent() [2/4]

```
void RowingMonitor.App.InitializeComponent ( )
```

InitializeComponent

6.1.2.3 InitializeComponent() [3/4]

```
void RowingMonitor.App.InitializeComponent ( )
```

InitializeComponent

6.1.2.4 InitializeComponent() [4/4]

```
void RowingMonitor.App.InitializeComponent ( )
```

InitializeComponent

6.1.2.5 Main() [1/4]

```
static void RowingMonitor.App.Main ( ) [static]
```

Application Entry Point.

6.1.2.6 Main() [2/4]

```
static void RowingMonitor.App.Main ( ) [static]
```

Application Entry Point.

6.1.2.7 Main() [3/4]

```
static void RowingMonitor.App.Main ( ) [static]
```

Application Entry Point.

6.1.2.8 Main() [4/4]

```
static void RowingMonitor.App.Main ( ) [static]
```

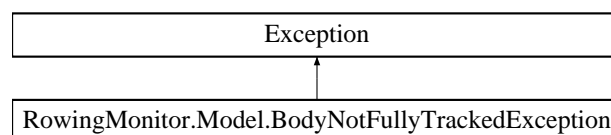
Application Entry Point.

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

- [App.xaml.cs](#)
- [obj/Debug/App.g.cs](#)
- [obj/Debug/App.g.i.cs](#)

6.2 RowingMonitor.Model.BodyNotFullyTrackedException Class Reference

Inheritance diagram for RowingMonitor.Model.BodyNotFullyTrackedException:



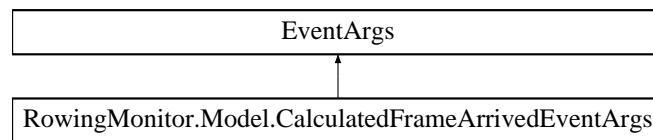
The documentation for this class was generated from the following file:

- [Model/Util/BodyNotFullyTrackedException.cs](#)

6.3 RowingMonitor.Model.CalculatedFrameArrivedEventArgs Class Reference

Represents the arguments for a calculated frame arrived event.

Inheritance diagram for RowingMonitor.Model.CalculatedFrameArrivedEventArgs:



Public Member Functions

- [CalculatedFrameArrivedEventArgs](#) ([JointData](#) calculatedJointData)

Properties

- [JointData](#) [CalculatedJointData](#) [get]

6.3.1 Detailed Description

Represents the arguments for a calculated frame arrived event.

6.3.2 Constructor & Destructor Documentation

6.3.2.1 CalculatedFrameArrivedEventArgs()

```
RowingMonitor.Model.CalculatedFrameArrivedEventArgs.CalculatedFrameArrivedEventArgs (
    JointData calculatedJointData )
```

6.3.3 Property Documentation

6.3.3.1 CalculatedJointData

```
JointData RowingMonitor.Model.CalculatedFrameArrivedEventArgs.CalculatedJointData [get]
```

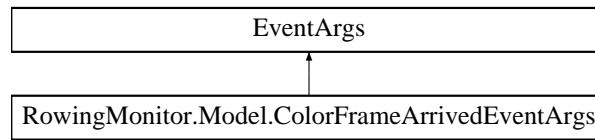
The documentation for this class was generated from the following file:

- Model/EventArgs/[CalculatedFrameArrivedEventArgs.cs](#)

6.4 RowingMonitor.Model.ColorFrameArrivedEventArgs Class Reference

Represents the arguments for a [KinectReader](#)'s ColorFrameArrived event.

Inheritance diagram for RowingMonitor.Model.ColorFrameArrivedEventArgs:



Public Member Functions

- [ColorFrameArrivedEventArgs](#) (WriteableBitmap colorBitmap)

Properties

- WriteableBitmap [ColorBitmap](#) [get]

6.4.1 Detailed Description

Represents the arguments for a [KinectReader](#)'s ColorFrameArrived event.

6.4.2 Constructor & Destructor Documentation

6.4.2.1 ColorFrameArrivedEventArgs()

```
RowingMonitor.Model.ColorFrameArrivedEventArgs.ColorFrameArrivedEventArgs (
    WriteableBitmap colorBitmap )
```

6.4.3 Property Documentation

6.4.3.1 ColorBitmap

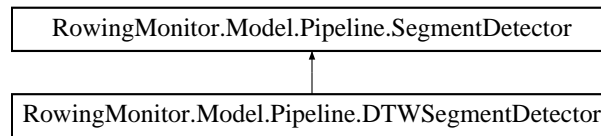
```
WriteableBitmap RowingMonitor.Model.ColorFrameArrivedEventArgs.ColorBitmap [get]
```

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

- Model/EventArgs/[ColorFrameArrivedEventArgs.cs](#)

6.5 RowingMonitor.Model.Pipeline.DTWSegmentDetector Class Reference

Inheritance diagram for RowingMonitor.Model.Pipeline.DTWSegmentDetector:



Public Member Functions

- [DTWSegmentDetector](#) (float distanceThreshold, int minimumSubsequenceLength)
- override void [Update](#) ([JointData](#) jointData, JointType jointType, string axis)

Protected Member Functions

- override void [OnSegmentDetected](#) ([SegmentDetectedEventArgs](#) e)

Additional Inherited Members

6.5.1 Constructor & Destructor Documentation

6.5.1.1 DTWSegmentDetector()

```
RowingMonitor.Model.Pipeline.DTWSegmentDetector.DTWSegmentDetector (
    float distanceThreshold,
    int minimumSubsequenceLength )
```

6.5.2 Member Function Documentation

6.5.2.1 OnSegmentDetected()

```
override void RowingMonitor.Model.Pipeline.DTWSegmentDetector.OnSegmentDetected (
    SegmentDetectedEventArgs e ) [protected], [virtual]
```

Reimplemented from [RowingMonitor.Model.Pipeline.SegmentDetector](#).

6.5.2.2 Update()

```
override void RowingMonitor.Model.Pipeline.DTWSegmentDetector.Update (
    JointData jointData,
    JointType jointType,
    string axis )
```

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

- Model/Pipeline/[DTWSegmentDetector.cs](#)

6.6 RowingMonitor.Model.Pipeline.KinectJointFilter.FilterDoubleExponentialData Class Reference

Public Attributes

- CameraSpacePoint [m_vRawPosition](#)
- CameraSpacePoint [m_vFilteredPosition](#)
- CameraSpacePoint [m_vTrend](#)
- int [m_dwFrameCount](#)

6.6.1 Member Data Documentation

6.6.1.1 m_dwFrameCount

```
int RowingMonitor.Model.Pipeline.KinectJointFilter.FilterDoubleExponentialData.m_dwFrameCount
```

6.6.1.2 m_vFilteredPosition

```
CameraSpacePoint RowingMonitor.Model.Pipeline.KinectJointFilter.FilterDoubleExponentialData.↔  
m_vFilteredPosition
```

6.6.1.3 m_vRawPosition

```
CameraSpacePoint RowingMonitor.Model.Pipeline.KinectJointFilter.FilterDoubleExponentialData.↔  
m_vRawPosition
```

6.6.1.4 m_vTrend

```
CameraSpacePoint RowingMonitor.Model.Pipeline.KinectJointFilter.FilterDoubleExponentialData.←
m_vTrend
```

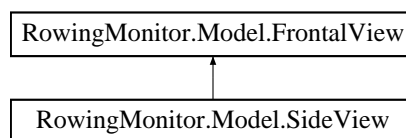
The documentation for this class was generated from the following file:

- Model/Pipeline/[KinectJointFilter.cs](#)

6.7 RowingMonitor.Model.FrontalView Class Reference

This class shows a frontal view of the tracked skeleton. Also it shows the color image sequence which is recorded by the kinect sensor.

Inheritance diagram for RowingMonitor.Model.FrontalView:



Public Member Functions

- [FrontalView](#) (CoordinateMapper mapper, int width, int height)
- virtual void [UpdateSkeleton](#) (IReadOnlyDictionary< JointType, Joint > joints)
Updates the view with new data.
- void [UpdateColorImage](#) (WriteableBitmap colorImage)

Protected Member Functions

- void [DrawBody](#) (IReadOnlyDictionary< JointType, Joint > joints, IDictionary< JointType, Point > jointPoints, DrawingContext drawingContext, Pen drawingPen)
Draws a body

Protected Attributes

- const double [JointThickness](#) = 3
Thickness of drawn joint lines
- const float [InferredZPositionClamp](#) = 0.1f
Constant for clamping Z values of camera space points from being negative
- CoordinateMapper [coordinateMapper](#) = null
Coordinate mapper to map one type of point to another
- int [displayWidth](#)
Width of display (depth space)
- int [displayHeight](#)
Height of display (depth space)
- List< Pen > [bodyColors](#)
List of colors for each body tracked

Properties

- DrawingImage [BodyImageSource](#) [get, protected set]
- WriteableBitmap [ColorImageSource](#) [get]

6.7.1 Detailed Description

This class shows a frontal view of the tracked skeleton. Also it shows the color image sequence which is recorded by the kinect sensor.

6.7.2 Constructor & Destructor Documentation

6.7.2.1 FrontalView()

```
RowingMonitor.Model.FrontalView.FrontalView (
    CoordinateMapper mapper,
    int width,
    int height )
```

6.7.3 Member Function Documentation

6.7.3.1 DrawBody()

```
void RowingMonitor.Model.FrontalView.DrawBody (
    IReadOnlyDictionary< JointType, Joint > joints,
    IDictionary< JointType, Point > jointPoints,
    DrawingContext drawingContext,
    Pen drawingPen ) [protected]
```

Draws a body

Parameters

<i>joints</i>	joints to draw
<i>jointPoints</i>	translated positions of joints to draw
<i>drawingContext</i>	drawing context to draw to
<i>drawingPen</i>	specifies color to draw a specific body

6.7.3.2 UpdateColorImage()

```
void RowingMonitor.Model.FrontalView.UpdateColorImage (
    WriteableBitmap colorImage )
```

6.7.3.3 UpdateSkeleton()

```
virtual void RowingMonitor.Model.FrontalView.UpdateSkeleton (
    IReadOnlyDictionary< JointType, Joint > joints ) [virtual]
```

Updates the view with new data.

