

18th ESA Workshop on Avionics, Data, Control and Software Systems

~ ADCSS2024 ~

Day 2 (morning)
Modern SW methods - Languages and V&V

15/10/2024

... it is **NOT** authorised to walk unaccompanied in
Zone/Area 2 corridors!!!!

In case you have a meeting with ESTEC Staff,
please arrange for pick-up at the ESTEC Reception by your host.
He/she should also bring you back to the ESTEC Reception.

- After each presentation there will be a short amount of time for Q&A
- Please raise your hand and you will be handed our lovely ‘catch box’. Before asking your question, it would be appreciated if you mention your name & company/affiliation

There is a Shuttle Bus from ESTEC Reception to Noordwijk Hotels and one to Schiphol Airport

Shuttle departure times are available at the Registration Desk.

For booking, please go to the ESTEC Main Reception during Coffee/Lunch Break.

Be aware that the Shuttle Bus leaves on time!!

In case the Shuttle departure times are not convenient, a regular taxi can be booked too

Please note that pictures will be taken during the
Workshop for publicity & advertising

For people who don't want to be in the picture, please
locate yourself in the 2nd half of the room

- **Languages:**

Modern software languages like **Rust**, but also **C++** in its evolutions, are interesting for the (European) space domain. A review of the **latest status**, **recommendations** for their use, the **co-operative use in embedded applications** and the status of the ecosystem is of interest.

- **Verification and Validation:**

V&V is a wide area and various technologies have been proposed to make use of **new approaches** (e.g. artificial intelligence), address **new challenges** (data coverage, V&V of deep neural networks), using interlocks and **reduce V&V burden**, and **improve** the state of the art (determination of test adequacy and automatic generation of test cases).

WEDNESDAY, 23 OCTOBER



09:00 → 12:30

Software: Modern SW methods - Languages and V&V

Newton Conference Center

Convener: Andreas Jung (ESA/ESTEC)

09:00	Welcome and Logistics	10m
09:10	C++20 for the Flight Software development	20m
09:30	Rust for Space applications and RTEMS - The good, the bad and the ECSS	20m
09:50	Evaluation of Rust usage in space applications by developing BSP and RTOS targeting SAMV71	20m
10:10	Coffee Break	30m
10:40	Artificial Intelligence applied to code repair after code static analysis verification	20m
11:00	Data-Coverage for Category-A Flight Software	20m
11:20	Software Interlocks in the METASAT Project	20m
11:40	TIA: Test, Improve, Assure Deep Neural Networks for Space	20m
12:00	FAQAS-2: Enhanced Test Suite Verification and Improvement	20m
12:20	Wrap-up	10m

Tight schedule!

Please keep to your times:

15min + 5min Q&A

Have a good session!

WEDNESDAY, 23 OCTOBER 📅

09:00 → 12:30 **Software: Modern SW methods - Languages and V&V** 📍 Newton Conference Center

Convener: Andreas Jung (ESA/ESTEC)

09:00	Welcome and Logistics	🕒 10m
09:10	C++20 for the Flight Software development	🕒 20m
09:30	Rust for Space applications and RTEMS - The good, the bad and the ECSS	🕒 20m
09:50	Evaluation of Rust usage in space applications by developing BSP and RTOS targeting SAMV71	🕒 20m
10:10	Coffee Break	🕒 30m
10:40	Artificial Intelligence applied to code repair after code static analysis verification	🕒 20m
11:00	Data-Coverage for Category-A Flight Software	🕒 20m
11:20	Software Interlocks in the METASAT Project	🕒 20m
11:40	TIA: Test, Improve, Assure Deep Neural Networks for Space	🕒 20m
12:00	FAQS-2: Enhanced Test Suite Verification and Improvement	🕒 20m
12:20	Wrap-up	🕒 10m