



| The European Synchrotron

Control Graphical User Interfaces strategies workshop

GUIs at ESRF

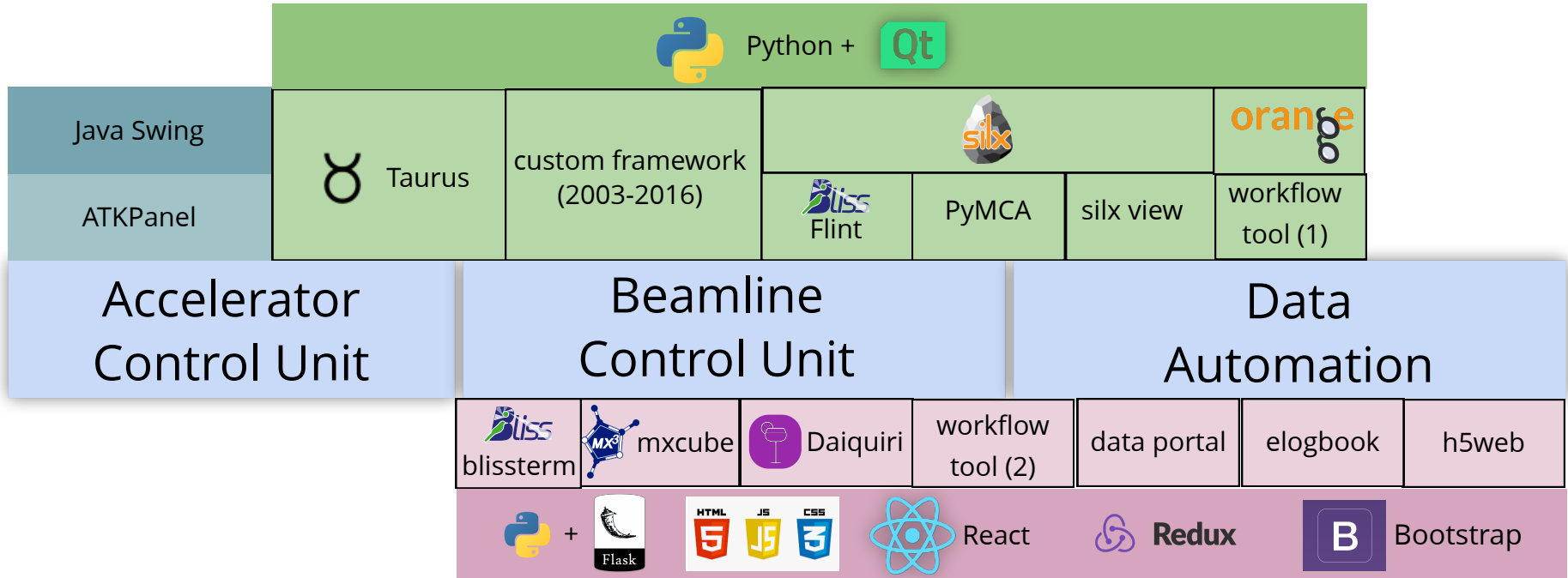


*presented by Matias Guijarro - on behalf
of the ESRF Software Group*



Panorama of UI toolkits and technologies

desktop



web

**Most recent developments (2017-) are on the web platform:
best for remote operation, no installation, appealing UI/UX**

Need to deal with legacy applications: extended support



Technical constraints

(e.g. big images display and responsiveness... WebGL, Web Assembly, compression techniques etc)

Adaptation of development teams

GUI example: MXCuBE, protein crystallography

The screenshot displays the MXCuBE 3 software interface. At the top, the title bar reads "MXCuBE 3 - Proposal: OPID293". The main menu includes "Sample Overview", "Data collection", "Sample Changer", and "System log".

Key parameters are shown in the top center:

- Energy: 12.7001 keV
- Wavelength: 0.9782 Å
- Resolution: 2.477 Å
- Detector: 500,000 mm
- Transmission: 19.998 %
- Flux: ph/s
- Cryo: 100.22 K

On the left, the "Beam size" is set to 10. Below it, the "Omega" is 90.00, "Kappa" is 0.00, and "Phi" is 0.00. A "Sample alignment" section contains navigation buttons.

The central microscope view shows a protein crystal with a green grid overlay labeled "Grid-1". A data table is overlaid on the grid:

| Name | V-Space (µm) | H-Space (µm) | Dim (µm) | #Cells | Ω |
|--------|--------------|--------------|-----------------|--------|---|
| Grid-1 | 0.00 | 0.00 | 120 x 150 (180) | 90.00° | |

Additional controls include "Opacity" and "Heat map" options. A "50 µm" scale bar is visible in the bottom left corner of the microscope view.