Reimplemented in [RowingMonitor.Model.SideView](#).

6.7.4 Member Data Documentation

6.7.4.1 bodyColors

```
List<Pen> RowingMonitor.Model.FrontalView.bodyColors [protected]
```

List of colors for each body tracked

6.7.4.2 coordinateMapper

```
CoordinateMapper RowingMonitor.Model.FrontalView.coordinateMapper = null [protected]
```

Coordinate mapper to map one type of point to another

6.7.4.3 displayHeight

```
int RowingMonitor.Model.FrontalView.displayHeight [protected]
```

Height of display (depth space)

6.7.4.4 displayWidth

```
int RowingMonitor.Model.FrontalView.displayWidth [protected]
```

Width of display (depth space)

6.7.4.5 InferredZPositionClamp

```
const float RowingMonitor.Model.FrontalView.InferredZPositionClamp = 0.1f [protected]
```

Constant for clamping Z values of camera space points from being negative

6.7.4.6 JointThickness

```
const double RowingMonitor.Model.FrontalView.JointThickness = 3 [protected]
```

Thickness of drawn joint lines

6.7.5 Property Documentation

6.7.5.1 BodyImageSource

```
DrawingImage RowingMonitor.Model.FrontalView.BodyImageSource [get], [protected set]
```

6.7.5.2 ColorImageSource

```
WriteableBitmap RowingMonitor.Model.FrontalView.ColorImageSource [get]
```

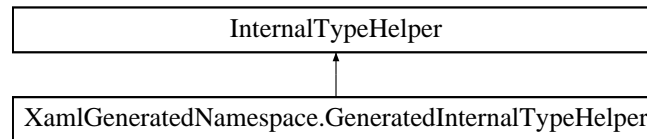
The documentation for this class was generated from the following file:

- Model/Pipeline/[FrontalView.cs](#)

6.8 XamlGeneratedNamespace.GeneratedInternalTypeHelper Class Reference

[GeneratedInternalTypeHelper](#)

Inheritance diagram for XamlGeneratedNamespace.GeneratedInternalTypeHelper:



Protected Member Functions

- override object [CreateInstance](#) (System.Type type, System.Globalization.CultureInfo culture)
CreateInstance
- override object [GetPropertyValue](#) (System.Reflection.PropertyInfo propertyInfo, object target, System.Globalization.CultureInfo culture)
GetPropertyValue
- override void [SetPropertyValue](#) (System.Reflection.PropertyInfo propertyInfo, object target, object value, System.Globalization.CultureInfo culture)
SetPropertyValue
- override System.Delegate [CreateDelegate](#) (System.Type delegateType, object target, string handler)
CreateDelegate
- override void [AddEventHandler](#) (System.Reflection.EventInfo eventInfo, object target, System.Delegate handler)
AddEventHandler

6.8.1 Detailed Description

[GeneratedInternalTypeHelper](#)

6.8.2 Member Function Documentation

6.8.2.1 AddEventHandler()

```

override void XamlGeneratedNamespace.GeneratedInternalTypeHelper.AddEventHandler (
    System.Reflection.EventInfo eventInfo,
    object target,
    System.Delegate handler ) [protected]
  
```

AddEventHandler

6.8.2.2 CreateDelegate()

```
override System.Delegate XamlGeneratedNamespace.GeneratedInternalTypeHelper.CreateDelegate (
    System.Type delegateType,
    object target,
    string handler ) [protected]
```

CreateDelegate

6.8.2.3 CreateInstance()

```
override object XamlGeneratedNamespace.GeneratedInternalTypeHelper.CreateInstance (
    System.Type type,
    System.Globalization.CultureInfo culture ) [protected]
```

CreateInstance

6.8.2.4 GetPropertyValue()

```
override object XamlGeneratedNamespace.GeneratedInternalTypeHelper.GetPropertyValue (
    System.Reflection.PropertyInfo propertyInfo,
    object target,
    System.Globalization.CultureInfo culture ) [protected]
```

GetPropertyValue

6.8.2.5 SetPropertyValue()

```
override void XamlGeneratedNamespace.GeneratedInternalTypeHelper.SetPropertyValue (
    System.Reflection.PropertyInfo propertyInfo,
    object target,
    object value,
    System.Globalization.CultureInfo culture ) [protected]
```

SetPropertyValue

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

- obj/Debug/[GeneratedInternalTypeHelper.g.i.cs](#)

6.9 RowingMonitor.Model.Util.JointData Struct Reference

Properties

- double [RelTimestamp](#) [get, set]
Time since Kinect sensor started.
- double [AbsTimestamp](#) [get, set]
Time since first frame.
- IReadOnlyDictionary< JointType, Joint > [Joints](#) [get, set]
Positions of all joints.
- long [Index](#) [get, set]
Incrementing number of frames.
- List< double > [Timestamps](#) [get, set]
List of all timestamps that were set in the pipeline

6.9.1 Property Documentation

6.9.1.1 AbsTimestamp

`double RowingMonitor.Model.Util.JointData.AbsTimestamp [get], [set]`

Time since first frame.

6.9.1.2 Index

`long RowingMonitor.Model.Util.JointData.Index [get], [set]`

Incrementing number of frames.

6.9.1.3 Joints

`IReadOnlyDictionary<JointType, Joint> RowingMonitor.Model.Util.JointData.Joints [get], [set]`

Positions of all joints.

6.9.1.4 RelTimestamp

`double RowingMonitor.Model.Util.JointData.RelTimestamp [get], [set]`

Time since Kinect sensor started.

6.9.1.5 Timestamps

```
List<double> RowingMonitor.Model.Util.JointData.Timestamps [get], [set]
```

List of all timestamps that were set in the pipeline

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

- [Model/Util/KinectDataHandler.cs](#)

6.10 RowingMonitor.Model.Util.KinectDataHandler Class Reference

Public Member Functions

- [JointData CreateNewJointData](#) (double relTimestamp, double creationTimestamp, IReadOnlyDictionary<JointType, Joint > joints)
- Body [GetFirstTrackedBody](#) ()
Return the longest tracked body.

Static Public Member Functions

- static [JointData ReplaceJointsInJointData](#) ([JointData](#) oldJointData, double creationTimestamp, IReadOnlyDictionary<JointType, Joint > newJoints)

Properties

- static [KinectDataHandler Instance](#) [get]
- double [RelStartTime](#) [get, set]
- long [LastIndex](#) [get, set]
- Body [] [Bodies](#) [get, set]

6.10.1 Member Function Documentation

6.10.1.1 CreateNewJointData()

```
JointData RowingMonitor.Model.Util.KinectDataHandler.CreateNewJointData (
    double relTimestamp,
    double creationTimestamp,
    IReadOnlyDictionary<JointType, Joint > joints )
```

6.10.1.2 GetFirstTrackedBody()

```
Body RowingMonitor.Model.Util.KinectDataHandler.GetFirstTrackedBody ( )
```

Return the longest tracked body.

Returns

6.10.1.3 ReplaceJointsInJointData()

```
static JointData RowingMonitor.Model.Util.KinectDataHandler.ReplaceJointsInJointData (
    JointData oldJointData,
    double creationTimestamp,
    IReadOnlyDictionary< JointType, Joint > newJoints ) [static]
```

6.10.2 Property Documentation

6.10.2.1 Bodies

```
Body [ ] RowingMonitor.Model.Util.KinectDataHandler.Bodies [get], [set]
```

6.10.2.2 Instance

```
KinectDataHandler RowingMonitor.Model.Util.KinectDataHandler.Instance [static], [get]
```

6.10.2.3 LastIndex

```
long RowingMonitor.Model.Util.KinectDataHandler.LastIndex [get], [set]
```

6.10.2.4 RelStartTime

```
double RowingMonitor.Model.Util.KinectDataHandler.RelStartTime [get], [set]
```

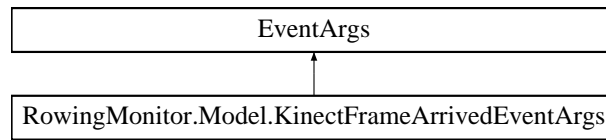
The documentation for this class was generated from the following file:

- Model/Util/[KinectDataHandler.cs](#)

6.11 RowingMonitor.Model.KinectFrameArrivedEventArgs Class Reference

Represents the arguments for a [KinectReader](#)'s FrameArrived event.

Inheritance diagram for RowingMonitor.Model.KinectFrameArrivedEventArgs:



Public Member Functions

- [KinectFrameArrivedEventArgs](#) ([JointData](#) jointData)

Properties

- [JointData](#) [JointData](#) [get]

6.11.1 Detailed Description

Represents the arguments for a [KinectReader](#)'s FrameArrived event.

