

IT researchers win the grand prize award at the 8th edition of Concurso Nacional de Inovação BES



A breakthrough technology for wireless transmission (WIFI) of high quality video signals in real time is the grand prize winner of this year's edition of the Concurso Nacional de Inovação BES. The winning project was developed by group of IT researchers, that already created a startup — *Streambolico* — to drive this technology and associated services to the market.

The technology allows increasing up to 10 times the number of users that can access in real time video contents or data from the same WIFI access point. This can trigger a real revolution in mobile communication services, considering that today's WIFI access points can provide high quality video contents to only a very limited number of clients, typically five to eight.

On the photo, from left to right: the team from *Streambolico* (Rui Costa, Diogo Ferreira, Paulo Falcão and João Barros) with the Portuguese Secretary of State for Entrepreneurship, Creativity and Innovation, Carlos Oliveira. The public ceremony was held on November 12th, 2012 in Lisbon.

URL: <http://www.bes.pt/sitebes/cms.aspx?plg=245bea2e-b3d0-47ec-a4e5-6c6a5c755cd0>

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Opportunistic aggregation of spectrum and cognitive radios: consequences of public policies. Led by Fernando Velez

Editorial

Planning the future

November is usually the month when we plan next year activities.

Planning is usually a difficult task. All the more so when it deals with R&D, a notoriously hard to predict activity. To make matters worse, we have precious little information besides pious intentions that excellence will be the paramount factor in funding agencies decisions.

In times of hardship the last thing one should do is to take for granted that the situation will not change much. On the contrary, the only prediction we feel pretty confident with, is that there will be significant changes coupled with major budget cuts. Fund wise, 2013 is likely to be very different from the recent past and shortcomings will bite deep.

For IT to survive, everyone should stand up to the challenge and dig hard in the well of funding opportunities that includes but lies beyond FCT.

Carlos Salema



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

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Launching the ICSI Project - Intelligent Cooperative Sensing for Improved Traffic Efficiency

The project results will enable advanced traffic and travel management strategies, based on reliable and real-time input data. The effectiveness of such new strategies, together with the proposed system, will be assessed in two field operational tests, one in smart urban environment (Pisa), and the other in highway environment, to be held in Lisboa (A5).

The project kick-off was on November 7, 2012 in Pisa. It involves three industrial partners, INTECS (Italy), FORTHNET (Greece), IKUSI (Spain), one end-user, BRISA (Portugal), one SME, Object Security (England), and five research organizations CNIT (Italy), CNR (Italy), U. DEUSTO (Spain), FPZ (Croatia) and IT.

The participation of IT at Aveiro is coordinated by Joaquim Ferreira.

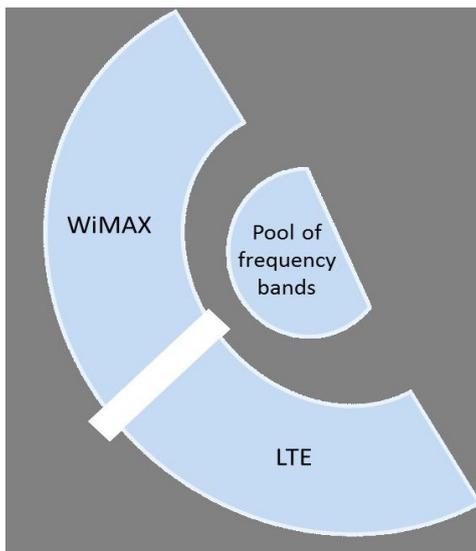


PROJECT SNAPSHOT

OPPORTUNISTIC-CR

Opportunistic Aggregation of Spectrum and Cognitive Radios: Consequences on Public Policies

Recent traffic forecasts from the International Mobile Telecommunications (IMT) market expect strong growths in the next decade. Given the current reality of poorly utilized licensed part of the radio spectrum, the situation can only get worse unless we find new practical means for improving spectrum utilization. In Cognitive Radio (CR) systems, which have been proposed as a solution to this spectrum underutilization, an existing network of licensed users, primary users (PUs), has the priority to use a set of pre-defined licensed spectrum bands, while a set of non-licensed users, secondary users (SUs), opportunistically exploits unused portions of the spectrum without causing interference to PUs.



Besides underutilization, the current problem of spectrum requires a different approach to enable the bandwidth required by IMT-Advanced (IMT-A) systems, operating at preferred frequency bands, as announced in World Radio Conference 2007. The concept of spectrum aggregation (SA) exploits multiple small spectrum

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fragments simultaneously (aggregation) to yield a (virtual) single larger band and ultimately deliver a wider band service (not otherwise achievable when using a single spec-

trum fragment). Further, SA allows that new high data rate wireless communication systems can coexist while reusing the spectrum of legacy systems.

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Agenda

IT 20th Anniversary events

The series of planned events is coming to a close. The final one will take place at the IT branch of Aveiro on December 1st. Detailed information is available at the IT website.



