



3rd Workshop on Controls and Acquisition GUI Strategies

Workshop Summary
Stuart Fisher (ESRF)
Chris Roderick (CERN)

23rd September 2024

PIONEERING SYNCHROTRON
SCIENCE



60+ Participants from ~23 Institutes

ALBA Synchrotron

ANSTO - Australian Nuclear Science and Technology Organisation

ANL - Argonne National Laboratory

BNL - Brookhaven National Laboratory

CERN

DESY - Deutsches Elektronen-Synchrotron

DLS - Diamond Light Source

EMBL Grenoble

ESRF

Elettra Sincrotrone Trieste

European XFEL

Fermilab

GANIL - Grand Accélérateur National d'Ions Lourds

HZB - Helmholtz-Zentrum, Berlin

IHEP - Institute of High Energy Physics

ISIS - Neutron and Muon Source

KIT - Institute of Catalysis Research and Technology

Jagiellonian University

LNLS - Brazilian Synchrotron Light Laboratory

MAX IV

PSI - Paul Scherrer Institut

S2Innovation

Synchrotron SOLEIL

Thank you for joining us !

GUIs have the potential to make peoples work much easier, for developers, staff, and users.

GUIs present many challenges, including UX design, choice of technology, and inevitable accelerating technology evolution. There are social challenges as well, staff competences, resistance to change, etc.

1st GUI Strategies Workshop in 2022 → a lot of interest and some topics to be followed-up:

- Charting, Data Decimation, Synoptics, Web application packaging, Zero/Low code GUI platforms

2nd GUI Strategies Workshop in 2023 → 50+ participants, some topics to be followed- up:

- UI Testing

This workshop aims to bring the interested people together again, in person, as a community, to share knowledge, discuss, and hopefully make new connections and get inspired

This is a workshop – targeting plenty of discussion

→ please take part & share your questions, ideas, feedback, experience...

PROGRAMME

Introduction & Workshop Overview	<i>Stuart Fisher et al.</i>
<i>Auditorium, ESRF</i>	08:30 - 08:40
European XFEL	<i>Camille Carinan</i>
<i>Auditorium, ESRF</i>	08:40 - 08:55
Fermilab / ACORN	<i>Madelyn Polzin</i>
<i>Auditorium, ESRF</i>	08:55 - 09:10
ROCK-IT GUIs: Insights from DESY, HZB, HZDR, KIT	<i>Zeynep Isil Isik Dursun</i>
<i>Auditorium, ESRF</i>	09:10 - 09:25
ESRF	<i>Jean-Luc Pons et al.</i>
<i>Auditorium, ESRF</i>	09:25 - 09:40
CERN	<i>Stephane Deghaye</i>
<i>Auditorium, ESRF</i>	09:40 - 09:55
MaxIV	<i>Vincent Hardion</i>
<i>Auditorium, ESRF</i>	09:55 - 10:10
Elettra	<i>Roberto Borghes</i>
<i>Auditorium, ESRF</i>	10:10 - 10:25
Coffee Break - Offline Discussion	
<i>Auditorium, ESRF</i>	10:25 - 10:55
ALBA & Taurus Performance Improvements	<i>Oriol Vallcorba</i>
<i>Auditorium, ESRF</i>	10:55 - 11:10
ANSTO	<i>Letizia Sammut</i>
<i>Auditorium, ESRF</i>	11:10 - 11:25
GANIL	<i>Christophe Haquin</i>
<i>Auditorium, ESRF</i>	11:25 - 11:40
Diamond Light Source	<i>David Perl</i>
<i>Auditorium, ESRF</i>	11:40 - 11:55
LNLS	<i>Ana Clara de Souza Oliveira</i>
<i>Auditorium, ESRF</i>	11:55 - 12:10

Lunch	
<i>Auditorium, ESRF</i>	12:10 - 13:30
BEC Widgets and pyqtgraph	<i>Jan Wyzula</i>
<i>Auditorium, ESRF</i>	13:30 - 14:00
Advanced Visualisation for Tomography and Mapping	<i>Stuart Fisher</i>
<i>Auditorium, ESRF</i>	14:00 - 14:15
Web UI Testing (examples from ESRF, CERN, MAXIV & SKAO)	<i>Axel Bocciarelli et al.</i>
<i>Auditorium, ESRF</i>	14:15 - 15:30
Coffee Break - Offline Discussion	
<i>Auditorium, ESRF</i>	15:30 - 16:00
Daiquiri, blissdata, bluesky, and sardana	<i>Udai Singh</i>
<i>Auditorium, ESRF</i>	16:00 - 16:20
Fundamentals of Screen Design: Creating a User-Centered GUI Design for Beamlines	<i>Zeynep Isil Isik Dursun</i>
<i>Auditorium, ESRF</i>	16:20 - 16:50
Optimizing Outcomes: Integrating UX and User Feedback in Development	<i>Madelyn Polzin</i>
<i>Auditorium, ESRF</i>	16:50 - 17:20
Workshop Closeout	<i>Chris Roderick et al.</i>
<i>Auditorium, ESRF</i>	17:20 - 17:30

● ● Technologies & Evolution Plans
 ● Plotting and Advanced Visualisation
 ● Testing
 ● Integrated Environments
 ● User Experience (UX)

Most institutes are in a similar situation:

(Py)Qt5, some Java (ESRF, CERN), looking to increase their portfolio with Web tech

- So far, this is usually an *addition*, rather than a full replacement (non-technical reasons), few exceptions:
 - *Fermilab: aiming for the Web with Flutter*
 - *GANIL, looking to fully move to the Web*
 - *MaxIV: Taranta (Web) is their “North Star”*
- Mainly React & Material as Web UI tech (Flutter & Angular also in use)
- Moving to Qt6 is on the horizon, raising the question of PyQt or PySide as Qt Python binding
- Wide use of SVGs for synoptics

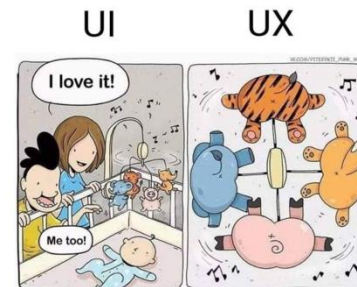
Quite some investment in PyQt performance (e.g. Taurus & PyQtGraph), leveraging OpenGL

Rapid / low-or-no-code- development is widely sought (Karabo, Taurus, Taranta, WRAP, PUMA, DonkiWeb, BEC Widgets, etc.)

Testing is not straightforward

- Requiring compromises / pragmatism.
- Institutes investing in testing have similar approaches

UX is a challenge, but there are experts out there!



- Managing application/business logic in an easy and sustainable way?
- Managing application inventory & lifecycle?
- Practical look at capturing & using telemetry data?
- Optimising adoption of new technologies?
- Deeper dives into examples of specific production applications on the Web & challenges faced?
- Deeper dive into SVG based synoptics, technical aspects of Device Control integration?
- Ideas or examples for further practical collaborations (e.g. how does it work for Taranta)?
- Streaming real-time / large data from similar sources?
- Chat channel to refine & share ideas in general: <https://cern.ch/gui-workshop-channel> or flash this:



See you at  *ICALEPCS 2025*

The logo for ICALEPCS 2025 features a stylized blue skyline of buildings and a Ferris wheel on the left. The text 'See you at' is in blue, and '*ICALEPCS 2025*' is in red with asterisks on either side.

THANK YOU VERY MUCH! SEE YOU NEXT TIME...

PIONEERING SYNCHROTRON SCIENCE