6.11.2 Constructor & Destructor Documentation

6.11.2.1 KinectFrameArrivedEventArgs()

```
RowingMonitor.Model.KinectFrameArrivedEventArgs.KinectFrameArrivedEventArgs (
    JointData jointData )
```

6.11.3 Property Documentation

6.11.3.1 JointData

```
JointData RowingMonitor.Model.KinectFrameArrivedEventArgs.JointData [get]
```

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

- Model/EventArgs/[KinectFrameArrivedEventArgs.cs](#)

6.12 RowingMonitor.Model.Pipeline.KinectJointFilter Class Reference

Adapted default Kinect smoothing filter to work with the pipeline. <https://social.msdn.microsoft.com/Forums/en-US/ffbc8ec7-7551-4462-88aa-2fab69eac38f/joint-smoothing-code-c-errors-in-k>

Classes

- class [FilterDoubleExponentialData](#)
- struct [TRANSFORM_SMOOTH_PARAMETERS](#)

Public Member Functions

- delegate void [SmoothedFrameArrivedEventHandler](#) (Object sender, [SmoothedFrameArrivedEventArgs](#) e)
- [KinectJointFilter](#) ()
- void [Init](#) (float fSmoothing=0.25f, float fCorrection=0.25f, float fPrediction=0.25f, float fJitterRadius=0.03f, float fMaxDeviationRadius=0.05f)
- void [Shutdown](#) ()
- void [Reset](#) (float fSmoothing=0.25f, float fCorrection=0.25f, float fPrediction=0.25f, float fJitterRadius=0.03f, float fMaxDeviationRadius=0.05f)
- void [UpdateFilter](#) ([JointData](#) jointData)
- CameraSpacePoint [] [GetFilteredJoints](#) ()

Events

- [SmoothedFrameArrivedEventHandler](#) [SmoothedFrameArrived](#)

6.12.1 Detailed Description

Adapted default Kinect smoothing filter to work with the pipeline. <https://social.msdn.microsoft.com/Forums/en-US/ffbc8ec7-7551-4462-88aa-2fab69eac38f/joint-smoothing-code-c-errors-in-k>

6.12.2 Constructor & Destructor Documentation

6.12.2.1 KinectJointFilter()

```
RowingMonitor.Model.Pipeline.KinectJointFilter.KinectJointFilter ( )
```

6.12.3 Member Function Documentation

6.12.3.1 GetFilteredJoints()

```
CameraSpacePoint [ ] RowingMonitor.Model.Pipeline.KinectJointFilter.GetFilteredJoints ( )
```

6.12.3.2 Init()

```
void RowingMonitor.Model.Pipeline.KinectJointFilter.Init (
    float fSmoothing = 0.25f,
    float fCorrection = 0.25f,
    float fPrediction = 0.25f,
    float fJitterRadius = 0.03f,
    float fMaxDeviationRadius = 0.05f )
```

6.12.3.3 Reset()

```
void RowingMonitor.Model.Pipeline.KinectJointFilter.Reset (
    float fSmoothing = 0.25f,
    float fCorrection = 0.25f,
    float fPrediction = 0.25f,
    float fJitterRadius = 0.03f,
    float fMaxDeviationRadius = 0.05f )
```

6.12.3.4 Shutdown()

```
void RowingMonitor.Model.Pipeline.KinectJointFilter.Shutdown ( )
```

6.12.3.5 SmoothedFrameArrivedEventHandler()

```
delegate void RowingMonitor.Model.Pipeline.KinectJointFilter.SmoothedFrameArrivedEventHandler
(
    Object sender,
    SmoothedFrameArrivedEventArgs e )
```

6.12.3.6 UpdateFilter()

```
void RowingMonitor.Model.Pipeline.KinectJointFilter.UpdateFilter (
    JointData jointData )
```

6.12.4 Event Documentation

6.12.4.1 SmoothedFrameArrived

[SmoothedFrameArrivedEventHandler](#) `RowingMonitor.Model.Pipeline.KinectJointFilter.SmoothedFrameArrived`

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

- `Model/Pipeline/KinectJointFilter.cs`

6.13 RowingMonitor.Model.KinectReader Class Reference

The [KinectReader](#) class connects the application to the Kinect device.

Public Member Functions

- delegate void [KinectFrameArrivedEventHandler](#) (Object sender, [KinectFrameArrivedEventArgs](#) e)
- delegate void [ColorFrameArrivedEventHandler](#) (Object sender, [ColorFrameArrivedEventArgs](#) e)
- void [StartReader](#) ()
Start the reader to acquire sensor data from the kinect sensor.
- void [StopReader](#) ()
Stop the kinect reader and clean up.

Properties

- CoordinateMapper [CoordinateMapper](#) [get]
- int [DisplayWidth](#) [get]
- int [DisplayHeight](#) [get]
- string [StatusText](#) [get]
- static [KinectReader Instance](#) [get]
Instance of [KinectReader](#) singleton

Events

- [KinectFrameArrivedEventHandler](#) [KinectFrameArrived](#)
- [ColorFrameArrivedEventHandler](#) [ColorFrameArrived](#)

6.13.1 Detailed Description

The [KinectReader](#) class connects the application to the Kinect device.

This class uses the singleton pattern with static initialization.

6.13.2 Member Function Documentation

6.13.2.1 ColorFrameArrivedEventHandler()

```
delegate void RowingMonitor.Model.KinectReader.ColorFrameArrivedEventHandler (
    Object sender,
    ColorFrameArrivedEventArgs e )
```

6.13.2.2 KinectFrameArrivedEventHandler()

```
delegate void RowingMonitor.Model.KinectReader.KinectFrameArrivedEventHandler (
    Object sender,
    KinectFrameArrivedEventArgs e )
```

6.13.2.3 StartReader()

```
void RowingMonitor.Model.KinectReader.StartReader ( )
```

Start the reader to aquire sensor data from the kinect sensor.

6.13.2.4 StopReader()

```
void RowingMonitor.Model.KinectReader.StopReader ( )
```

Stop the kinect reader and clean up.

6.13.3 Property Documentation

6.13.3.1 CoordinateMapper

```
CoordinateMapper RowingMonitor.Model.KinectReader.CoordinateMapper [get]
```

6.13.3.2 DisplayHeight

`int RowingMonitor.Model.KinectReader.DisplayHeight [get]`

6.13.3.3 DisplayWidth

`int RowingMonitor.Model.KinectReader.DisplayWidth [get]`

6.13.3.4 Instance

`KinectReader RowingMonitor.Model.KinectReader.Instance [static], [get]`

Instance of [KinectReader](#) singleton

6.13.3.5 StatusText

`string RowingMonitor.Model.KinectReader.StatusText [get]`

6.13.4 Event Documentation

6.13.4.1 ColorFrameArrived

`ColorFrameArrivedEventHandler RowingMonitor.Model.KinectReader.ColorFrameArrived`

6.13.4.2 KinectFrameArrived

`KinectFrameArrivedEventHandler RowingMonitor.Model.KinectReader.KinectFrameArrived`

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

- Model/Pipeline/[KinectReader.cs](#)

6.14 RowingMonitor.Model.Pipeline.KleshnevData Struct Reference

Properties

- double [RelTimestamp](#) [get, set]
- double [AbsTimestamp](#) [get, set]
- Dictionary< [KleshnevVelocityType](#), double > [Velocities](#) [get, set]
- long [Index](#) [get, set]

6.14.1 Property Documentation

6.14.1.1 AbsTimestamp

double RowingMonitor.Model.Pipeline.KleshnevData.AbsTimestamp [get], [set]

6.14.1.2 Index

long RowingMonitor.Model.Pipeline.KleshnevData.Index [get], [set]

6.14.1.3 RelTimestamp

double RowingMonitor.Model.Pipeline.KleshnevData.RelTimestamp [get], [set]

6.14.1.4 Velocities

Dictionary<[KleshnevVelocityType](#), double> RowingMonitor.Model.Pipeline.KleshnevData.Velocities [get], [set]

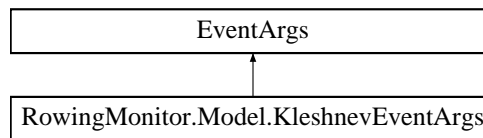
The documentation for this struct was generated from the following file:

- Model/Pipeline/[KleshnevVelocityCalculator.cs](#)

6.15 RowingMonitor.Model.KleshnevEventArgs Class Reference

Represents the arguments for a finished Kleshnev analysis.

Inheritance diagram for RowingMonitor.Model.KleshnevEventArgs:



Public Member Functions

- [KleshnevEventArgs](#) (List< [KleshnevData](#) > kleshnevData)

6.15.1 Detailed Description

Represents the arguments for a finished Kleshnev analysis.

6.15.2 Constructor & Destructor Documentation

6.15.2.1 KleshnevEventArgs()

```
RowingMonitor.Model.KleshnevEventArgs.KleshnevEventArgs (
    List< KleshnevData > kleshnevData )
```

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

- Model/EventArgs/[KleshnevEventArgs.cs](#)

6.16 RowingMonitor.Model.Pipeline.KleshnevVelocityCalculator Class Reference

Public Member Functions

- delegate void [KleshnevCalculationFinishedEventHandler](#) (Object sender, [KleshnevEventArgs](#) e)
- void [CalculateKleshnevVelocities](#) ([JointData](#) velocityJointData)

Events

- [KleshnevCalculationFinishedEventHandler](#) [KleshnevCalculationFinished](#)

6.16.1 Member Function Documentation

6.16.1.1 CalculateKleshnevVelocities()

```
void RowingMonitor.Model.Pipeline.KleshnevVelocityCalculator.CalculateKleshnevVelocities (
    JointData velocityJointData )
```

6.16.1.2 KleshnevCalculationFinishedEventHandler()

```
delegate void RowingMonitor.Model.Pipeline.KleshnevVelocityCalculator.KleshnevCalculation↔
FinishedEventHandler (
    Object sender,
    KleshnevEventArgs e )
```

6.16.2 Event Documentation

6.16.2.1 KleshnevCalculationFinished

```
KleshnevCalculationFinishedEventHandler RowingMonitor.Model.Pipeline.KleshnevVelocityCalculator.↔
KleshnevCalculationFinished
```

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

- Model/Pipeline/[KleshnevVelocityCalculator.cs](#)

6.17 RowingMonitor.Model.LowPassFilter Class Reference

Public Member Functions

- [LowPassFilter](#) ()
- Dictionary< JointType, Joint > [Filter](#) (Dictionary< JointType, Joint > joints, Dictionary< JointType, Dictionary< String, Double >> alpha)

Properties

- Dictionary< JointType, Joint > [Hatxprev](#) [get]

6.17.1 Constructor & Destructor Documentation

6.17.1.1 LowPassFilter()

```
RowingMonitor.Model.LowPassFilter.LowPassFilter ( )
```

6.17.2 Member Function Documentation

6.17.2.1 Filter()

```
Dictionary<JointType, Joint> RowingMonitor.Model.LowPassFilter.Filter (
    Dictionary< JointType, Joint > joints,
    Dictionary< JointType, Dictionary< String, Double >> alpha )
```

6.17.3 Property Documentation

6.17.3.1 Hatxprev

```
Dictionary<JointType, Joint> RowingMonitor.Model.LowPassFilter.Hatxprev [get]
```

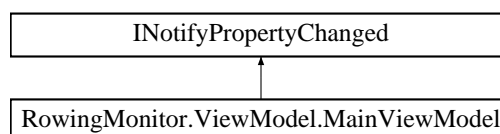
The documentation for this class was generated from the following file:

- Model/Util/[LowPassFilter.cs](#)

6.18 RowingMonitor.ViewModel.MainViewModel Class Reference

Represents the view-model for the main window.

