FMI ++

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

Presenter:

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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*).