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Robotics developments at SOLEIL

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The synchrotron SOLEIL offers to its Users a diverse range of experimental techniques for characterizing various forms of matter in multidisciplinary environments. The upcoming SOLEIL II Project [1] aims to introduce enhanced performance and operational modes, not only in its accelerators but also in the experimental techniques on the beamlines. Automation has been prioritized to meet the evolving requirements and simplify user experiences at the beamlines and accelerator operations. SOLEIL objective is to design systems for flexible instruments control, from manual to fully automated control. This approach includes optimizing experimental procedures, increase beamline efficiency and enhancing sample and data throughput.

Embracing robotics as a strategic topic to improve automation, particularly 6-axis robot arms, SOLEIL is focusing on automating tasks that are repetitive, time-consuming and do not require high expertise levels, such as the constant switching between measurements and sample replacements. Recent applications include the automatic detector positioning for the NANOSCOPIUM beamline, liquid sample injection for the SWING beamline, and mechanical and magnetic adjustments for the insertion device modules. Through these advancements, SOLEIL is driving towards improved automation and operational efficiencies in its cutting-edge research facilities.

1 https://www.synchrotron-soleil.fr/en/future-soleil-soleil-ii-project

I plan to submit also conference proceedings

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