Inheritance diagram for RowingMonitor.ViewModel.MainViewModel:



Public Member Functions

- [MainViewModel](#) ()
Initializes a new instance of the [MainViewModel](#) class.

Protected Member Functions

- void [RaisePropertyChanged](#) (string property)

Properties

- ICommand [WindowLoaded](#) [get]
- ICommand [WindowClosing](#) [get]
- ImageSource [BodyImageSource](#) [get, set]
- ImageSource [SideBodyImageSource](#) [get, set]
- ImageSource [ColorImageSource](#) [get, set]
- double [Beta](#) [get, set]
- double [Fcmin](#) [get, set]
- List< JointType > [PlotJointTypes](#) [get, set]
- List< [Model.Util.DataStreamType](#) > [PlotMeasuredVariables](#) [get, set]
- bool [UseKinectJointFilter](#) [get, set]
- bool [UseZVC](#) [get, set]
- PlotModel [DefaultPlotModel](#) [get]
- PlotModel [KlshLastSegmentPlotModel](#) [get]
- PlotModel [KlshCurrentSegmentPlotModel](#) [get]

Events

- PropertyChangedEventHandler [PropertyChanged](#)
INotifyPropertyChangedPropertyChanged event to allow window controls to bind to changeable data

6.18.1 Detailed Description

Represents the view-model for the main window.

6.18.2 Constructor & Destructor Documentation

6.18.2.1 MainViewModel()

```
RowingMonitor.ViewModel.MainViewModel.MainViewModel ( )
```

Initializes a new instance of the [MainViewModel](#) class.

6.18.3 Member Function Documentation

6.18.3.1 RaisePropertyChanged()

```
void RowingMonitor.ViewModel.MainViewModel.RaisePropertyChanged (
    string property ) [protected]
```

6.18.4 Property Documentation

6.18.4.1 Beta

```
double RowingMonitor.ViewModel.MainViewModel.Beta [get], [set]
```

6.18.4.2 BodyImageSource

```
ImageSource RowingMonitor.ViewModel.MainViewModel.BodyImageSource [get], [set]
```

6.18.4.3 ColorImageSource

```
ImageSource RowingMonitor.ViewModel.MainViewModel.ColorImageSource [get], [set]
```

6.18.4.4 DefaultPlotModel

```
PlotModel RowingMonitor.ViewModel.MainViewModel.DefaultPlotModel [get]
```

6.18.4.5 Fcmin

```
double RowingMonitor.ViewModel.MainViewModel.Fcmin [get], [set]
```

6.18.4.6 KlshCurrentSegmentPlotModel

PlotModel RowingMonitor.ViewModel.MainViewModel.KlshCurrentSegmentPlotModel [get]

6.18.4.7 KlshLastSegmentPlotModel

PlotModel RowingMonitor.ViewModel.MainViewModel.KlshLastSegmentPlotModel [get]

6.18.4.8 PlotJointTypes

List<JointType> RowingMonitor.ViewModel.MainViewModel.PlotJointTypes [get], [set]

6.18.4.9 PlotMeasuredVariables

List<Model.Util.DataStreamType> RowingMonitor.ViewModel.MainViewModel.PlotMeasuredVariables [get], [set]

6.18.4.10 SideBodyImageSource

ImageSource RowingMonitor.ViewModel.MainViewModel.SideBodyImageSource [get], [set]

6.18.4.11 UseKinectJointFilter

bool RowingMonitor.ViewModel.MainViewModel.UseKinectJointFilter [get], [set]

6.18.4.12 UseZVC

bool RowingMonitor.ViewModel.MainViewModel.UseZVC [get], [set]

6.18.4.13 WindowClosing

`ICommand RowingMonitor.ViewModel.MainViewModel.WindowClosing [get]`

6.18.4.14 WindowLoaded

`ICommand RowingMonitor.ViewModel.MainViewModel.WindowLoaded [get]`

6.18.5 Event Documentation

6.18.5.1 PropertyChanged

`PropertyChangedEventHandler RowingMonitor.ViewModel.MainViewModel.PropertyChanged`

`INotifyPropertyChanged` PropertyChanged event to allow window controls to bind to changeable data

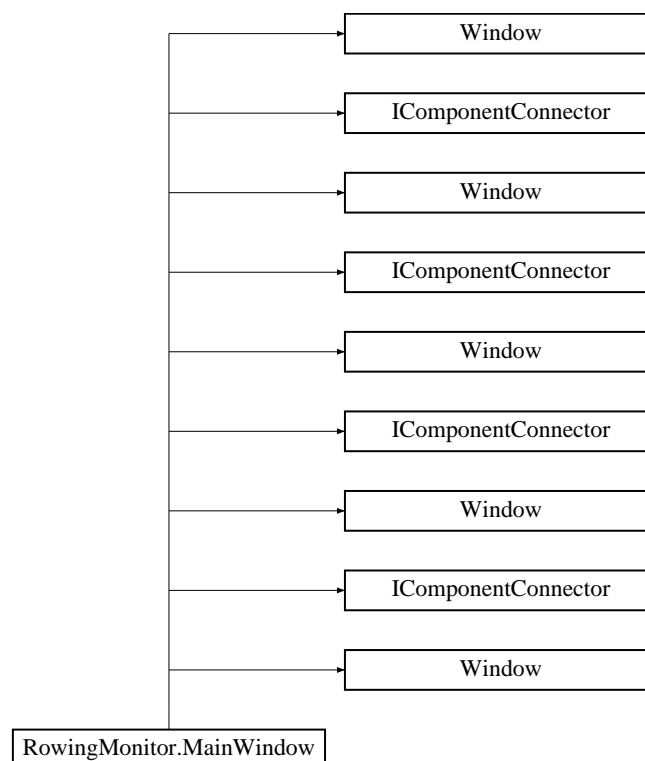
The documentation for this class was generated from the following file:

- ViewModel/[MainViewModel.cs](#)

6.19 RowingMonitor.MainWindow Class Reference

Interaktionslogik für MainWindow.xaml

Inheritance diagram for RowingMonitor.MainWindow:



Public Member Functions

- [MainWindow](#) ()
- void [InitializeComponent](#) ()
InitializeComponent
- void [InitializeComponent](#) ()
InitializeComponent
- void [InitializeComponent](#) ()
InitializeComponent
- void [InitializeComponent](#) ()
InitializeComponent

6.19.1 Detailed Description

Interaktionslogik für MainWindow.xaml

[MainWindow](#)

6.19.2 Constructor & Destructor Documentation

6.19.2.1 MainWindow()

```
RowingMonitor.MainWindow.MainWindow ( )
```

6.19.3 Member Function Documentation

6.19.3.1 InitializeComponent() [1/4]

```
void RowingMonitor.MainWindow.InitializeComponent ( )
```

InitializeComponent

6.19.3.2 InitializeComponent() [2/4]

```
void RowingMonitor.MainWindow.InitializeComponent ( )
```

InitializeComponent

6.19.3.3 InitializeComponent() [3/4]

```
void RowingMonitor.MainWindow.InitializeComponent ( )
```

InitializeComponent

6.19.3.4 InitializeComponent() [4/4]

```
void RowingMonitor.MainWindow.InitializeComponent ( )
```

InitializeComponent

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

- [MainWindow.xaml.cs](#)
- [obj/Debug/MainWindow.g.cs](#)
- [obj/Debug/MainWindow.g.i.cs](#)

6.20 RowingMonitor.Model.OneEuroFilterSmoothing Class Reference

Public Member Functions

- delegate void [SmoothedFrameArrivedEventHandler](#) (Object sender, [SmoothedFrameArrivedEventArgs](#) e)
- [OneEuroFilterSmoothing](#) ()
- void [UpdateFilter](#) ([JointData](#) jointData)

Static Public Member Functions

- static Dictionary< JointType, Dictionary< String, Double > > [InitCutoffDictionary](#) (Double value)
Initliazies a dictionary of all joint types with a given value.

Properties

- Double [Beta](#) [get, set]
- double [Fcmin](#) [get, set]
- Dictionary< JointType, Dictionary< string, double > > [Mincutoff](#) [get, set]

Events

- [SmoothedFrameArrivedEventHandler](#) [SmoothedFrameArrived](#)

6.20.1 Constructor & Destructor Documentation

6.20.1.1 OneEuroFilterSmoothing()

```
RowingMonitor.Model.OneEuroFilterSmoothing.OneEuroFilterSmoothing ( )
```

6.20.2 Member Function Documentation

6.20.2.1 InitCutoffDictionary()

```
static Dictionary<JointType, Dictionary<String, Double> > RowingMonitor.Model.OneEuroFilter↵  
Smoothing.InitCutoffDictionary (   
    Double value ) [static]
```

Initliazes a dictionary of all joint types with a given value.

Parameters

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

Returns

6.20.2.2 SmoothedFrameArrivedEventHandler()

```
delegate void RowingMonitor.Model.OneEuroFilterSmoothing.SmoothedFrameArrivedEventHandler (   
    Object sender,   
    SmoothedFrameArrivedEventArgs e )
```

6.20.2.3 UpdateFilter()

```
void RowingMonitor.Model.OneEuroFilterSmoothing.UpdateFilter (   
    JointData jointData )
```

6.20.3 Property Documentation

6.20.3.1 Beta

Double RowingMonitor.Model.OneEuroFilterSmoothing.Beta [get], [set]

6.20.3.2 Fcmin

double RowingMonitor.Model.OneEuroFilterSmoothing.Fcmin [get], [set]

6.20.3.3 Mincutoff

Dictionary<JointType, Dictionary<string, double> > RowingMonitor.Model.OneEuroFilterSmoothing.Mincutoff [get], [set]

6.20.4 Event Documentation

6.20.4.1 SmoothedFrameArrived

SmoothedFrameArrivedEventHandler RowingMonitor.Model.OneEuroFilterSmoothing.SmoothedFrameArrived

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

- Model/Pipeline/[OneEuroFilterSmoothing.cs](#)

6.21 RowingMonitor.Model.Plot Class Reference

Public Member Functions

- [Plot](#) ()
Creates a plot for the view.
- [Plot](#) (float range)
Creates a plot for the view.
- void [UpdatePlot](#) (Dictionary< String, List< [PlotData](#) >> dataPoints, String title, Dictionary< String, OxyColor > colors=null)
Draws a plot of given data points.
- void [Init](#) (String title, Dictionary< String, OxyColor > colors=null)
- void [AddDataPoint](#) (string series, double[] values)

Properties

- PlotModel [PlotModel](#) [get]
- Dictionary< string, OxyColor > [Colors](#) [get, set]

6.21.1 Constructor & Destructor Documentation

6.21.1.1 Plot() [1/2]

```
RowingMonitor.Model.Plot.Plot ( )
```

Creates a plot for the view.

