CISTER Quicknews

FEBRUARY & MARCH,2017

progress in projects

SUCESSFUL FINAL REVIEW OF THE P-SOCRATES EUROPEAN PROJECT

The CISTER-led P-SOCRATES had its final review meeting in Brussels, Belgium in February. CISTER researchers Luis Miguel Pinho (project coordinator) and Vincent Nelis (work package leader), and the principal researchers of the other project partners were involved in this meeting.

The review was successful, with the work being highly valued by the project's reviewers, both considering the technical results of the project as well as the joint exploitation path and plans for post-project activities.

The project consortium presented the newly developed techniques for exploiting the massively parallel computation capabilities of next-generation many-core embedded platforms in a predictable way.

This work led to the release of the UpScale SDK, a Software Development Kit for the development of applications with strict timing and high-performance requirements, including a complete set of compilation and analysis tools, as well as the underlying execution environments. The SDK is provided under commercial-friendly open source licenses and will be supported by an open community.

The success of the project was also reflected in the more than 50 scientific and technical papers published in international conferences, as well as the 10 invited talks and presentations in international industrial events, such as the Embedded World exhibition and conference (with both a presentation and a demonstration scheduled for March 2017) and the Design Automation and Test Europe conference.

P-SOCRATES (Parallel Software Framework for Time-Critical Many-core Systems) started in October 2013 and was funded by the European Commission FP7 R&D Program with a budget of 3.5 M€.

The project work was performed by a team of around 20 researchers from 7 partners in 4 different countries. Besides CISTER, the research partners included the Barcelona Supercomputing Centre (Spain), the University of Modena (Italy) and the Swiss Federal Institute of Technology Zurich (Switzerland).

The industrial partners of the project included ATOS (Spain) and the SMEs Evidence (Italy) and Active Technologies (Italy). The project partners were supported by an industrial advisory board, which included, among others, well-known multi-national companies including Airbus, Bosch, Honeywell, or Saab.

ENERGAWARE PROJECT MEETING

CISTER researcher António Barros participated in the EnerGAware project meeting, held in Troyes, France, February 14-16, hosted by partner FremenCorp. With the project entering in its final year, the first day of meeting focused on the project exploitation plan, in collaboration with an external consultant. Exploitation drive is on the project serious game, but plans are also being made for individual components of the overall architecture.

The following days were used to analyze the deployment of the game EnergyCat - The House of Tomorrow (beta version), in the pilot being performed in Plymouth, UK, a work package led by ISEP. The partners discussed the current status of integration between the game and the energy monitoring infrastructure that will provide the means to assess the real contribution of the game to modify domestic energy consumption habits.

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CISTER PARTICIPATES OM ISO/IEC JTC1/WG7 MEETING IN GRAZ

The 15th meeting of the ISO/IEC JTC1/WG7 working group was hosted by ViF (Virtual Infrastructure), in Graz, Austria in March 2017. CISTER researcher Ramiro Robles took part as a liaison with the project DEWI.

The objective of this liaison is to align efforts with ISO and provide the DEWI HLA (high level architecture) with an international framework for interoperability and visibility.
ISO meeting also dealt with several administrative and technical issues. Significant part of the meeting was devoted to the discussion of the submitted drafts of international standards by South Korea for underwater acoustic sensor networks and its applicability for other countries, particularly in the European Union.
Underwater acoustic sensor networks face several challenges such as propagation delay, multipath and noise.
Considering that 70 percent of earth's surface is water, an international standard for underwater communication poses a great relevance in many fields such as oil platform exploration and naval submarines.
Other aspects discussed were the creation of a study group for the use of internet of things for financial asset tracking and control.
The ISO/IEC JTC1/WG7 will be merged to other working groups under the umbrella of the Internet of Things later this year.
CISTER has presented the intention to submit 5 technical reports reflecting different use cases of the DEWI project before the end of April 2017.

CISTER PRESENTS THE UPSCALE SDK IN THE TWO LARGEST EUROPEAN EVENTS ON EMBEDDED SYSTEMS

The UpScale Software Development Kit (SDK) is a toolchain for the development of real-time high-performance applications in many-core platforms, one of the main results of the European P-SOCRATES project.

