
PLICO: a framework for Adaptive Optics laboratory experiments

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Abstract

PLICO (Python Laboratory Instrumentation COntrol) is a framework for developing instrument control applications, such as the devices usually available in a scientific laboratory. Typical small laboratory experiments have 2-5 different devices that have to be controlled in a synchronized mode. To do this we decided to create a distributed framework that interfaces with the drivers provided by the device vendors and provides a user-friendly and standardized code at user level. The framework is entirely written in Python and based on a client-server model, using zeromq for message dispatching and pickle for data serialization and deserialization. The software architecture is designed to allow simple expansion of the server libraries with the introduction of new devices.

The creation of the framework was a response to the need to use the instrumentation available in the Arcetri laboratories in a quickly and easily accessible format. It is available on Github where for each repository runs testing, pip upload, docs and codecov actions.

Keywords: PLICO, framework, laboratory experiments, devices

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