6.21.1.2 Plot() [2/2]

```
RowingMonitor.Model.Plot.Plot (
    float range )
```

Creates a plot for the view.

If the number data points for one line series reaches the max threshold, all older data points will not be shown.

Parameters

<i>range</i>	Range of values along the x axis.
--------------	-----------------------------------

6.21.2 Member Function Documentation

6.21.2.1 AddDataPoint()

```
void RowingMonitor.Model.Plot.AddDataPoint (
    string series,
    double [ ] values )
```

6.21.2.2 Init()

```
void RowingMonitor.Model.Plot.Init (
    String title,
    Dictionary< String, OxyColor > colors = null )
```

6.21.2.3 UpdatePlot()

```
void RowingMonitor.Model.Plot.UpdatePlot (
    Dictionary< String, List< PlotData >> dataPoints,
    String title,
    Dictionary< String, OxyColor > colors = null )
```

Draws a plot of given data points.

The RaisePropertyChanged event must be raised after the update to refresh the plot view.

Parameters

<i>dataPoints</i>	Set of data points (x,y). The Key will be used as title of the line series.
<i>title</i>	Title of the plot.

6.21.3 Property Documentation

6.21.3.1 Colors

```
Dictionary<string, OxyColor> RowingMonitor.Model.Plot.Colors [get], [set]
```

6.21.3.2 PlotModel

```
PlotModel RowingMonitor.Model.Plot.PlotModel [get]
```

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

- Model/Pipeline/[Plot.cs](#)

6.22 RowingMonitor.Model.PlotData Struct Reference

Properties

- double [X](#) [get, set]
- double [Y](#) [get, set]
- string [Annotation](#) [get, set]
- [DataStreamType](#) [DataStreamType](#) [get, set]

6.22.1 Property Documentation

6.22.1.1 Annotation

```
string RowingMonitor.Model.PlotData.Annotation [get], [set]
```

6.22.1.2 DataStreamType

```
DataStreamType RowingMonitor.Model.PlotData.DataStreamType [get], [set]
```

6.22.1.3 X

```
double RowingMonitor.Model.PlotData.X [get], [set]
```

6.22.1.4 Y

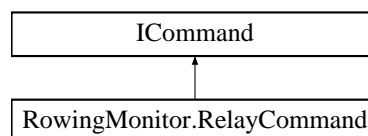
```
double RowingMonitor.Model.PlotData.Y [get], [set]
```

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

- Model/Pipeline/[Plot.cs](#)

6.23 RowingMonitor.RelayCommand Class Reference

Inheritance diagram for RowingMonitor.RelayCommand:



Public Member Functions

- [RelayCommand](#) (Action< object > execute)
- [RelayCommand](#) (Action< object > execute, Predicate< object > canExecute)
- void [Execute](#) (object parameter)
- bool [CanExecute](#) (object parameter)

Properties

- EventHandler [CanExecuteChanged](#)

6.23.1 Constructor & Destructor Documentation

6.23.1.1 RelayCommand() [1/2]

```
RowingMonitor.RelayCommand.RelayCommand (
    Action< object > execute )
```

6.23.1.2 RelayCommand() [2/2]

```
RowingMonitor.RelayCommand.RelayCommand (
    Action< object > execute,
    Predicate< object > canExecute )
```

6.23.2 Member Function Documentation

6.23.2.1 CanExecute()

```
bool RowingMonitor.RelayCommand.CanExecute (
    object parameter )
```

6.23.2.2 Execute()

```
void RowingMonitor.RelayCommand.Execute (
    object parameter )
```

6.23.3 Property Documentation

6.23.3.1 CanExecuteChanged

```
EventHandler RowingMonitor.RelayCommand.CanExecuteChanged [add], [remove]
```

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

- Model/Util/[RelayCommand.cs](#)

6.24 RowingMonitor.Model.Pipeline.RowingMonitorPipeline Class Reference

Public Member Functions

- [RowingMonitorPipeline](#) ()
- void [UpdateDefaultPlot](#) ()
- void [UpdateKleshnevPlots](#) ()
- void [StartPipeline](#) ()
- void [StopPipeline](#) ()

Properties

- ImageSource [FrontalBodyImageSource](#) [get, set]
- ImageSource [SideBodyImageSource](#) [get, set]
- ImageSource [ColorBodyImageSource](#) [get, set]
- PlotModel [DefaultPlotModel](#) [get]
- List< JointType > [PlotJointTypes](#) [get, set]
- List< Util.DataStreamType > [PlotMeasuredVariables](#) [get, set]
- bool [UseKinectJointFilter](#) [get, set]
- bool [UseZVC](#) [get, set]
- PlotModel [KlshLastSegmentPlotModel](#) [get]
- PlotModel [KlshCurrentSegmentPlotModel](#) [get]
- float [PlotRange](#) [get, set]
- bool [SegmentDetectorChanged](#) [get, set]

6.24.1 Constructor & Destructor Documentation

6.24.1.1 RowingMonitorPipeline()

```
RowingMonitor.Model.Pipeline.RowingMonitorPipeline.RowingMonitorPipeline ( )
```

6.24.2 Member Function Documentation

6.24.2.1 StartPipeline()

```
void RowingMonitor.Model.Pipeline.RowingMonitorPipeline.StartPipeline ( )
```

6.24.2.2 StopPipeline()

```
void RowingMonitor.Model.Pipeline.RowingMonitorPipeline.StopPipeline ( )
```

6.24.2.3 UpdateDefaultPlot()

```
void RowingMonitor.Model.Pipeline.RowingMonitorPipeline.UpdateDefaultPlot ( )
```

6.24.2.4 UpdateKleshnevPlots()

```
void RowingMonitor.Model.Pipeline.RowingMonitorPipeline.UpdateKleshnevPlots ( )
```

6.24.3 Property Documentation

6.24.3.1 ColorBodyImageSource

```
ImageSource RowingMonitor.Model.Pipeline.RowingMonitorPipeline.ColorBodyImageSource [get],  
[set]
```

6.24.3.2 DefaultPlotModel

```
PlotModel RowingMonitor.Model.Pipeline.RowingMonitorPipeline.DefaultPlotModel [get]
```

6.24.3.3 FrontalBodyImageSource

```
ImageSource RowingMonitor.Model.Pipeline.RowingMonitorPipeline.FrontalBodyImageSource [get],  
[set]
```

6.24.3.4 KlshCurrentSegmentPlotModel

```
PlotModel RowingMonitor.Model.Pipeline.RowingMonitorPipeline.KlshCurrentSegmentPlotModel [get]
```

6.24.3.5 KlshLastSegmentPlotModel

```
PlotModel RowingMonitor.Model.Pipeline.RowingMonitorPipeline.KlshLastSegmentPlotModel [get]
```

6.24.3.6 PlotJointTypes

```
List<JointType> RowingMonitor.Model.Pipeline.RowingMonitorPipeline.PlotJointTypes [get],  
[set]
```

6.24.3.7 PlotMeasuredVariables

```
List<Util.DataStreamType> RowingMonitor.Model.Pipeline.RowingMonitorPipeline.PlotMeasured↵  
Variables [get], [set]
```

6.24.3.8 PlotRange

```
float RowingMonitor.Model.Pipeline.RowingMonitorPipeline.PlotRange [get], [set]
```

6.24.3.9 SegmentDetectorChanged

```
bool RowingMonitor.Model.Pipeline.RowingMonitorPipeline.SegmentDetectorChanged [get], [set]
```

6.24.3.10 SideBodyImageSource

```
ImageSource RowingMonitor.Model.Pipeline.RowingMonitorPipeline.SideBodyImageSource [get],  
[set]
```

6.24.3.11 UseKinectJointFilter

```
bool RowingMonitor.Model.Pipeline.RowingMonitorPipeline.UseKinectJointFilter [get], [set]
```

6.24.3.12 UseZVC

```
bool RowingMonitor.Model.Pipeline.RowingMonitorPipeline.UseZVC [get], [set]
```

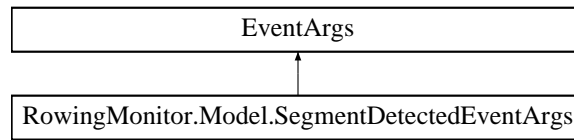
The documentation for this class was generated from the following file:

- Model/Pipeline/[RowingMonitorPipeline.cs](#)

6.25 RowingMonitor.Model.SegmentDetectedEventArgs Class Reference

Represents the arguments for a detected segment event.

Inheritance diagram for RowingMonitor.Model.SegmentDetectedEventArgs:



Public Member Functions

- [SegmentDetectedEventArgs](#) (List< [SegmentHit](#) > hits)

Properties

- List< [SegmentHit](#) > [Hits](#) [get]

6.25.1 Detailed Description

Represents the arguments for a detected segment event.