The SDK targets systems that demand more and more computational performance to process large amounts of data from multiple data sources, whilst requiring guarantees on processing response times.
It includes a source to source compiler, which is able to analyze source code OpenMP parallelism annotations, a lightweight OpenMP tasking runtime, an embedded many-core kernel, and an integrated toolset for the timing and schedulability analysis of real-time parallel applications (designed and implemented at CISTER).
UpScale is openly available and released under commercially-friendly open source licenses.
In the scope of the dissemination of the P-SOCRATES project results, the UpScale SDK was presented at Embedded World, the international gathering for the embedded system technology sector with around 1800 participants, which took place in Nuremberg, Germany, March 14-16, and at the Design, Automation and Test in Europe conference (DATE 2017), which gathered around 1500 participants in Lausanne, Switzerland, March 27-31.

At Embedded World, UpScale was also demonstrated in the exhibition space, at the booth of the Kalray company, a member of the project advisory board.

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activities in the centre

AED PORTUGAL BUILDUP

AED Portugal represents the Aeronautical, Space, Security and Defence industries in Portugal with the objective to provide a single platform for promoting and supporting the competitive development of the sector.

This supercluster brings together the constituting members – the industrial federation of Aeronautic (PEMAS), Space (PROESPAÇO) and Defence (DANOTEC).

AED Portugal is the National Federation of the three sectorial associations for Aeronautics (PEMAS), Space(PROESPAÇO) and Defense (DANOTEC).

AED Portugal is a major hub and unique platform for the growth and competitive development of its members.

AED Portugal gathers the main stakeholders from three paramount sectors trans-sectorial synergies and high added value, constituting a national super–cluster. To achieve its objectives AED Portugal builds on the historic record, capacities and international connections of the three sectorial associations exploring the complementarities and the synergies behind. AED Portugal not just represents and defends the interest of its members next to national and EU policy makers, but also disseminates information on funding programs and fosters cooperation and networking at international level.

AED Portugal ensures both the cross fertilization between industry and Scientific and Technological players and the visibility of its members facilitating the access to international markets.As a member, CISTER director Eduardo Tovar participated in the general assembly of AED (and PEMAS) in March. CISTER will also be organizing in September, a one-day workshop to expose and foster the national competences related to avionics. This event at CISTER premises will be articulated with PEMAS and AED.

NEXT ENABLE-S3 GA AT CISTER

ENABLE-S3 is industry-driven and aspires to substitute today's cost-intensive verification & validation efforts by more advanced and efficient methods to pave the way for the commercialization of highly automated cyber physical systems (ACPS).

ENABLE-S3 will add important missing verification & validation technology bricks which are required to ensure the dependability (safety and security) of ACPS at affordable costs and will set the basis for future standards in this field. Thus ENABLE-S3 results shall help to enable the market introduction of this new and for Europe's industry very important technology of automated systems. ENABLE-S3 will, in this way, help the European industry to retain leadership in the strategic field of automated systems due to faster development and test of new products, fewer call-backs and faster follow-up of call-backs with higher quality, which allows to step into and to create new markets. ENABLE-S3 is led by AVL List GmbH, has an overall budget of €64.8 M, and the consortium is formed by 71 partners ranging over 16 different countries.

The second General Assembly meeting of the ENABLE-S3 European project will be hosted by CISTER, in the ISEP premises, and will take place on the upcoming 23rd and 24th of May 2017. The meeting will count with the presence of around 100 participants, including academics and industrialists from key European players, including AVL, Thales, Airbus, Philips, Renault, among many others, as well as researchers from well-known European academic institutions. During the General Assembly meeting, the results of the first year of the project will be analyzed, and the first prototype demonstrations of the various use-cases addressed by the project will also take place.

In ENABLE-S3, CISTER is involved in three of ENABLE-S3's use cases, namely: Use Case 4 – Traffic Jam Pilot, led by the Portuguese partner GMV Skysoft; Use Case 7 – Touch and Go Assistant, lead by Airbus; and Use Case 13 – Farming, led by TTControl. In these use cases, CISTER researchers bring to the table knowledge and experience on several topics that strongly relate and contribute to the safety and security aspects being tackled by the project, namely, static and dynamic formal verification, vehicle platooning, and real-time scheduling analysis.

