Welcome to Eclipse OpenMCx

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Agenda

• Intro  J. Balic (2+ min)

• OpenMCx  K. Schuch (8+ min)

• Demo  S. Terres (10+ min)

• Q&A  All (10- min)
At **AVL** we believe that:...

A. **ADAS/AD virtual validation** is one of the hottest topics out there (automotive-SW-wise😊)

B. Setting up a virtual system is a **complex task** (environment, sensors, controls, vehicle, analytics, ...)

C. Validation efficiency can be increased by a standard-based **open co-simulation** middleware (mix-and-match)

D. **There is no one-size-fits-all** toolchain (use-case specific: perception and fusion, planning and controls, system validation, driver experience, security and safety, ...)

E. The add-ons to the middleware should be **application driven** (democratize plug-ins development: environment, HiL, cloud, sensor integration, ...)

![OpenMCx Co-Simulation Middleware](image-url)
Our goal:

• Providing a referent implementation for promoting standards-based co-simulation methodology and enable the end-users to concentrate on their innovation process using use-case specific, best-in-class models and tool-chains.

• Making the world a better place! At least a bit.😊
• Co-simulation Framework based on (Modelica Association) standards: FMI, SSP, DCP, etc.

• Open for interfacing with other (quasi) standards and tools (python, OSI, ROS2, CARLA, SUMO, ...)

• System Structure Definition (*.ssd) input file (www.ssp-standard.org)
  • annotations for run-time config (default values if undefined)

• Features:
  • Parallel (Multi-Threading) or sequential execution
  • Unit-conversion
  • Parameter support
  • Result writing
  • binary port support (FMI2.0 with OSI Sensor Model Packaging)
  • ...

• How to use (build, run, debug) OpenMCx?

https://github.com/eclipse/openmcx

LIVE SET-UP DEMO.

Klaus Schuch
Scenario-based testing of cyber-physical systems powered by OpenMCx

System Structure Definition (SSD)

ADAS/AD Function
- Vehicle control signals
- Vehicle state signals

Vehicle Model
- Vehicle state signals
- Environment signals

Environment Model
- Environment signals

ASAM
- OpenSCENARIO .xosc

Simulation
- .ssd

Results
- .csv
- OSI trace

Analysis
- Calculate KPIs
  - Time to collision
  - Perceived safety
  - ...

Co-Simulation Middleware
- OpenMCx
Thank you

www.avl.com

Contact us:

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Come and contribute!

https://github.com/eclipse/openmcx