Snapshot at CONFTELE’ 2013

In the past month of May, more than 150 national and international specialists in the field of telecommunications gathered in the pleasant city of Castelo Branco, and for two days discussed and presented leading-edge research in a wide range of topics in the 9th edition of CONFTELE, the flagship conference of IT.

The conference venue at the castle hill provided an inspiring background scenario for the working sessions. Two mind stimulating and complementary plenary talks marked the beginning and the closing of the conference: the opening communication pushed computing to the “cloud”, whereas in the last session the participants learned why information and communication infrastructures may fail so easily. The two-day technical program encompassed sixteen thematic sessions arranged in four parallel streams, each comprising keynote talks as well as short and lively oral presentations. The invited talks were delivered by renowned national and international experts, and certainly it was not simple to decide which parallel session to attend given the very high interest raised by these communications. The scientific program also included two poster sessions and on-site demonstrators, which gave an opportunity for a close interaction between presenters and participants and a firsthand experience with novel telecommunication solutions. As a final word, we have to acknowledge the memorable conference banquet which provided joyful convivial moments. We look forward to CONFTELE’15!

Editorial

Dear Colleagues,

From what we hear it appears that FCT is working towards a significant change in the way research units are organized. Apparently there are no preferences either on size, legal framework or disciplines. The only hint being that proposals will be judged on the base of excellence and that funding will be project based.

Evaluating proposals based solely on promises of future results without regard to past achievements will surely lead to disaster and mismanagement of public funds, in an era where they are desperately short and thus must be used wisely.

Funding based only on projects is tantamount to short term management with no long term strategy. Competitive projects based funding is obviously important but should not be the sole funding policy.

How should research units present themselves in the coming FCT call is certainly the million Euro question. Suggestions are welcome.

Carlos Salema

In this issue

- Student Chapter from OSA founded by IT researchers
- Software Defined and Cognitive Radios
- Newsflash & Agenda

IT is a private non-profit association of Universities (UA, UC, IST, UBI, UP, ISCTE-IUL) and PTin and Nokia Siemens Networks, with a mission to create and disseminate scientific knowledge in telecommunications. IT hosts and tutors graduate and postgraduate students.

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

Edition: Vera Saldanha
Coordination: Carlos Fernandes
Agenda

Ciência Viva: “Ocupação Científica de Jovens nas Férias” June - August 2013

Under the scope of the Ciência Viva program “Ciência Viva no Laboratório - Ocupação Científica de Jovens nas Férias” the Lisbon branch of Instituto de Telecomunicações and Instituto Superior Técnico are organizing the 2nd edition of the internship “Introdução às Telecomunicações (INTELE)”. This event is aimed for secondary school students and provides a hands-on opportunity for students to build and test their own radio and contact directly top research work that is running at IT laboratories.


Logic Colloquium 2013

This event, organized under the auspices of the Association for Symbolic Logic and sponsored by Instituto de Telecomunicações, will be held in Évora, Portugal, on July 22-27, 2013. For more information and registration, please visit the webpage.


3rd Lisbon Machine Learning School: “Learning With Big Data”

The third LxMLS will be held on July 24-31, 2013 at Instituto Superior Técnico (IST), Lisboa. The event organized jointly by IST, Instituto de Telecomunicações and the Spoken Language Systems Lab – L2F of INESC-ID. In it’s 3rd edition, the topic of the school is “Learning With Big Data”.

For further information and registration, please visit the webpage.

URL: http://lxmls.it.pt/2013/

Student Chapter from OSA
Established at the Universidade de Aveiro by IT researchers

A Student Chapter of The Optical Society (OSA) was recently created at the University of Aveiro/Instituto de Telecomunicações (UA/IT), the first in Portugal. The goal is to engage students in optics and photonics in a network of contacts throughout the world, attending and organizing conferences, workshops and activities related to the teaching and learning of optics.

The founders are students from the UA and researchers at the IT. The scientific guidance is from Rogério Nogueira, Professor at the Department of Physics from UA and researcher at the IT.

URL: www.osa.org

PROJECT SNAPSHOT

AIDA – Automated P-Cell Generation based on Multi-Objective Optimization and Pareto Optimal Front Circuit Level Characterization

The proposed approach includes a state-of-the-art multi-objective multi-constraint optimization kernel to implement a general purpose synthesis design flow.

The AIDA - “Automated P-Cell Generation based on Multi-Objective Optimization and Pareto Optimal Front Circuit Level Characterization” project is a two year project (2011-2013) funded by IT, involving research groups from IT in Lisbon and UNINOVA. The AIDA project addresses the problem of analog and mixed-signal (AMS) IC design automation. An innovative methodology is proposed for the reuse and retargeting of circuit-level analog blocks in deep nanometer technology nodes, UMC 130 and 65nm, by putting together both previous work from the research teams and in-depth knowledge from researchers in the area of Analog IC Design, Electronic Design Automation (EDA), Evolutionary Computation. The Integrated Circuits group from Lisbon is project leader and responsible for the development of an analog IC design automation framework (AIDA) implementing the automation of the design flow from circuit-level specifications to complete and validated IC layout descriptions.

The proposed approach includes a state-of-the-art...
Software Defined and Cognitive Radios

Software Defined and Cognitive Radios enable the future wireless and 5G communication scenarios. Its configurability and understanding of the transmission medium allow an optimization of the resources to use and subsequently the quality of the service to be offered.

Nevertheless these high level ideas are only possible if the radio transmission is supported by new hardware architectures and implementation approaches that can cope with the high-dynamic range and high-bandwidths that are requested.

IT and Universidade de Aveiro has been strongly involved in this research direction, with several projects in the last years, either pure R&D projects but also industrial ones. One of the most important projects in this area was the TACCS - Cognitive Radios Adaptable Wireless Transceivers (FCT, 2010-2012), which had the mission to create knowledge in the design of cognitive radio technology. TACCS was quite successful in increasing the dynamic range of agile radio receivers, in increasing the bandwidth of agile radio receivers, in creating the first multi-carrier all digital radio fully built with a FPGA and in proposing a new instrument and characterization frame-work for mixed-signal systems.

TACCS has already received a number of prizes, at national and international level, including the second place at the IMS2012 Software Defined Radio and Digital Signal Processing Student Design Competition, with the work "MTT Software Defined Radio and Digital Signal Processing" (January 2012), the "Best Student Presentation Award COST Action IC0803" at the 8th MC Meeting and Workshop of COST IC0803 (Belfast, United Kingdom, May 2012) with the work “Evaluation of Second-Order Bandpass Sampling Receivers for Software Defined Radio”, and the APRITEL Prize in 2010. Recently, a new FCT project in “research lines of excellence” was approved for funding.

URL: http://www.it.pt/project_detail_p.asp?ID=1264

Newsflash

Research Highlights 2008-2012

A new Research Highlights Handbook will be edited describing the most important projects developed at IT during the 5-year period starting in 2008. This follows from a previous similar initiative from IT that addressed the 2003-2007 period. In response to the internal Call for Contributions in May 2013, almost sixty proposals were received. There is still space available for late contributions.

Research Highlights 2008-2013 intends to display compelling examples of IT’s broad range of research fronts in line with its mission “to create and disseminate scientific knowledge in the field of telecommunications”.

New book: Green Communications for 4G Wireless Systems

Co-authored by Shahid Mumtaz and Jonathan Rodriguez (2013, River Publishers), the book reviews current research trends on the green revolution towards a more energy conscious communication infrastructure. Beyond that, the authors suggest new pieces for the green jigsaw puzzle by developing innovative proposals for reducing energy consumption further targeting legacy wireless system and beyond.