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Image logging and annotation in Karabo for improved experimental monitoring

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In the Karabo framework, efficient visualization and data logging are essential for monitoring and optimizing experiments. The Image Logger device captures and compresses images from cameras or other imaging sources, storing them for future reference. Image logging can be performed opportunistically—without a dedicated DAQ setup—by treating image data as slow data, meaning it is transmitted asynchronously through broker-based communication rather than via the real-time pipeline used for full-size image streams. This approach offers flexibility and adaptability to a variety of experimental conditions. Users can retrieve past images and view them alongside live ones within the same scene, enabling straightforward visual comparison and reducing reliance on manual logbook entries. Complementing this, the Image Annotation device tracks regions of interest (ROI) such as crosshairs and rectangles, preserving alignment and diagnostic information over time. Additionally, Grafana Panels have been configured to support historical inspection and troubleshooting, providing a structured way to review and interpret logged image data across different timeframes.

Footnotes

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