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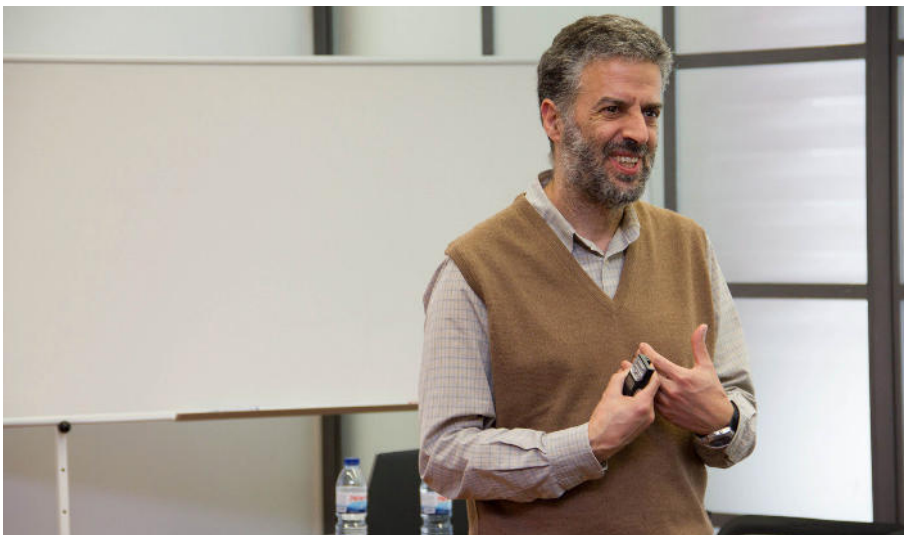
ANOTHER DISTINGUISHED SEMINAR HOSTED AT CISTER

Miguel Velhote Correia from the Department of Electrical and Computer Engineering at the Faculty of Engineering of the University of Porto (FEUP) and Head of the Bioinstrumentation Laboratory of the Centre for Biomedical Engineering Research (C-BER) gave a distinguished seminar titled "Wearable Technologies for Sports, Physiotherapy and Rehabilitation". In the talk, and the follow-up discussion, he presented the changes in paradigms where wearables enable and promote monitoring and assessment of human activities in sports, physiotherapy and rehabilitation



Miguel Velhote Correia is an Assistant Professor at the Department of Electrical and Computer Engineering at FEUP, since 2002 and with tenure from 2007 onwards. In March 2008, he joined, as a senior research member, INESC Technology and Science – Institute of Systems and Computer Engineering of Porto, and is now Head of the Bioinstrumentation Laboratory of the Centre for Biomedical Engineering Research. Additionally, he is co-founder and technical advisor of Kinematix (formerly Tomorrow Options), an electronic devices start-up company of University of Porto and INESC TEC, founded in 2007. Between 1993 and 2007, he was a researcher at the Institute of Biomedical Engineering, in the Biomedical Imaging and Vision Computing group (INEB) and previously at the Computer Integrated Manufacturing (CIM) Centre of Porto at FEUP.

He has participated in more than twenty funded research projects and co-authored over 100 research papers published in peer-reviewed journals and conference proceedings.

Miguel Velhote Correia is also a member of the Portuguese Official Engineers Association, the International Association of Pattern Recognition (IAPR), through its Portuguese chapter, and co-founder of the Portuguese Experimental Psychology Association (APPE).

CPSWEEK COMES TO PORTO IN 2018!

ISEP and CISTER will proudly organise the next CPSWeek 2018.

The 11th edition of the week long multiple conference event will have more than 700 participants.

In Europe, CPSWeek has been conducted before in three major technological hubs in the area of CPS: Stockholm (2010), Berlin (2014) and Vienna (2016).

Porto, ISEP and CISTER will be at the centre of the World in Cyber-Physical Systems, with the whole set of opportunities and challenges this will bring to us, to the city and the country.

The CPSWeek 2018 will probably be one of the largest and most important IT-related events to take place in Porto ever.

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