URL: www.it.pt/20years

CONFTELE 2013

The 9th Conference on Telecommunications, organised by Instituto de Telecomunicações, will be held in Castelo Branco, Portugal, on May 8, 9 and 10, 2013. This year with new paper submission rules, the Conference is intended to be an international forum for the exchange of information among universities, research units, service providers, operators and manufacturers, on recent technical issues in telecommunications.

Important deadlines: Submission of full-papers, Dec. 21, 2012; Authors notification: Feb. 1, 2013; Registration: Mar. 15, 2013.

URL: <http://www.co.it.pt/conftele2013/index.php>

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The OPPORTUNISTIC-CR (PTDC/EEA-TEL/115981/2009) FCT project is a 3-year partnership between Instituto de Telecomunicações - Covilhã and Instituto de Desenvolvimento de Novas Tecnologias (UNINOVA/FCT/UNL) that started in January 2011, with a total budget of 83 K€. OPPORTUNISTIC-CR has been addressing several open problems in CR, namely the design of efficient cross-layering approaches for physical and MAC layers, the allocation of resources in a scenario where the bands can be shared by the different users and the parameterization of spectrum sensing schemes. A framework was also proposed for the efficient integration of functionalities for dynamic spectrum use (e.g., SA by the pooling of resources at higher layers together) and integrated common radio resource management (iCRRM) in the scope of IMT-A candidate systems.

The research team is now focused on the design of optimal channel allocations policies. A proof-of-concept is currently being developed for a distributed CR network based on Universal Software Radio Peripherals (USRPs) hardware, which will incorporate most of the main achievements of the project. The research team has been involved in several international initiatives, including active participation in the European Cooperation initiatives, as COST IC 0902, IC 0905 (TERRA) and IC 1004, where many of these cognitive radio and spectrum sharing concepts are being proposed, discussed and improved.

Fernando J. Velez and Rodolfo Oliveira

URL: <http://www.e-projects.ubi.pt/opportunistic-cr>

VENIAM wins the 3rd Building Global Innovators Venture Competition ISCTE-IUL MIT



VENIAM is a startup company in the area of vehicular networks co-founded by João Barros, Susana Sargento and André Cardote, researchers from the IT at Porto and Aveiro.

Smartphones and iPads are driving the growth of 'on the go' wireless data consumption. This demand costs consumers a huge amount in cellular fees, and is forcing telcos to build out expensive new infrastructure. VENIAM developed a low-cost box that once plugged into existing vehicles can turn cars, taxis, buses, and trucks into mobile hotspots. This provides consumers and companies with low-cost connectivity, delivers a dramatically lower cost infrastructure solution to telcos and opens up a new world of connected vehicle applications.

Building Global Innovators is an international innovation and entrepreneurship initiative launched by ISCTE-IUL and MIT entities. The awarded prize is worth 100K EUR

More awards for IT at the 6th Congress of the Portuguese Committee of URSI 2012

IT researcher Diogo Ribeiro, a PhD student from University of Aveiro received the "Best Student Paper Award" with the paper "Evaluation of comb generator performance for non-linear measurements on mixed-domain instrumentation". The paper was co-authored by Pedro Ribeiro and supervisor Nuno Borges de Carvalho.

Also Joana Santos Silva, former student from ISCTE-IUL and presently working at IT for a PHD at IST, received an Honorable Mention for her work "Lens-based steerable-beam compact antennas for Ka-Band ground terminals" supervised by Jorge Costa and Carlos Fernandes.

The 6th Congress of the Portuguese Committee of URSI took place on November, 16th at the Fundação Portuguesa de Comunicações in Lisbon. IT had a couple of demonstrators in display at the exhibition in the areas of antennas, radio systems, electronics and biometrics.

URL: <http://www.anacom.pt/render.jsp?contentId=1130476>

Newsflash

▶ Prémio Prof. José Luis Encarnação - 2012 edition

José C. Miranda got the 2nd place with the article "Sketch express: A sketching interface for facial animation", co-authored by Xenxo Alvarez, João Orvalho, Diego Gutierrez, A. Augusto Sousa and Verónica Orvalho, published in the Journal Computer & Graphics. This prize from Grupo Português de Computação Gráfica rewards the most significant papers in the area of Computer Graphics in Portugal.

▶ Honorable Mention from the Carnegie Mellon University to IT researcher

André Martins, the winner of the IBM Scientific Award 2012, was distinguished by the Carnegie Mellon University with an Honorable Mention for his PhD thesis "The Geometry of Constrained Structured Prediction: Applications to Inference and Learning of Natural Language Syntax", under the supervision of Mário Figueiredo and Pedro Aguiar.

▶ "Paper of Excellence" at the IEEE Conference on Development and Learning/EpiRob 2012

The paper "Hierarchical Evolution of Robotic Controllers for Complex Tasks" by Miguel Duarte, Sancho Oliveira and Anders Lyhne Christensen, received the award "Paper of Excellence" on November 9, 2012 in California, USA. This new award category recognizes submissions that combine solid research with excellent presentation, worthy of journal-quality publication, and is only being awarded to the top 20% of overall submissions to ICDL - EpiRob this year.

URL: <http://www.icdl-epirob.org/>