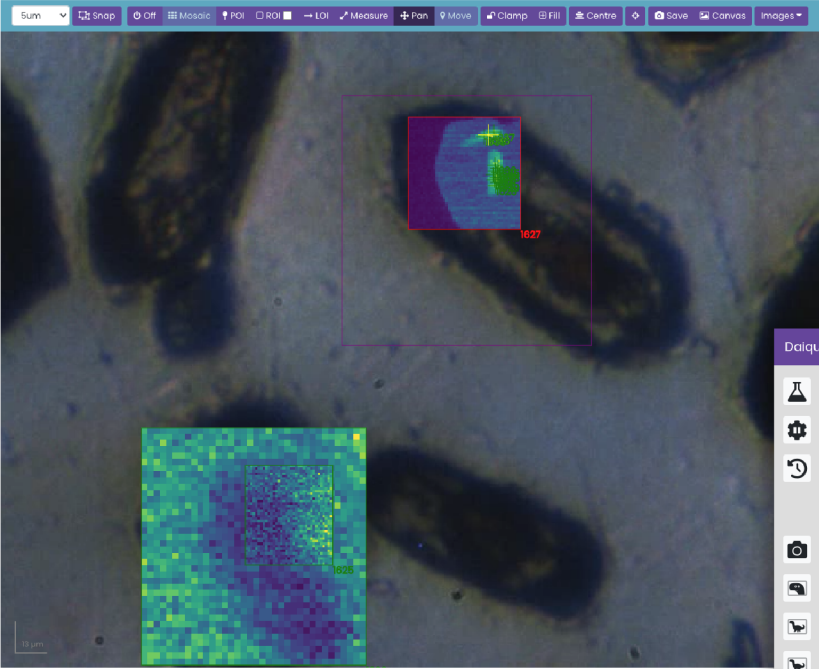
On the right, the "Run Queue" section shows "Next Sample (Sample-1:2:08)" and "Queued Samples (0)". A "Settings" button is also present.

GUI example: Daiquiri applications

Daiquiri UI: ID21

Ring Current 195.12 Front End RUNNING PSS Interlock ON Absorber 1 OPEN Absorber 2 OPEN HUIa21

Sum Snap Off Mosaic ROI LOI Measure Pan Move Clamp Fill Centre Save Canvas Images



1627

| # | Type | Size | Data | Search |
|------|------|---------------------|--------|--------|
| 1625 | ROI | 35x40 μm | Data B | Q |
| 1626 | ROI | 90x95 μm | Data B | Q |
| 1627 | ROI | 45x45 μm | Data B | Q |
| 1628 | ROI | | Data B | Q |
| 1629 | ROI | | Data B | Q |
| 1630 | ROI | | Data B | Q |
| 1631 | ROI | | Data B | Q |
| 1632 | ROI | | Data B | Q |
| 1633 | ROI | | Data B | Q |
| 1634 | ROI | | Data B | Q |
| 1635 | ROI | | Data B | Q |

1628

samy READY sam2 READY sampy READY sampp READY zoom_MF READY samx READY

6.3005 0.1 27.0436 0.1 58.93 5 15.8731 5 x12 Move 0.3497

Daiquiri UI: bl

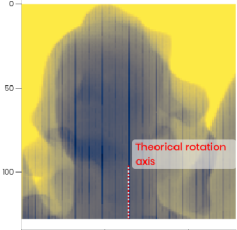
Ring Current 4 Front End OPEN Energy 13 HUIa21

Scan status

- Data collection: 7
- Scan: 680094776
- Status: FINISHED
- Progress: Done Fat Stop scan Return
- Description: Done

Sample stage

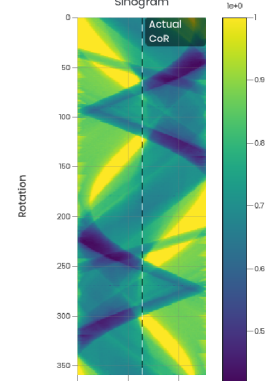
Projection



px

px

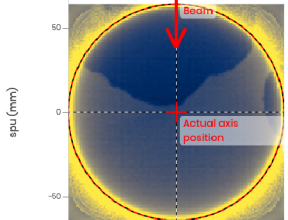
Sinogram



Rotation

Profile

Reconstructed slice



spu (mm)

spv (mm)

