CISTER Quicknews

JULY 2016

progress in projects

DSGRID KICK-OFF MEETING HELD

On the 20th of July, CISTER researchers Eduardo Tovar, David Pereira, Filipe Pacheco, Raghuraman Rangarajan and Jibran Ali participated in the first workshop of the DSGrid project (PT2020 program). The objective of the workshop was to understand the valences that each partner brings to the project and to establish a solid collaborative environment to make DSGrid a highly successful project with the promised impact. The meeting had fruitful discussions, demonstrations and discussions of base standards. Near term goals were setup for individual partners as well as the group. A site visit was also organised to an EDP substation. DSGrid is led by EFACEC, and has CISTER, Universidade do Minho, and EDP Distribuição as partners.

ECSEL ENABLE-S3 TECHNICAL MEETING HELD

On the 8th of July, CISTER researchers Eduardo Tovar and David Pereira participated in the first technical meeting of ENABLE-S3's Use Case 13 – Automated Farming, held in Vienna, Austria. During the meeting, the partners revisited the Use Case definition to understand each partner's involvement and contribution, and worked on the use case specification, elicitation of requirements, and established the tasks assigned to each partner. Also, a plan for operationalization of meeting has been agreed by the partners.

PORTUGUESE RAILWAY PLATFORM INITIATIVE - MEETING WITH EVOLEO

On the 13th of July, CISTER researcher David Pereira participated in a meeting organized by Evoleo in the context of the Portuguese Railway Platform initiative. The objective was to bring together all Portuguese railway stakeholders to promote Portugal as an innovative country in the railway industry. The meeting was to finalize project concepts and the corresponding consortiums to prepare for the project submission phases that will soon reach their deadlines. CISTER is a core partner in one of the envisioned proposals that will soon be submitted to an appropriate financing program.

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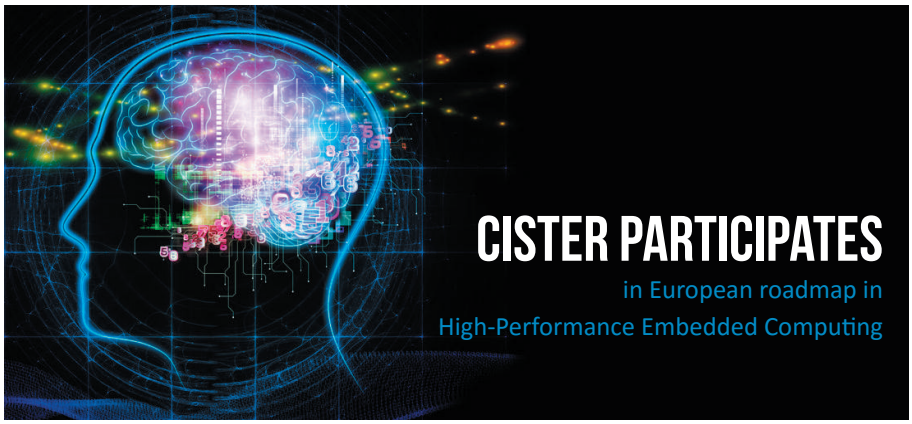
THE ENERGAWARE PROJECT
SERIOUS GAMES FOR ENERGY EFFICIENCY

CISTER researchers Luis Miguel Pinho and António Barros participated in the EnerGAware project meeting held in Barcelona, Spain. The project intends to achieve a 15-30% energy consumption and emissions reduction in a social housing pilot and increase the social tenants' understanding and engagement in energy efficiency through the development of a serious game that will be linked to the actual energy consumption (smart meter data) of the game user's home and embedded in social media and networking tools.

The meeting agenda included analysis of feedback from the first review of the project (with very positive remarks from the project officer and project reviewers) as well as status and planning of project activities. In particular, the consortium discussed the deployment of the energy monitoring infrastructure (a work package led by CISTER), which will be used to determine baseline energy consumption and will, in a second phase, observe the effects of the game on energy saving habits of families. Another relevant topic was the FIWARE-based IoT platform, being developed at CISTER, which will analyse and process the monitoring data for real-time connection with the serious game.

