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Implementing design principles in the ROCK-IT GUIs: A UI/UX development case

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Effective UI/UX design is essential for scientific GUIs, especially when complex workflows and time constraints challenge usability. By grounding GUI development in UI/UX design principles, accessibility, and user feedback; one can implement user-centered improvements in experimental physics control systems that will lead to higher user satisfaction and increased productivity.

This presentation explores the UI/UX development process within the demonstrator case of the ROCK-IT project, that develops all necessary tools for the automation and remote access of in-situ and operando catalysis synchrotron experiments. The first part of the presentation outlines the key principles of GUI design and visual accessibility, supported by examples of user feedback from a ROCK-IT beamline's previous GUI. Shaped by theory and in-person user interviews, the early-stage sketches and interface concepts that emerged from this process will also be presented.

The second part of the presentation focuses on how the GUI design process evolved in response to timelines, workforce availability, and shifting priorities in ROCK-IT - steering the route toward an efficient, yet user-centered and accessible solution.

Keywords: GUI, UI/UX, accessibility, screen design, design principles, user research

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