Software for Earth Observation:
E2E Simulators, Instrument Data Simulator, Ground Prototype Processor and Performance Assessment Tool

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End-to-end mission performance simulators (E2ES) for Earth Observation missions, including all components, such as Instrument Data Simulator (IDS), Ground Prototype Processor (GPP) and Performance Assessment Tool (PAT), are one of the prominent tools for system modelling, design, testing and scientific validation in early mission phases. For more than 20 years GMV has been involved in a series of activities and projects aimed at modelling and simulating different types of remote sensing instruments, such as passive optical, passive microwave, active optical and active microwave. One of these activities is the ARCHEO-E2E study, which defines a Reference Architecture for E2ES.

This paper presents several main projects currently being developed in GMV Poland for various Clients: the European Space Agency (ESA), the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) and the Airbus. Experience gained during ongoing or finalized projects and lessons learned are also presented. Among all projects in GMV Poland, the BIBLOS (https://gmv-biblos.gmv.com/) project deserves particular attention. In the frame of this project, a set of generic software libraries is being designed, developed, tested and validated to provide an open-source software to build a simulation chain for mission performance simulators. BIBLOS software is released under ESA licence in territory of the Member States of ESA.

28 - 30 listopada 2022

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