International Workshop on Information Technology for Energy Applications

by Paulo Carreira and Vasco Amaral

The National Engineers Association in Lisbon, Portugal hosted the International Workshop on Information Technology for Energy Applications (IT4ENERGY 2012) organized in conjunction CITI and INESC-ID research laboratories held on September 6-7th, 2012 and sponsored by IEEE Portugal Section. This was the first event on the topic that counted more than 60 participants including senior researchers, PhD and Msc students as well as industry practitioners.

Information technology (IT) for energy applications is growing in relevance mostly due to the need of IT solutions to support the growing dynamics of energy markets as well as to an upsurge of interest in intelligent systems to optimize energy usage within homes, buildings as well as in commercial and industrial facilities. These IT tools will have the ability to (i) coordinate production with consumption in scenarios of demand variability, (ii) integrate and analyze data from multiple sources and (iii) assist users in the decision-making process as well as (iv) to intelligently manage equipment and devices on behalf of the user.

Developing IT for energy applications is a challenging multi-disciplinary effort that often requires bringing together distinct engineering disciplines (e.g., Civil, Mechanical, Electric and Computer Engineering) along with specialists from other fields such as Architecture and Management. We believe that Computer Science will play a critical role not only as a catalyst toward creating a homogeneous body of knowledge regarding information technology for Energy Management, but also as a vehicle for creating disruptive new solutions for energy problems. Therefore, this workshop aimed at bringing together specialists from academia with different backgrounds spanning Mechanical, Electrical Engineering as well as Computer Science; Industry experts active in the fields of Energy, IT, Building Automation and Facilities Management.

The event counted the attendance of the successful figure of 60 participants, nine high quality full papers (out of 20 submissions) and nine short papers. The first day of the event was dedicated to eight tutorial sessions, and the second day to research papers organized into four presentation sessions on the subjects of Smart Grids, Energy Consumption Profiling, Energy Data Management and Intelligent Load Control. In his keynote address entitled "Intelligent Scalable Monitoring and Control Technologies for Smart Micro-Grids and Grids", Professor G. Kumar Venayagamoorthy, a world renowned specialist in Smart Grids, highlighted the multi-disciplinary nature of his own research, which underscore the reason of this event.

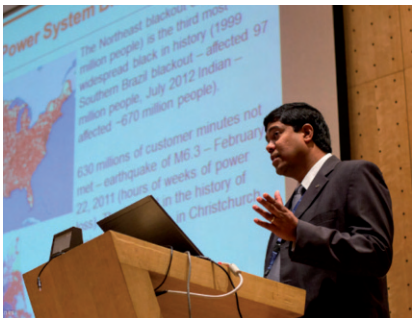

Figure 1: Professor Kumar Venayagamoorthy's keynote address

The papers presented covered a number of very important topics, namely: Software for energy applications; Data mining and decision support techniques for energy data; Models and techniques for energy consumption forecasting; Descriptions and characterizations of energy consumption patterns; Integration of energy data; Energy data visualization; Sensor networks, metering and energy data acquisition; Interoperability solutions including middleware and protocols for energy applications; Demand-side management; Home and building automation applications to energy; Energy-efficient control techniques; and Intelligent load control.

This workshop also aimed at establishing links between industry and academia. Therefore, researchers were invited to present and discuss the foreseeable impact of their work in ways that could be understood by industry participants. In turn, industry practitioners were invited to have demonstration stands displaying their solutions and to discuss relevant issues and collaboration opportunities with specialists. Moreover, student presenters had an opportunity to collect positive and constructive comments from a diversified panel.

The goal of this workshop was to establish itself as an impacting discussion forum on the topic of Information Technology for Energy Applications. An expanded and revised selection of the best papers is now being organized to be published as a post-proceedings volume.

Figure 2: One of the stands displaying ISA's Cloogy ®, a home energy management system

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Please contact:
Paulo Carreira, INESC-ID and IST/UTL, Portugal
Tel: +351 214 233 287 (ext 5087)
E-mail: paulo.carreira@ist.utl.pt

Vasco Amaral, CITI and FCT/UNL, Portugal
Tel: +351 212 948 536 (ext. 10712)
E-mail: vasco.amaral@gmail.com