

Newsletter Issue No. 2
February 2018



Dear Readers,

Welcome to the second issue of the TUTORIAL newsletter, where you will find all the details of recent events and upcoming activities for this exciting project. The aim is to provide you with up-to-date project results and information relevant to the ongoing research collaboration between the consortium partners Tallinn University of Technology (TUT), Delft University of Technology (TU Delft), Polytechnic University of Turin (POLITO), Deutsches Zentrum fuer Luft- und Raumfahrt EV (DLR) and Intelligentsia Consultants.

TUTORIAL is funded by the European Commission's Horizon 2020 programme, with an overall aim to *strengthen the scientific excellence and innovation capacity in the field of nanoelectronics based dependable cyber-physical systems* of Tallinn University of Technology.

During the first two years of the project, the partners have been very busy organizing numerous international collaborations in the form of staff exchanges, summer schools, conferences and training workshops. While they keep up the excellent work in the final year of the project, we would like to thank you for sharing this scientific innovation journey with us.

We hope that you enjoy your reading and continue to stay updated with the upcoming events.

TUTORIAL Team



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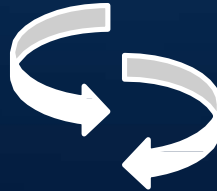
Staff Exchanges



Six short-term visits from TUT to TU Delft were carried out during the first year of the project with the goal of researching new CPS architectures such as reliable many-core and in-memory computing architectures. TUT researchers in their visits at TU Delft received training in the area of ageing mechanisms hoping to target a specific field of ageing in memory circuits by exchanging information on memory technologies and aging mechanisms (TU Delft) as well as scalable ageing simulation techniques (TUT). Furthermore, they were trained on topics at higher levels of abstraction that include application of nanoelectronic systems, such as research in the field of data analytics.



Staff Exchanges



TUT and POLITO jointly researched the rejuvenation of ageing-impacted systems using evolutionary test generation approaches. TUT was also involved into POLITO's research on burn-in methodologies for safety-critical systems in the automotive domain. TUT's role here was to offer high-level power estimation methods for the methodology while at the same time it gained knowledge about realistic design-flows in the safety-critical domain. Last but not least, TUT and POLITO jointly contributed to the research of board and chip level test instrumentation for detecting ageing and no failure found phenomena.



Staff Exchanges



The exchanges between TUT and DLR focused on discussions on different subsystems including the telecommand/telemetry subsystem where mainly data compression in the downlink was considered. DLR's powerful framework for studying the impact of the compression greatly benefited TUT. Furthermore, fault tolerance in complex embedded systems that resemble the computing core of almost any CPS was studied. A TUT researcher received training at DLR on CPS modelling and fault tolerant computing techniques for space CPSs based on scalable on-board computing architectures. DLR's visit to TUT included sharing knowledge on the topic of property generation, where both partners share a high level of competence.

2nd Summer School



BELAS 2017



The TUTORIAL partner TU Delft organized the **Biannual European–Latin American Summer School** on Design, Test and Reliability in Rotterdam from the 8th until the 10th of May 2017. BELAS 2017 offered a 3-day summer school where experts from academia and industry gave lectures on test, reliability and security of IC and electronic systems and their applications such as automotive and aerospace. The highlight was a half-day mini-conference targeted at soft skills. The university gave the opportunity to students to earn credits based on their continuous participation during the program, their involvement, and their presentation during the mini-conference.



For more details regarding the programme and lectures, please visit: rotterdam2017.belas-event.org/



Training workshops

- ❖ Training Workshop on reliable nanoelectronics and emerging technologies
Delft, 5-8 July 2016

The teams of TU Delft and TUT presented talks on topics such as TU Delft's liquid computing architecture, memristor technologies and quantum computing as well as TUT's reliable many-core architectures. The participants included the TU Delft team and 4 research experts from TUT.

- ❖ Training Workshop in Turin on in-field test for safety-critical systems
Turin, 10 June 2016

Presentations from the POLITO team and 3 research experts from TUT took place as exchange of knowledge on in-field test for safety-critical systems as well as on fault resilience and reliable nanoelectronics technologies.

- ❖ Training Workshop on dependable cyber-physical systems for space applications
Bremen, 27 February – 2 March 2017

A 4-day workshop, where 3 research experts from TUT were trained by the researchers of DLR. The training included presentations from all the sub-teams of the institute, excursion to the DLR's production and testing facility as well as colloquium talks by 2 senior research fellows from TUT on February 28, 2017.

Upcoming events



The TUTORIAL team is happy to announce the dates of the events and activities happening in the following months:

- The 2nd TUTORIAL Conference will be held in Laulasmaa, Estonia on 8-10th October, 2018.
- A Training Workshop on Soft Skills Development will be held in Tallinn, Estonia on 18-20th June, 2018.
- "BELAS 2018" will be held in Tallinn, Estonia from June 20-22, 2018. More information on the third summer school is available at: tallinn2018.belas-event.org/
- The Test Spring School co-organised by TUTORIAL will be held in Bremen, Germany (www.informatik.uni-bremen.de/ets18/TSS/)

To learn more about the TUTORIAL project and to keep up with its activities and achievements, please visit the website: www.h2020-tutorial.net



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