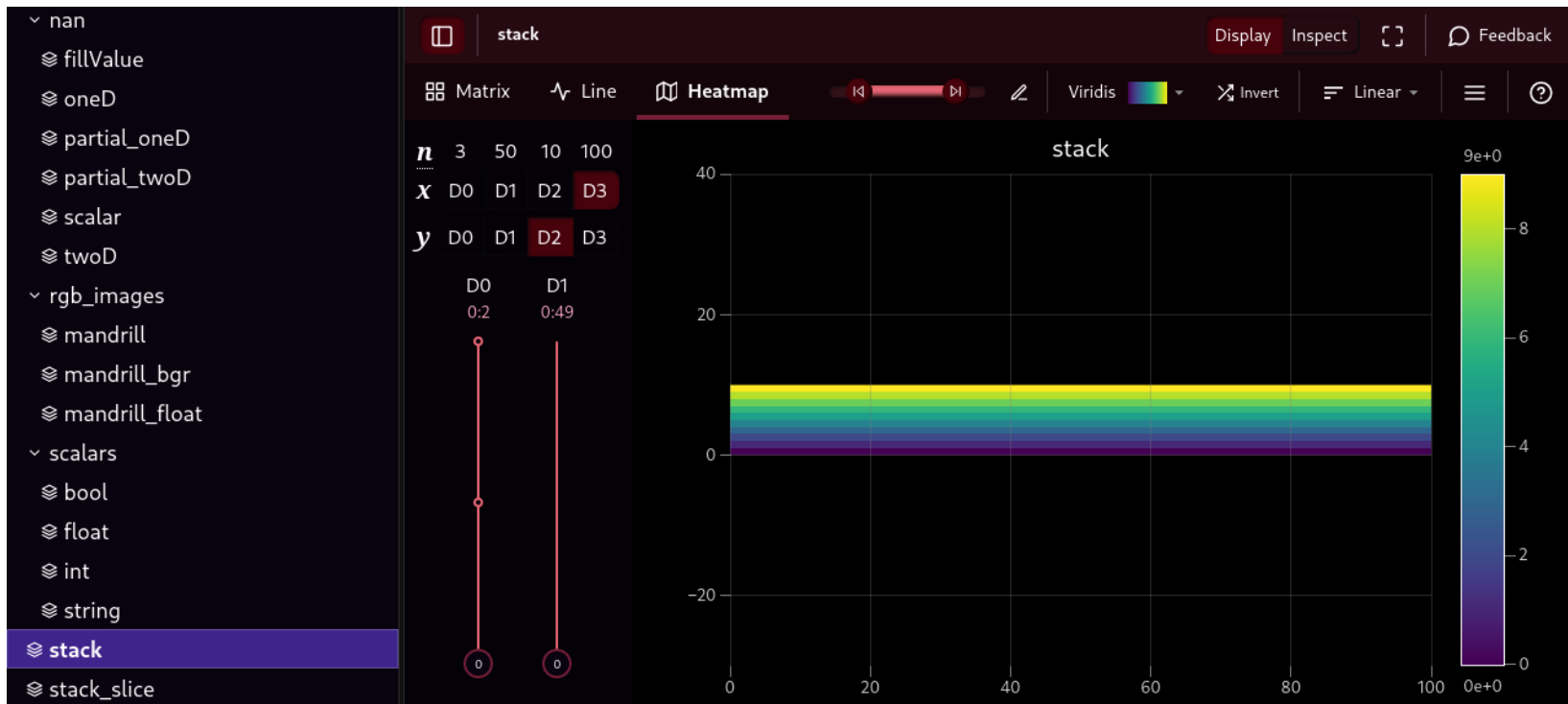
Actual CoR

Theoretical rotation axis

Beam

Actual axis position

GUI example: h5web



GUI example: data portal

Open Data / EV-290 ID21 31/10/2018-05/11/2018 ev280

Dataset List 90

Logbook

Shipping

Proposal

For users that want to download large volume of experimental data (>2GB), ESRF users can access the Globus service, please read the documentation for proceeding: <https://confluence.esrf.fr/display/SCKB/Globus>

Search

| 🔍 | <input type="checkbox"/> | Date | Sample | Dataset | Definition | Files | Size | Download |
|---|--------------------------|--------------------|--------------|------------------------|------------|-------|--------|-----------|
| 🔍 | <input type="checkbox"/> | 🕒 10:16 5 Nov 2018 | fe2streptor2 | fe2streptor2_XAScalib | SXM | 5 | 5.1 MB | ☰ Restore |
| 🔍 | <input type="checkbox"/> | 🕒 00:16 5 Nov 2018 | fe2streptor2 | fe2streptor2_main_root | SXM | 1343 | 2.6 GB | ☰ Restore |

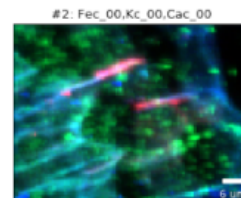
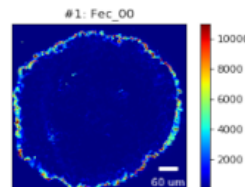
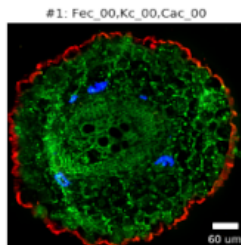
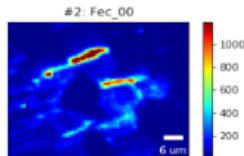
Summary

Instrument

Files 1343

Metadata List

| | |
|-------------|------------------------|
| Name | fe2streptor2_main_root |
| Definition | SXM |
| Start | 12:16:15 AM |
| Sample | fe2streptor2 |
| Description | Fe2 strepto replica 2 |



/data/visitor/ev280/id21/fe2streptor2/fe2streptor2_main_root

☰ Restore

GUI example: Flint, live data display during experiments