This was a week where CISTER work in EnerGAware was in the spotlight, with also the project being presented in an event organized by GPPQ, the Portuguese office for promotion of the European Framework programs of FCT.



CISTER researcher Luis Miguel Pinho participated in a Brussels meeting related to the preparation of the next edition of the HiPEAC Vision. Published every two years, the document provides a roadmap guiding policy makers and technologists on key issues in the area of computing systems, providing inputs for forthcoming Horizon 2020 calls and setting the challenge of discovering future computing systems and applications. The document is prepared by the HiPEAC (High Performance and Embedded Architecture and Compilation) Network, a hub for European researchers in computing systems. Already in its 4th incarnation, HiPEAC 4 is a Coordination and Support Action funded by the European Union's Horizon 2020.

In the meeting, Luis Miguel Pinho presented a position statement on the increasing relevance of time, as a fundamental property of both cyber-physical and big data systems, with new applications that stress the development of real-time applications, with uncertain environments and flexible behaviour.

P-SOCRATES
TECHNICAL MEETING HELD

The P-SOCRATES project is entering its last phase. As the project coordinator, CISTER is responsible for orchestrating the integration of all the individual system components that have been developed over the last two and half years.

This is a challenging task as it requires both a deep understanding of how the individual components work and articulate with each other as well as keeping track of every single component development by partners to guarantee timely availability.

On 12th and 13th of July, CISTER researchers Luis Miguel Pinho, Vincent Nelis, Patrick Meumeu Yomsi, and Borislav Nikolic, attended a meeting at the Barcelona Supercomputing Centre (BSC). The primary focus of the meeting was on the finalization of individual components and review of procedures being used for integration.

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achievements in academia

RTSS 2016 IS AROUND THE CORNER

In the area of real time systems, RTSS is recognized world-wide as the flagship conference, presenting innovations in the field with respect to theory and practice.

RTSS provides a forum for the presentation of high-quality, original research covering all aspects of real-time systems theory, design, analysis, implementation, evaluation, and experiences.
This year, RTSS will be held in Porto, with Eduardo Tovar, director of CISTER, and Luís Almeida, Professor at the University of Porto, serving as local arrangements chairs. Also, two CISTER researchers, Eduardo Tovar and Vincent Nelis, have been invited to serve as PC members. This year again, the number and quality of the papers submitted and the low acceptance ratio of the conference suggests a very successful top-ranked scientific event.

RTSS PORTO 2016

ANOTHER SUCCESSFUL PHD DEFENSE

Artem Burmyakov, advised by CISTER researcher Eduardo Tovar, has successfully defended his PhD Thesis at the Faculty of Engineering of University of Porto, Portugal.

Artem Burmyakov and the jury members after the PhD defense

His thesis, entitled "Schedulability analysis of multiprocessor real-time systems using pruning", proposes a set of methods for the schedulability analysis of multiprocessor real-time systems. Artem scored 3 publications at top ranked venues, including an invited publication in a special issue of Real-Time Systems journal, and the best paper nominee at RTNS 2012 conference.

activities in the centre

BOOK ON MEMORY CONTROLLERS FOR MIXED-TIME-CRITICALITY SYSTEMS

CISTER researcher Benny Åkesson has co-authored a book, Memory controllers for Mixed-Time-Criticality Systems - Architectures, Methodologies and Trade-offs.

The book discusses the design and performance analysis of SDRAM controllers that cater to both real-time and best-effort applications. The authors describe the state of the art, an architecture template for reconfigurable memory controllers that addresses evolving set of SDRAM standards, in terms of worst-case timing and power analysis, as well as a prototype implementation in System C and synthesizable VHDL for an FPGA development board.