6.25.2 Constructor & Destructor Documentation

6.25.2.1 SegmentDetectedEventArgs()

```
RowingMonitor.Model.SegmentDetectedEventArgs.SegmentDetectedEventArgs (
    List< SegmentHit > hits )
```

6.25.3 Property Documentation

6.25.3.1 Hits

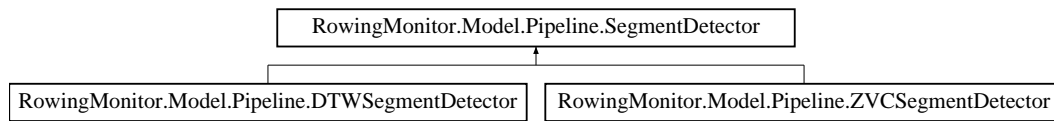
```
List<SegmentHit> RowingMonitor.Model.SegmentDetectedEventArgs.Hits [get]
```

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

- Model/EventArgs/[SegmentDetectedEventArgs.cs](#)

6.26 RowingMonitor.Model.Pipeline.SegmentDetector Class Reference

Inheritance diagram for RowingMonitor.Model.Pipeline.SegmentDetector:



Public Member Functions

- delegate void [SegmentDetectedEventHandler](#) (Object sender, [SegmentDetectedEventArgs](#) e)
- abstract void [Update](#) ([JointData](#) jointData, JointType jointType, String axis)

Protected Member Functions

- float [GetJointDataValue](#) ([JointData](#) jointData, JointType jointType, String axis)
- virtual void [OnSegmentDetected](#) ([SegmentDetectedEventArgs](#) e)

Protected Attributes

- List< [SegmentHit](#) > [hits](#) = new List<[SegmentHit](#)>()

Events

- [SegmentDetectedEventHandler](#) [SegmentDetected](#)

6.26.1 Member Function Documentation

6.26.1.1 GetJointDataValue()

```
float RowingMonitor.Model.Pipeline.SegmentDetector.GetJointDataValue (
    JointData jointData,
    JointType jointType,
    String axis ) [protected]
```

6.26.1.2 OnSegmentDetected()

```
virtual void RowingMonitor.Model.Pipeline.SegmentDetector.OnSegmentDetected (
    SegmentDetectedEventArgs e ) [protected], [virtual]
```

Reimplemented in [RowingMonitor.Model.Pipeline.ZVCSegmentDetector](#), and [RowingMonitor.Model.Pipeline.DTWSegmentDetector](#).

6.26.1.3 SegmentDetectedEventHandler()

```
delegate void RowingMonitor.Model.Pipeline.SegmentDetector.SegmentDetectedEventHandler (
    Object sender,
    SegmentDetectedEventArgs e )
```

6.26.1.4 Update()

```
abstract void RowingMonitor.Model.Pipeline.SegmentDetector.Update (
    JointData jointData,
    JointType jointType,
    String axis ) [pure virtual]
```

Implemented in [RowingMonitor.Model.Pipeline.ZVCSegmentDetector](#).

6.26.2 Member Data Documentation

6.26.2.1 hits

```
List<SegmentHit> RowingMonitor.Model.Pipeline.SegmentDetector.hits = new List<SegmentHit>()
[protected]
```

6.26.3 Event Documentation

6.26.3.1 SegmentDetected

[SegmentDetectedEventHandler](#) RowingMonitor.Model.Pipeline.SegmentDetector.SegmentDetected

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

- Model/Pipeline/[SegmentDetector.cs](#)

6.27 RowingMonitor.Model.Util.SegmentHit Struct Reference

Properties

- long [Index](#) [get, set]
Index of the joint data that this hit belongs to.
- long [DetectionIndex](#) [get, set]
Index of the joint data where this hit was detected.
- double [AbsTimestamp](#) [get, set]
Absolute timestamp of the joint data that this hit belongs to.
- double [DetectionAbsTimestamp](#) [get, set]
Absolute timestamp of the joint data where this hit was detected.
- [HitType](#) [HitType](#) [get, set]
Type of this hit in the context of a segment.

6.27.1 Property Documentation

6.27.1.1 AbsTimestamp

```
double RowingMonitor.Model.Util.SegmentHit.AbsTimestamp [get], [set]
```

Absolute timestamp of the joint data that this hit belongs to.

6.27.1.2 DetectionAbsTimestamp

```
double RowingMonitor.Model.Util.SegmentHit.DetectionAbsTimestamp [get], [set]
```

Absolute timestamp of the joint data where this hit was detected.

6.27.1.3 DetectionIndex

```
long RowingMonitor.Model.Util.SegmentHit.DetectionIndex [get], [set]
```

Index of the joint data where this hit was detected.

6.27.1.4 HitType

```
HitType RowingMonitor.Model.Util.SegmentHit.HitType [get], [set]
```

Type of this hit in the context of a segment.

6.27.1.5 Index

```
long RowingMonitor.Model.Util.SegmentHit.Index [get], [set]
```

Index of the joint data that this hit belongs to.

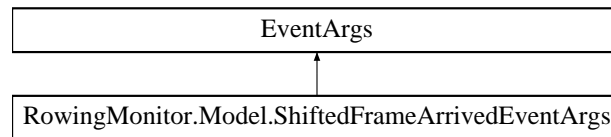
The documentation for this struct was generated from the following file:

- Model/Util/[KinectDataHandler.cs](#)

6.28 RowingMonitor.Model.ShiftedFrameArrivedEventArgs Class Reference

Represents the arguments for a shifted frame arrived event.

Inheritance diagram for RowingMonitor.Model.ShiftedFrameArrivedEventArgs:



Public Member Functions

- [ShiftedFrameArrivedEventArgs](#) ([JointData](#) shiftedJointData)

Properties

- [JointData ShiftedJointData](#) [get]

6.28.1 Detailed Description

Represents the arguments for a shifted frame arrived event.

6.28.2 Constructor & Destructor Documentation

6.28.2.1 ShiftedFrameArrivedEventArgs()

```
RowingMonitor.Model.ShiftedFrameArrivedEventArgs.ShiftedFrameArrivedEventArgs (
    JointData shiftedJointData )
```

6.28.3 Property Documentation

6.28.3.1 ShiftedJointData

```
JointData RowingMonitor.Model.ShiftedFrameArrivedEventArgs.ShiftedJointData [get]
```

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

- Model/EventArgs/[ShiftedFrameArrivedEventArgs.cs](#)

6.29 RowingMonitor.Model.Shifter Class Reference

Shifts the origin to the middle point between the foot ankle joints. Also rotates all joints until origin and hip joint form a horizontal line.

Public Member Functions

- delegate void [ShiftedFrameArrivedEventHandler](#) (Object sender, [ShiftedFrameArrivedEventArgs](#) e)
- void [ShiftAndRotate](#) ([JointData](#) jointData)

Events

- [ShiftedFrameArrivedEventHandler](#) [ShiftedFrameArrived](#)

6.29.1 Detailed Description

Shifts the origin to the middle point between the foot ankle joints. Also rotates all joints until origin and hip joint form a horizontal line.

6.29.2 Member Function Documentation

6.29.2.1 ShiftAndRotate()

```
void RowingMonitor.Model.Shifter.ShiftAndRotate (
    JointData jointData )
```

6.29.2.2 ShiftedFrameArrivedEventHandler()

```
delegate void RowingMonitor.Model.Shifter.ShiftedFrameArrivedEventHandler (
    Object sender,
    ShiftedFrameArrivedEventArgs e )
```

6.29.3 Event Documentation

6.29.3.1 ShiftedFrameArrived

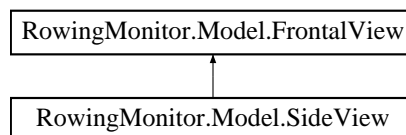
[ShiftedFrameArrivedEventHandler](#) `RowingMonitor.Model.Shifter.ShiftedFrameArrived`

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

- `Model/Pipeline/Shifter.cs`

6.30 RowingMonitor.Model.SideView Class Reference

Inheritance diagram for `RowingMonitor.Model.SideView`:



Public Member Functions

- [SideView](#) (`CoordinateMapper mapper, int width, int height`)
- override void [UpdateSkeleton](#) (`IReadOnlyDictionary< JointType, Joint > joints`)
Updates the view with new data.

Additional Inherited Members

6.30.1 Constructor & Destructor Documentation

6.30.1.1 SideView()

```

RowingMonitor.Model.SideView.SideView (
    CoordinateMapper mapper,
    int width,
    int height )
  
```

6.30.2 Member Function Documentation

6.30.2.1 UpdateSkeleton()

```
override void RowingMonitor.Model.SideView.UpdateSkeleton (
    IReadOnlyDictionary< JointType, Joint > joints ) [virtual]
```

Updates the view with new data.

Reimplemented from [RowingMonitor.Model.FrontalView](#).

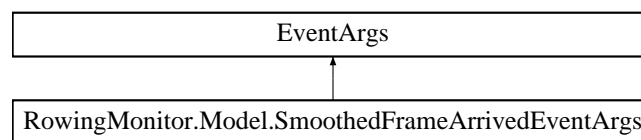
The documentation for this class was generated from the following file:

- Model/Pipeline/[SideView.cs](#)

6.31 RowingMonitor.Model.SmoothedFrameArrivedEventArgs Class Reference

Represents the arguments for a smoothed joint data arrived event.

Inheritance diagram for RowingMonitor.Model.SmoothedFrameArrivedEventArgs:



Public Member Functions

- [SmoothedFrameArrivedEventArgs](#) ([JointData](#) rawJointData, [JointData](#) smoothedJointData)

Properties

- [JointData](#) RawJointData [get]
- [JointData](#) SmoothedJointData [get]

6.31.1 Detailed Description

Represents the arguments for a smoothed joint data arrived event.

6.31.2 Constructor & Destructor Documentation

6.31.2.1 SmoothedFrameArrivedEventArgs()

```
RowingMonitor.Model.SmoothedFrameArrivedEventArgs.SmoothedFrameArrivedEventArgs (
    JointData rawJointData,
    JointData smoothedJointData )
```

6.31.3 Property Documentation

6.31.3.1 RawJointData

`JointData` `RowingMonitor.Model.SmoothedFrameArrivedEventArgs.RawJointData` [get]

6.31.3.2 SmoothedJointData

`JointData` `RowingMonitor.Model.SmoothedFrameArrivedEventArgs.SmoothedJointData` [get]

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

- `Model/EventArgs/SmoothedFrameArrivedEventArgs.cs`

6.32 RowingMonitor.Model.Util.Subsequence Struct Reference

`Subsequence` in a data stream which suits a given template.

