The FMI++ Python Interface: A Python package for importing and exporting Functional Mock-up Units

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About:
The FMI++ Python Interface is a Python wrapper for the FMI++ Library, which intends to bridge the gap between the basic functionality provided by the FMI specification and the typical requirements of simulation tools. It provides high-level functionalities that ease the handling and manipulation of FMUs, such as numerical integration, advanced event-handling or state predictions. This allows FMUs to be integrated more easily, e.g., into fixed time step or discrete event simulations. Furthermore, the FMI++ Python Interface package provides the unique feature to export Python scripts as FMUs for Co-Simulation.

Goal:
The goal of this tutorial is to give participants an overview of the functionality of the FMI++ Python Interface package and enable them to run basic examples on their own laptops. It will mix short presentations with interactive hands-on sessions. The targeted audience are Python users with at least basic knowledge about the FMI standard.

Content:
- installation of the FMI++ Python Interface on Windows and Linux
- basic FMU import functionality (ME and CS)
- advanced FMU import functionality for ME (event prediction, rollbacks, etc.)
- exporting Python scripts as FMU for CS

Prerequisites:
Please install all required software before the tutorial, as it might take a lot of time to download and install them due to limited bandwidth!

For the hands-on sessions, participants should have an up-to-date version of Python installed (version 2.7 or 3.6 and higher) on their laptops and know how to install Python packages via pip.

Furthermore, Linux users should have the following dependencies already installed (Ubuntu/Debian package names in brackets):
- pip (python-pip)
- distutils package (python-setuptools)
- GCC compiler toolchain (build-essential)
- SWIG (swig)
- SUNDIALS library (libsundials-dev or libsundials-serial-dev)
- Boost library (libboost-all-dev).