CISTER PARTICIPATES IN CIÊNCIA 2016

Ciência 2016 resumed the practice of bringing together the scientific community of Portugal to present and discuss topics, issues and activities.

encontro CIÊNCIA '16

The event was organized by FCT and other scientific bodies along with the Ministério da Ciência, Tecnologia e Ensino Superior. CISTER researcher Luis Miguel Pinho, along with Gil Gonçalves from Inova+, organized a session on Cyber Physical Systems.
The centre has deep interests and many ongoing projects and activities in this field. CISTER Researchers Vincent Nelis and Raghuraman Rangarajan gave talks on work done in the centre. This was followed by a lively panel discussion.

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CISTER HOSTED ANOTHER DISTINGUISHED SEMINAR

Enrico Bini from Università di Torino gave a distinguished seminar titled "Adaptive Fair Scheduler (AFS): Fairness with Disturbances".

In this talk and the followup discussion, he presented the problem of allocating resources over time to different demands in a "fair" way.

Enrico Bini is Associate Professor at Università di Torino, Dept. of Computer Science. Until very recently, he was Assistant Professor at Scuola Superiore Sant'Anna (Real-Time Systems Lab) in Pisa. Also, in 2012-14 he was Marie-Curie fellow at Lund University, Dept. of Automatic Control.

He has published more than 80 papers on real-time scheduling, resource management, and optimization methods for real-time and control systems.

ANOTHER INTERNATIONAL RESEARCHER JOINS CISTER

Kai Li joined CISTER in July. He received his B.E. from Shandong University, China, M.Sc. from Hong Kong University of Science and Technology and Ph.D. in Computer Science from University of New South Wales, Sydney, Australia, in 2014. From 2010 to 2011, he was a research assistant in Mobile Technologies Centre with the Chinese University of Hong Kong. In 2012–2013, he worked with the Distributed Sensing Systems Group at CSIRO as a visiting research assistant. His research interests include resource allocation, wireless communication and security, Cyber-Physical Systems, Sensor and Wireless networks. Welcome Kai!

CISTER PARTICIPATES IN THE 16TH INESC-TEC'S FOOTBALL TOURNAMENT

After a year of rest, the football boots of CISTER's weekend footballers left the drawer and experienced once again the "corners" of the ball. Twenty-four games were played by 10 teams in the Pavilion of the Polytechnic Institute of Porto (P.PORTO). CISTER gave its best, managing to win one match thrashing HASLab 4-2.

For the second consecutive year, C-BER won INESC-TEC's Football Tournament. HASLab received the medal of team fair play, which in the previous three years was held by CISTER.

CISTER PhD students complete internships abroad

João Loureiro spent six weeks at the University of York, at the Department of Computer Science, in an internship under the supervision of Leandro Indrusiak. The Department is a prestigious institution, with great domain knowledge on Networks-on-Chip (NoC), which is directly related to his topic of interest. The aim of the visit was to acquire knowledge in the domain, especially on the analysis of real-time applications on NoC-like architectures, to be applied on his ongoing PhD research at CISTER.

Shashank Gaur visited the Networked Embedded Software Lab (NESLab), to work with Luca Mottola. NESLab is a research laboratory based at the Politecnico di Milano, Italy, where research combines theories, designs, implementations and deployments of networked embedded sensors and actuators. NESLab is headed by Luca Mottola who is also a senior researcher with SICS Swedish ICT. During the visit, Shashank worked on problems related to complex adaptation policies in programming applications for sensor networks. The visit was helpful in identifying the potential problem, use case scenarios, constructing a generic model and discussion on possible solutions.

Visit of collaborator from ONERA

Fabrice Guet, a PhD student from ONERA, the French Aerospace Lab, in Toulouse, working with Luca Santinelli, is visiting CISTER. During his visit, he will collaborate with CISTER researchers Vincent Nelis and Patrick Yomsi on the integration of his work about the use of the Extreme Value Theory for statistically bounding the execution time of tasks.

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