LIMA: A Generic Library for High Throughput Image Acquisition

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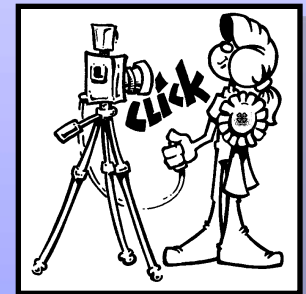**Laurent Claustre**   **Assen Kirov**

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Collaborators:

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WEMAU011

Introduction – What is LIMA?

- **Library for Image Acquisition**
- **Control system-independent**
- **Highly multithreaded, event-based**
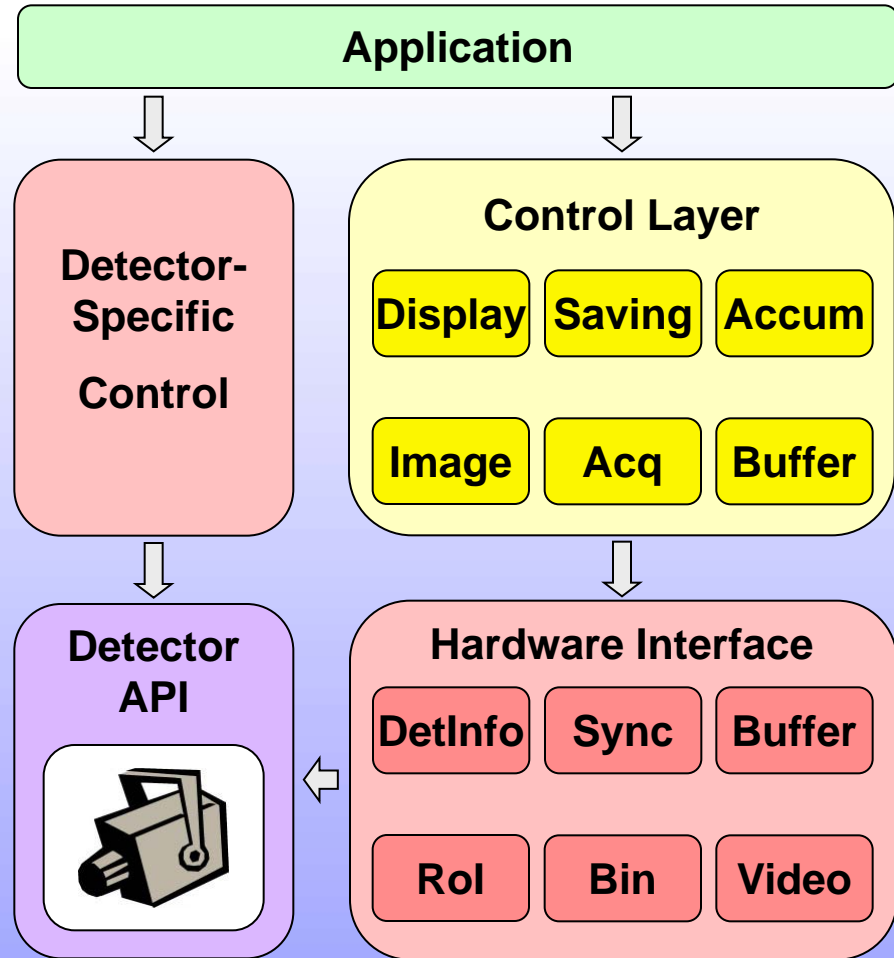- **C++, Python/SIP**
- **Control layer (LimaCore)**
- **Hardware interface (plugins)**
  - **Basic acquisition control**
  - **Optional capabilities:**
    - **RoI, Bin, Video**
- **Detector-specific control**
- **Applications:**
  - **TACO, TANGO, Xbpm**

Application

Detector-Specific Control

Control Layer

Display	Saving	Accum
Image	Acq	Buffer

Detector API

Hardware Interface

DetInfo	Sync	Buffer
RoI	Bin	Video

Features – What does it provide?

- **Geometric image transformations**
  - **Reconstruction, Bin, RoI, Flip & Rotation, Stripe concat.**
- **Basic image processing**
  - **Multi-RoI Statistics, Centroid (BPM), RoI⇨Spectrum**
  - **Background/Flatfield, SPD, Accumulation, Mask**
- **Automatic & manual file saving**
  - **EDF, Nexus, Raw**
  - **Multiple parallel streams**
- **Generic Video interface and live visualisation**
  - **Common video modes (mono/color), Gain**
  - **Spec Shared Memory (SPS)**
- **External user plugins**

Detectors – What is supported?

- **Simulator**
- **ESRF: Frelon, Maxipix (Single, 2x2, 5x1)**
- **Dectris: Pilatus, Mythen**
- **PCO: Dimax (⚒)**
- **GigE: Basler, Prosilica**
- **ADSC, MarCCD**
- **XPAD**
- **Roper Scientific (⚒)**

- **Want yours?**
    - **"Just" implement the plug-in (hardware interface) !**