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From MTCA4U to ChimeraTK: A device abstraction toolkit to facilitate the development of control applications

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In 2013 the MTCA4U tool kit started as a hardware access library for
PCI Express based AMCs in MicroTCA.4 crates. Due to its modular,
register based interface for hardware abstraction, backends to communicate
through network protocols and even to other control applications have been added,
extending the use of the tool kit beyond just MicroTCA.
Hence the project has been renamed to ChimeraTK (Control system and Hardware Interface with Mapped
and Extensible Register-based device Abstraction Tool Kit).

Written in C++, the device access library features an easy to use interface with
bindings to Python, Matlab and the command line, and a graphical user interface.

In addition ChimeraTK provides a "virtual lab" library which facilitates testing,
and a control system adapter. This adapter layer allows to write
control applications independently from the controls middleware. Like this it
can be integrated into different control environments using DOOCS, EPICS or OPC-UA, for instance, without
changes in the source code.
With the new 'application core' library an efficient interface with compact
syntax has been introduced to reduce the amount of code which has to be written.

We report on the status of the development and show the latest features of the
tool kit.

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