Properties

- double `Distance` [get, set]
Calculates distance between the template and the data stream.
- int `TStart` [get, set]
Starttime of data stream which fits to the template.
- int `TEnd` [get, set]
Endtime of data stream which fits to the template.
- `SubsequenceStatus` `Status` [get, set]
Status of detected subsequence.
- int `TDetected` [get, set]
Time of detection.

6.32.1 Detailed Description

`Subsequence` in a data stream which suits a given template.

6.32.2 Property Documentation

6.32.2.1 Distance

`double RowingMonitor.Model.Util.Subsequence.Distance [get], [set]`

Calculates distance between the template and the data stream.

6.32.2.2 Status

`SubsequenceStatus RowingMonitor.Model.Util.Subsequence.Status [get], [set]`

Status of detected subsequence.

6.32.2.3 TDetected

`int RowingMonitor.Model.Util.Subsequence.TDetected [get], [set]`

Time of detection.

6.32.2.4 TEnd

`int RowingMonitor.Model.Util.Subsequence.TEnd [get], [set]`

Endtime of data stream which fits to the template.

6.32.2.5 TStart

`int RowingMonitor.Model.Util.Subsequence.TStart [get], [set]`

Starttime of data stream which fits to the template.

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

- [Model/Util/SubsequenceDTW.cs](#)

6.33 RowingMonitor.Model.Util.SubsequenceDTW Class Reference

Compares an online data stream with a template stream. Uses the SPRING DTW algorithm.

Public Member Functions

- [SubsequenceDTW](#) (List< double > template, float distanceThreshold, int minimumSubsequenceLength=2)
Creates a new instance of the [SubsequenceDTW](#) class.
- [Subsequence compareDataStream](#) (double xT, int t)
Compare the value x at time t of the data stream with the template. Returns an unset, not optimal or optimal subsequence with its distance, starttime and endtime. Uses the SPRING DTW algorithm.

6.33.1 Detailed Description

Compares an online data stream with a template stream. Uses the SPRING DTW algorithm.

6.33.2 Constructor & Destructor Documentation

6.33.2.1 SubsequenceDTW()

```
RowingMonitor.Model.Util.SubsequenceDTW.SubsequenceDTW (
    List< double > template,
    float distanceThreshold,
    int minimumSubsequenceLength = 2 )
```

Creates a new instance of the [SubsequenceDTW](#) class.

Parameters

<i>template</i>	
-----------------	--

Template stream for comparison.

Parameters

<i>distanceThreshold</i>	
--------------------------	--

Distance threshold which describes the maximum distance that reports a detected subsequence.

Parameters

<i>minimumSubsequenceLength</i>	
---------------------------------	--

Minimum length of a detected subsequence.

6.33.3 Member Function Documentation

6.33.3.1 compareDataStream()

```
Subsequence RowingMonitor.Model.Util.SubsequenceDTW.compareDataStream (
    double xT,
    int t )
```

Compare the value x at time t of the data stream with the template. Returns an unset, not optimal or optimal subsequence with its distance, starttime and endtime. Uses the SPRING DTW algorithm.

Parameters

xT	
------	--

Value x of data stream at time t.

Parameters

t	
-----	--

Time t of value x. Time starts with 1.

Returns

A subsequence with its distance, starttime and endtime.

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

- Model/Util/[SubsequenceDTW.cs](#)

6.34 RowingMonitor.Model.Pipeline.KinectJointFilter.TRANSFORM_SMOOTH_PARAMETERS Struct Reference

Public Attributes

- float [fSmoothing](#)
- float [fCorrection](#)
- float [fPrediction](#)
- float [fJitterRadius](#)
- float [fMaxDeviationRadius](#)

6.34.1 Member Data Documentation

6.34.1.1 fCorrection

`float RowingMonitor.Model.Pipeline.KinectJointFilter.TRANSFORM_SMOOTH_PARAMETERS.fCorrection`

6.34.1.2 fJitterRadius

`float RowingMonitor.Model.Pipeline.KinectJointFilter.TRANSFORM_SMOOTH_PARAMETERS.fJitterRadius`

6.34.1.3 fMaxDeviationRadius

`float RowingMonitor.Model.Pipeline.KinectJointFilter.TRANSFORM_SMOOTH_PARAMETERS.fMaxDeviationRadius`

6.34.1.4 fPrediction

`float RowingMonitor.Model.Pipeline.KinectJointFilter.TRANSFORM_SMOOTH_PARAMETERS.fPrediction`

6.34.1.5 fSmoothing

`float RowingMonitor.Model.Pipeline.KinectJointFilter.TRANSFORM_SMOOTH_PARAMETERS.fSmoothing`

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

- Model/Pipeline/[KinectJointFilter.cs](#)

6.35 RowingMonitor.Model.VelocityCalculator Class Reference

Public Member Functions

- delegate void [CalculatedFrameArrivedEventHandler](#) (Object sender, [CalculatedFrameArrivedEventArgs](#) e)
- void [CalculateVelocity](#) ([JointData](#) jointData)
Calculates the velocity as 1st derivative (gradient) of position. Calculation needs one frame as buffer.

Events

- [CalculatedFrameArrivedEventHandler](#) [CalculatedFrameArrived](#)

6.35.1 Member Function Documentation

6.35.1.1 CalculatedFrameArrivedEventHandler()

```
delegate void RowingMonitor.Model.VelocityCalculator.CalculatedFrameArrivedEventHandler (
    Object sender,
    CalculatedFrameArrivedEventArgs e )
```

6.35.1.2 CalculateVelocity()

```
void RowingMonitor.Model.VelocityCalculator.CalculateVelocity (
    JointData jointData )
```

Calculates the velocity as 1st derivative (gradient) of position. Calculation needs one frame as buffer.

Parameters

<i>jointData</i>	
------------------	--

6.35.2 Event Documentation

6.35.2.1 CalculatedFrameArrived

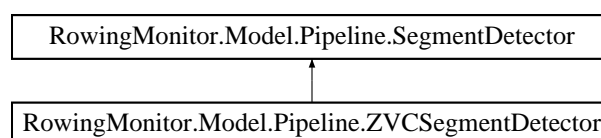
[CalculatedFrameArrivedEventHandler](#) RowingMonitor.Model.VelocityCalculator.CalculatedFrameArrived

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

- Model/Pipeline/[VelocityCalculator.cs](#)

6.36 RowingMonitor.Model.Pipeline.ZVCSegmentDetector Class Reference

Inheritance diagram for RowingMonitor.Model.Pipeline.ZVCSegmentDetector:



Public Member Functions

- [ZVCSegmentDetector](#) (int minimumHitGap, bool startSegmentWithRisingVelocity=true)
Creates a new zero velocity segment detector.
- override void [Update](#) ([JointData](#) jointData, JointType jointType, String axis)

Protected Member Functions

- override void [OnSegmentDetected](#) ([SegmentDetectedEventArgs](#) e)

Additional Inherited Members

6.36.1 Constructor & Destructor Documentation

6.36.1.1 ZVCSegmentDetector()

```
RowingMonitor.Model.Pipeline.ZVCSegmentDetector.ZVCSegmentDetector (
    int minimumHitGap,
    bool startSegmentWithRisingVelocity = true )
```

Creates a new zero velocity segment detector.

Parameters

<i>minimumHitGap</i>	Minimum count of indices between two hits.
<i>startSegmentWithRisingVelocity</i>	Define if the start/end point of a segment has a rising or falling slope

6.36.2 Member Function Documentation

6.36.2.1 OnSegmentDetected()

```
override void RowingMonitor.Model.Pipeline.ZVCSegmentDetector.OnSegmentDetected (
    SegmentDetectedEventArgs e ) [protected], [virtual]
```

Reimplemented from [RowingMonitor.Model.Pipeline.SegmentDetector](#).

6.36.2.2 Update()

```
override void RowingMonitor.Model.Pipeline.ZVCSegmentDetector.Update (
    JointData jointData,
    JointType jointType,
    String axis ) [virtual]
```

Implements [RowingMonitor.Model.Pipeline.SegmentDetector](#).

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

- Model/Pipeline/[ZVCSegmentDetector.cs](#)

Chapter 7

File Documentation

7.1 App.xaml.cs File Reference

Classes

- class [RowingMonitor.App](#)
Interaktionslogik für "App.xaml"

Namespaces

- namespace [RowingMonitor](#)

7.2 MainWindow.xaml.cs File Reference

Classes

- class [RowingMonitor.MainWindow](#)
Interaktionslogik für MainWindow.xaml

Namespaces

- namespace [RowingMonitor](#)

7.3 Model/EventArgs/CalculatedFrameArrivedEventArgs.cs File Reference

Classes

- class [RowingMonitor.Model.CalculatedFrameArrivedEventArgs](#)
Represents the arguments for a calculated frame arrived event.

Namespaces

- namespace [RowingMonitor.Model](#)

7.4 Model/EventArgs/ColorFrameArrivedEventArgs.cs File Reference

Classes

- class [RowingMonitor.Model.ColorFrameArrivedEventArgs](#)
Represents the arguments for a [KinectReader](#)'s ColorFrameArrived event.

Namespaces

- namespace [RowingMonitor.Model](#)

7.5 Model/EventArgs/KinectFrameArrivedEventArgs.cs File Reference

Classes

- class [RowingMonitor.Model.KinectFrameArrivedEventArgs](#)
Represents the arguments for a [KinectReader](#)'s FrameArrived event.

Namespaces

- namespace [RowingMonitor.Model](#)

7.6 Model/EventArgs/KleshnevEventArgs.cs File Reference

Classes

- class [RowingMonitor.Model.KleshnevEventArgs](#)
Represents the arguments for a finished Kleshnev analysis.

Namespaces

- namespace [RowingMonitor.Model](#)

7.7 Model/EventArgs/SegmentDetectedEventArgs.cs File Reference

Classes

- class [RowingMonitor.Model.SegmentDetectedEventArgs](#)
Represents the arguments for a detected segment event.

