Secretary of State visits IT

In the framework of a visit to Universidade de Aveiro, the Secretary of State for Science, Prof. Leonor Parreira, visited IT premises at Aveiro where she contacted with running research activities. This is the second time that Secretary of State visits IT (the first time was in Lisbon on October 28, 2011).

Visit of the Advisory Committee

The Advisory Committee of IT, composed of international experts on Telecommunications, Prof Sir John O’Reilly, Dr. Roland Huber and Prof. Martin Tomlinson, visited IT on January 10-12th to contact personally with researchers, follow running activities and judge evolution with respect to previous visits. Despite the short stay, they went through most of the Labs in Lisbon, Coimbra, Aveiro and Oporto. Several prototype demonstrations were prepared, along with a pack of summary documents about IT activities and output indicators. The members of the Advisory Committee were generally satisfied with the organization of the visit and with the display of achievements. They will issue their detailed report by the end of this month of March.

Editorial

The need for a periodic information letter inside IT has been felt for quite sometime. Due to IT geographic dispersion, often important news and events in a given site are all but missed by the other sites.

Thanks mainly to the generosity of Pedro Santos, a valiant attempt to produce such was made. However teaching duties forced this attempt to end prematurely.

So, we are starting again. This time, hopefully for good.

You will receive, monthly (or bi-monthly) in your e-mail address a couple of pages filled with news and fore-coming events. I hope you consider this useful.

Please keep us abreast with the subjects and issues you would like us to deal with.

Meanwhile make sure that you put up the best possible project proposals for the coming FCT call (closing on the 29th of March).

Carlos Salema

Send your news and contributions for the newsletter to: news@it.pt

In this issue

- Vital ID — Your heart is the key
  A project led by Ana Fred from IT, that builds upon the biometric potential of electrocardiographic signals (ECG) to enhance security in user applications.

- Fundação Calouste Gulbenkian Award — “Estimulo à Investigação 2011” awarded to IT researcher.

- Winter school at IT Aveiro - The Internet of Things, January 2012.

- Awards, news and events to come.
Andrea Mordido, from IT-Lisbon, received this award under the scope of the “Estímulo à Investigação 2011” initiative, for her project “Equational-based probabilistic and epistemic dynamic logics for information security” in the field of Mathematics.

**Award for IT Researcher Calouste Gulbenkian Foundation**

The award, intended to stimulate creativity and quality of scientific research amongst young people, promotes high potential research studies in the fields of Maths, Physics, Chemistry and Earth and Space Sciences in Portuguese research centres. The award was handed on February 6th, 2012 at the Gulbenkian Foundation in Lisbon. The President of IT, Carlos Salema, attended the event on behalf of IT.

**PROJECT SNAPSHOT**

**Vital ID—Your heart is the key**

Researchers from the IT – Instituto de Telecomunicações are working on what may become a major leap forward in biometric systems. The group, led by Ana Fred, has been active in the research and development of novel biometric modalities that can further enhance the security of existing systems. The vitalID project is one of the initiatives currently being led by the group, and builds upon work around the study of the biometric potential of electrocardiographic (ECG) signals, which has shown promising results in the past.

The intrinsic properties of ECG signals make them particularly appealing to further reinforce the security of existing biometric traits, or even to be used in a standalone manner in low security applications.

While initial studies followed an “on-the-person” approach, which required an inconvenient apparatus with multiple sensor leads and signals collected at the chest using pre-gelled electrodes, the team from the IT is working towards an “off-the-person” paradigm shift. Today, a prototype system already enables biometric identification from signals collected at the fingertips or hand palms, through dry electrodes, with great improvement in terms of usability level.

The intrinsic properties of ECG signals make them particularly appealing to further reinforce the security of existing biometric traits, or even to be used in a standalone manner in low security applications. In particular, ECG provides intrinsic liveliness detection, it can be continuously measured, being independent of physical landmarks is not easily circumvented, and it can be materialized using low-cost hardware.

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Although commercial applications can only be expected in the medium-to-long term time span, now is the time to invest in further validation and maturing of the technology in order to enable a rapid growth. The roadmap of the team is first targeting low security and low user throughput applications, to later aim at high security and high user throughput.

Immediate application scenarios include user recognition in mobile phones, laptop computers, and cable TV interfaces, user-tuned in-game experience improvement, and targeted marketing applications. Future applications will target digital transactions and security enhancement in banking operations.

Ana Fred

Winter school
THE INTERNET OF THINGS

IT at Aveiro hosted on January 2012 a winter school devoted to the “wireless things”. The Internet of Things (IoT) concept refers to the possibility of uniquely identifying every object, person or “thing” and seamlessly integrating them into the information network. One possibility to link all these devices is to have them wirelessly connected using radio transceivers, forming a wireless heterogeneous network.

Despite numerous advancements in this area, there is still a significant lack of technology for mass deployment of the IoT concept. This course, targeted to students, engineers and researchers, addressed such emerging technology challenges including, among others, low power and integrated devices, energy harvesting and high coverage range. Speakers came from Georgia Tech (USA), Perugia University and Pavia University (Italy), CTTC (Spain), Ghent University (Belgium) and Universidade de Aveiro and IST. The course was attended by sixty participants, including PhD students across Europe, companies and researchers. The event included an exhibition with the participation of 10 companies. The future of IoT was discussed in a innovation night run by the University of Aveiro with the patronage of Portugal Telecom.

The week was sponsored by Departamento de Electrónica, Telecomunicações e Informática from Universidade de Aveiro, Instituto de Telecomunicações, TICE, COST and UATEC.

Newsflash

♦ Internal projects brochure
In order to enhance internal collaboration between its own sites and groups and exploit existing and potential synergies to the full, IT issued in June 2008 an internal call for two-year interdisciplinary projects that had to involve at least two different research groups.

The call closed on July 14, 2008 having received 36 proposals, from which 32 were considered eligible to be evaluated by international experts. All the 15 proposals rated as Excellent and Very Good were founded for a total amount of 600 k€.

These 15 projects and its achievements during 2009-2010 are described in a brochure that has been published by IT in December 2011. Pick your copy at the secretariat.

♦ IT at FISTA 2012
One more edition of FISTA—Forum of ISCTE—IUL School of Technologies and Architecture will take place on April, 23rd. As in previous editions, IT will be present with a stand to display experiments developed by our students and to disseminate other IT activities.

URL: http://fista.iscte-iul.pt

♦ New building for IT at Aveiro
IT at Aveiro has broken ground on a new building with approximately 2000 m², that will double the current area of the Site. It was designed by architect Joaquim Oliveira, from the Gabinete de Arquitectura of the University of Aveiro. The work is expected to be finished by mid-2013. More on this will appear on the next issue of news@it.

♦ Video of IT musical XMAS 2011
The video of the musical event organized by IT at Lisbon to celebrate Christmas 2011 is available online at the News section of IT webpage.

URL: www.it.pt/auto_temp_web_page_preview.asp?id=1095

PROJECT SNAPSHOT Vital ID—Your heart is the key (continued from p. 2)