# SensorsData::IMUData

Structure containing data from the IMU sensor. **More...**

## Attributes

| | |
|---|---|
| bool | **is_available**<br>Whether the IMU sensor is available in your camera. **More...** |
| sl::Timestamp | **timestamp**<br>Data acquisition timestamp. **More...** |
| sl::Transform | **pose**<br>IMU pose (IMU 6-DoF fusion). **More...** |
| sl::Matrix3f | **pose_covariance**<br>Covariance matrix of the IMU pose (**pose**). **More...** |
| sl::float3 | **angular_velocity**<br>Angular velocity vector of the gyroscope in deg/s. **More...** |
| sl::float3 | **linear_acceleration**<br>Linear acceleration vector of the gyroscope in m/s². **More...** |
| sl::float3 | **angular_velocity_uncalibrated**<br>Angular velocity vector of the gyroscope in deg/s (uncorrected from the IMU calibration). **More...** |
| sl::float3 | **linear_acceleration_uncalibrated**<br>Linear acceleration vector of the gyroscope in m/s² (uncorrected from the IMU calibration). **More...** |

| | |
|---|---|
| sl::Matrix3f | **angular_velocity_covariance**<br>Covariance matrix of the angular velocity of the gyroscope in deg/s (**angular_velocity**). More... |
| sl::Matrix3f | **linear_acceleration_covariance**<br>Covariance matrix of the linear acceleration of the gyroscope in m/s² (**linear_acceleration**). More... |
| float | **effective_rate**<br>Realtime data acquisition rate in hertz (Hz). More... |

# Detailed Description

Structure containing data from the IMU sensor.

# Variables

**bool is_available**

Whether the IMU sensor is available in your camera.

**sl::Timestamp timestamp**

Data acquisition timestamp.

**sl::Transform pose**

IMU pose (IMU 6-DoF fusion).

### `sl::Matrix3f pose_covariance`

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Covariance matrix of the IMU pose (**pose**).

### `sl::float3 angular_velocity`

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Angular velocity vector of the gyroscope in deg/s.
The value is corrected from bias, scale and misalignment.

> **Note**
>
> The value can be directly ingested in an IMU fusion algorithm to extract a quaternion.
> Not available in SVO or STREAM mode.

### `sl::float3 linear_acceleration`

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Linear acceleration vector of the gyroscope in $m/s^2$.
The value is corrected from bias, scale and misalignment.

> **Note**
>
> The value can be directly ingested in an IMU fusion algorithm to extract a quaternion.
> Not available in SVO or STREAM mode.

### `sl::float3 angular_velocity_uncalibrated`

Angular velocity vector of the gyroscope in deg/s (uncorrected from the IMU calibration).

> **Note**
>
> The value is the exact raw values from the IMU.
> Not available in SVO or STREAM mode.

### `sl::float3 linear_acceleration_uncalibrated`

Linear acceleration vector of the gyroscope in m/s² (uncorrected from the IMU calibration).

> **Note**
>
> The value is the exact raw values from the IMU.
> Not available in SVO or STREAM mode.

### `sl::Matrix3f angular_velocity_covariance`

Covariance matrix of the angular velocity of the gyroscope in deg/s (**`angular_velocity`**).

> **Note**
>
> Not available in SVO or STREAM mode.

### `sl::Matrix3f linear_acceleration_covariance`

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Covariance matrix of the linear acceleration of the gyroscope in m/s² (**`linear_acceleration`**).

> **Note**
>
> Not available in SVO or STREAM mode.

### `float effective_rate`

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Realtime data acquisition rate in hertz (Hz).