Namespaces

- namespace [RowingMonitor.Model](#)

7.8 Model/EventArgs/ShiftedFrameArrivedEventArgs.cs File Reference

Classes

- class [RowingMonitor.Model.ShiftedFrameArrivedEventArgs](#)
Represents the arguments for a shifted frame arrived event.

Namespaces

- namespace [RowingMonitor.Model](#)

7.9 Model/EventArgs/SmoothedFrameArrivedEventArgs.cs File Reference

Classes

- class [RowingMonitor.Model.SmoothedFrameArrivedEventArgs](#)
Represents the arguments for a smoothed joint data arrived event.

Namespaces

- namespace [RowingMonitor.Model](#)

7.10 Model/Pipeline/DTWSegmentDetector.cs File Reference

Classes

- class [RowingMonitor.Model.Pipeline.DTWSegmentDetector](#)

Namespaces

- namespace [RowingMonitor.Model.Pipeline](#)

7.11 Model/Pipeline/FrontalView.cs File Reference

Classes

- class [RowingMonitor.Model.FrontalView](#)
This class shows a frontal view of the tracked skeleton. Also it shows the color image sequence which is recorded by the kinect sensor.

Namespaces

- namespace [RowingMonitor.Model](#)

7.12 Model/Pipeline/KinectJointFilter.cs File Reference

Classes

- class [RowingMonitor.Model.Pipeline.KinectJointFilter](#)
Adapted default Kinect smoothing filter to work with the pipeline. <https://social.msdn.microsoft.com/Forums/en-US/fdbc8ec7-7551-4462-88aa-2fab69eac38f/joint-smoothing-code-c-errors-in-kinect>
- struct [RowingMonitor.Model.Pipeline.KinectJointFilter.TRANSFORM_SMOOTH_PARAMETERS](#)
- class [RowingMonitor.Model.Pipeline.KinectJointFilter.FilterDoubleExponentialData](#)

Namespaces

- namespace [RowingMonitor.Model.Pipeline](#)

7.13 Model/Pipeline/KinectReader.cs File Reference

Classes

- class [RowingMonitor.Model.KinectReader](#)
The [KinectReader](#) class connects the application to the Kinect device.

Namespaces

- namespace [RowingMonitor.Model](#)

7.14 Model/Pipeline/KleshnevVelocityCalculator.cs File Reference

Classes

- class [RowingMonitor.Model.Pipeline.KleshnevVelocityCalculator](#)
- struct [RowingMonitor.Model.Pipeline.KleshnevData](#)

Namespaces

- namespace [RowingMonitor.Model.Pipeline](#)

7.15 Model/Pipeline/OneEuroFilterSmoothing.cs File Reference

Classes

- class [RowingMonitor.Model.OneEuroFilterSmoothing](#)

Namespaces

- namespace [RowingMonitor.Model](#)

7.16 Model/Pipeline/Plot.cs File Reference

Classes

- class [RowingMonitor.Model.Plot](#)
- struct [RowingMonitor.Model.PlotData](#)

Namespaces

- namespace [RowingMonitor.Model](#)

7.17 Model/Pipeline/RowingMonitorPipeline.cs File Reference

Classes

- class [RowingMonitor.Model.Pipeline.RowingMonitorPipeline](#)

Namespaces

- namespace [RowingMonitor.Model.Pipeline](#)

7.18 Model/Pipeline/SegmentDetector.cs File Reference

Classes

- class [RowingMonitor.Model.Pipeline.SegmentDetector](#)

Namespaces

- namespace [RowingMonitor.Model.Pipeline](#)

7.19 Model/Pipeline/Shifter.cs File Reference

Classes

- class [RowingMonitor.Model.Shifter](#)

Shifts the origin to the middle point between the foot ankle joints. Also rotates all joints until origin and hip joint form a horizontal line.

Namespaces

- namespace [RowingMonitor.Model](#)

7.20 Model/Pipeline/SideView.cs File Reference

Classes

- class [RowingMonitor.Model.SideView](#)

Namespaces

- namespace [RowingMonitor.Model](#)

7.21 Model/Pipeline/VelocityCalculator.cs File Reference

Classes

- class [RowingMonitor.Model.VelocityCalculator](#)

Namespaces

- namespace [RowingMonitor.Model](#)

7.22 Model/Pipeline/ZVCSegmentDetector.cs File Reference

Classes

- class [RowingMonitor.Model.Pipeline.ZVCSegmentDetector](#)

Namespaces

- namespace [RowingMonitor.Model.Pipeline](#)

7.23 Model/Util/BodyNotFullyTrackedException.cs File Reference

Classes

- class [RowingMonitor.Model.BodyNotFullyTrackedException](#)

Namespaces

- namespace [RowingMonitor.Model](#)

7.24 Model/Util/Enums.cs File Reference

Namespaces

- namespace [RowingMonitor.Model.Util](#)

Enumerations

- enum [RowingMonitor.Model.Util.KleshnevVelocityType](#) {
[RowingMonitor.Model.Util.KleshnevVelocityType.Legs](#), [RowingMonitor.Model.Util.KleshnevVelocityType.HandleRight](#), [RowingMonitor.Model.Util.KleshnevVelocityType.HandleLeft](#), [RowingMonitor.Model.Util.KleshnevVelocityType.Trunk](#),
[RowingMonitor.Model.Util.KleshnevVelocityType.ArmsRight](#), [RowingMonitor.Model.Util.KleshnevVelocityType.ArmsLeft](#) }
- enum [RowingMonitor.Model.Util.DataStreamType](#) {
[RowingMonitor.Model.Util.DataStreamType.RawPosition](#), [RowingMonitor.Model.Util.DataStreamType.SmoothedPosition](#), [RowingMonitor.Model.Util.DataStreamType.Velocity](#), [RowingMonitor.Model.Util.DataStreamType.SegmentHits](#),
[RowingMonitor.Model.Util.DataStreamType.Other](#) }
- enum [RowingMonitor.Model.Util.HitType](#) { [RowingMonitor.Model.Util.HitType.SegmentStart](#), [RowingMonitor.Model.Util.HitType.SegmentInternal](#), [RowingMonitor.Model.Util.HitType.SegmentEnd](#), [RowingMonitor.Model.Util.HitType.SegmentEndStart](#) }

7.25 Model/Util/KinectDataHandler.cs File Reference

Classes

- class [RowingMonitor.Model.Util.KinectDataHandler](#)
- struct [RowingMonitor.Model.Util.JointData](#)
- struct [RowingMonitor.Model.Util.SegmentHit](#)

Namespaces

- namespace [RowingMonitor.Model.Util](#)

7.26 Model/Util/LowPassFilter.cs File Reference

Classes

- class [RowingMonitor.Model.LowPassFilter](#)

Namespaces

- namespace [RowingMonitor.Model](#)

7.27 Model/Util/RelayCommand.cs File Reference

Classes

- class [RowingMonitor.RelayCommand](#)

Namespaces

- namespace [RowingMonitor](#)

7.28 Model/Util/SubsequenceDTW.cs File Reference

Classes

- class [RowingMonitor.Model.Util.SubsequenceDTW](#)
Compares an online data stream with a template stream. Uses the SPRING DTW algorithm.
- struct [RowingMonitor.Model.Util.Subsequence](#)
Subsequence in a data stream which suits a given template.

Namespaces

- namespace [RowingMonitor.Model.Util](#)

Enumerations

- enum [RowingMonitor.Model.Util.SubsequenceStatus](#) { [RowingMonitor.Model.Util.SubsequenceStatus](#).↵
[NOT_SET](#), [RowingMonitor.Model.Util.SubsequenceStatus](#).NOT_OPTIMAL, [RowingMonitor.Model.Util](#).↵
[SubsequenceStatus](#).OPTIMAL }
- Status of detected subsequence.*

7.29 obj/Debug/App.g.cs File Reference

Classes

- class [RowingMonitor.App](#)
Interaktionslogik für "App.xaml"

Namespaces

- namespace [RowingMonitor](#)

7.30 obj/Release/App.g.cs File Reference

Classes

- class [RowingMonitor.App](#)
Interaktionslogik für "App.xaml"

Namespaces

- namespace [RowingMonitor](#)

7.31 obj/Debug/App.g.i.cs File Reference

Classes

- class [RowingMonitor.App](#)
Interaktionslogik für "App.xaml"

Namespaces

- namespace [RowingMonitor](#)

7.32 obj/Release/App.g.i.cs File Reference

Classes

- class [RowingMonitor.App](#)
Interaktionslogik für "App.xaml"

Namespaces

- namespace [RowingMonitor](#)

7.33 obj/Debug/GeneratedInternalTypeHelper.g.i.cs File Reference

Classes

- class [XamlGeneratedNamespace.GeneratedInternalTypeHelper](#)
GeneratedInternalTypeHelper

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- namespace [XamlGeneratedNamespace](#)

7.34 obj/Debug/MainWindow.g.cs File Reference

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- class [RowingMonitor.MainWindow](#)
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- namespace [RowingMonitor](#)

7.35 obj/Release/MainWindow.g.cs File Reference

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7.38 obj/Debug/TemporaryGeneratedFile_036C0B5B-1481-4323-8D20-8F5ADCB23D92.cs
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7.39 obj/Release/TemporaryGeneratedFile_036C0B5B-1481-4323-8D20-8F5ADCB23↵
D92.cs File Reference

7.40 obj/Debug/TemporaryGeneratedFile_5937a670-0e60-4077-877b-f7221da3dda1.cs
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7.44 Properties/AssemblyInfo.cs File Reference

7.45 Properties/Resources.Designer.cs File Reference

Classes

- class **RowingMonitor.Properties.Resources**
Eine stark typisierte Ressourcenklasse zum Suchen von lokalisierten Zeichenfolgen usw.

Namespaces

- namespace [RowingMonitor.Properties](#)

7.46 Properties/Settings.Designer.cs File Reference

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- class **RowingMonitor.Properties.Settings**

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- namespace [RowingMonitor.Properties](#)

7.47 ViewModel/MainViewModel.cs File Reference

Classes

- class [RowingMonitor.ViewModel.MainViewModel](#)
Represents the view-model for the main window.

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- namespace [RowingMonitor.ViewModel](#)

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