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**IliA  
RESEARCH  
REPORT**

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## History and Objectives

### History

The Institute of Informatics and Applications (IliA) is a research institute of the University of Girona created in 1996. The IliA is highly active in research, both basic and industry-driven, as well as in technology transfer. The IliA currently has 78 members, 45 of whom with a PhD. Researchers conduct R&D in the fields of computer graphics, computer networks, e-learning, e-health, smart cities, smart grids and IT for food. The IliA research staff belongs to three departments of the University of Girona:

- Department of Computer Architecture and Technology
- Department of Electrical Engineering, Electronics and Automation
- Department of Informatics, Applied Mathematics and Statistics



### Objectives

The main purpose of the IliA is to earn an international reputation as a research and technological centre in the field of ICT. To achieve this goal, the IliA carries out high quality R&D projects and technology transfer contracts. These activities produce innovative results in all their phases (conception, design and implementation) both in scientific and engineering terms. Moreover, the IliA is committed to the economic growth and social development of the area where it is located by promoting best use and exploitation of the ICT it produces.

The IliA specific objectives are:

- To promote R&D, technology transfer and specialized training in the fields of Information Technologies and their applications.
- To foster and coordinate interdisciplinary projects using the different areas of expertise of its staff.
- To encourage R&D projects leading to innovation and technology transfer contracts.
- To increase the participation of the University of Girona in consortiums on research fields relevant to the IliA's members.

## Organisation and Management

### Organisation

The IliA is made up of four research groups:

- Broadband Communications and Distributed Systems (BCDS)
- Control Engineering and Intelligent Systems (eXiT)
- Graphics and Imaging Laboratory (GILab)
- Modelling, Identification and Control Engineering Laboratory (MICELab)

### Management

Three bodies are involved in the decision making process of the IliA: the Council, the Director and the Executive Board. The Council is the most important management body. It is composed of all the members of the Institute i.e. academic, technical and administrative staff. The Director is the head of the Institute. She/he is elected by means of an open electoral process. The Executive Board represents the Council and advises the Director on government issues. It is made up of the Director, the head of each research group, the Research Manager and the Academic Secretary. The Research Manager is in charge of the day to day management of the Institute. The Academic Secretary is in charge of the minutes of the Council and Executive Board meetings. She/he also certifies the agreements adopted by these two bodies. The composition of the Executive Board in 2015 was:

- Director: Dr Imma Boada
- Head of BCDS: Prof Josep Lluís Marzo / Dr Ramon Fabregat
- Head of eXiT: Dr Joaquim Meléndez / Dr Joan Colomer
- Head of GILab: Prof Mateu Sbert
- Head of MICELab: Prof Josep Vehí
- Research Manager: Mr Xavier Manyer
- Academic Secretary: Dr Remei Calm

The Technology Transfer Manager supports IliA researchers in technology transfer and innovation projects.

- Mr Roberto Petite

The Administrative Staff provides the members of the IliA with administrative support:

- Ms Cristina Rubirola
- Ms Montserrat Bragulat

## IliA 2015 in figures

### Financing

The total income of the IliA in 2015 was € 672,598. Much of the funding (92%) came from public sources whereas the rest (8%) came from private sources. As Figure 1 shows, 42% of the income corresponds to competitive grants for R&D projects, 28% to technology transfer contracts and grants, and 26% to competitive fellowships for hiring both predoctoral and postdoctoral fellows. The University of Girona's yearly budget allocation to the IliA accounts for 3% of the institute's income, which means that the remaining 97% was competitive. Figure 2 shows the absolute values broken down into categories.

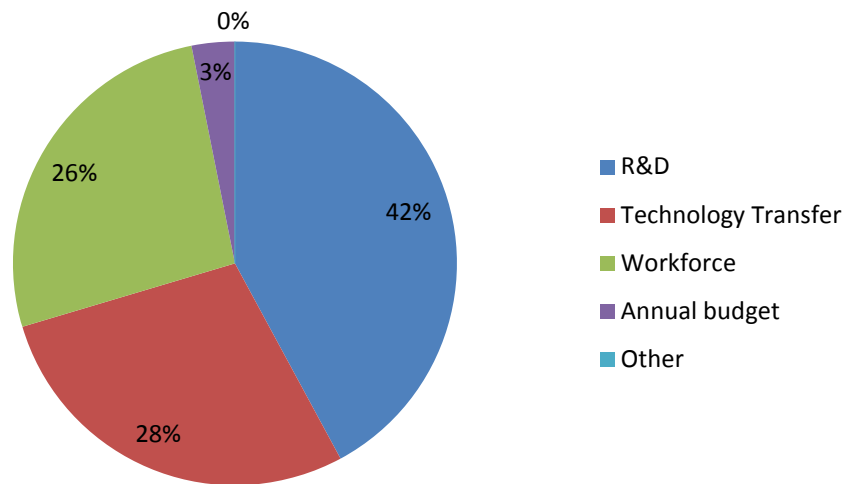


Figure 1 – IliA 2015 income broken down into categories (percentages).

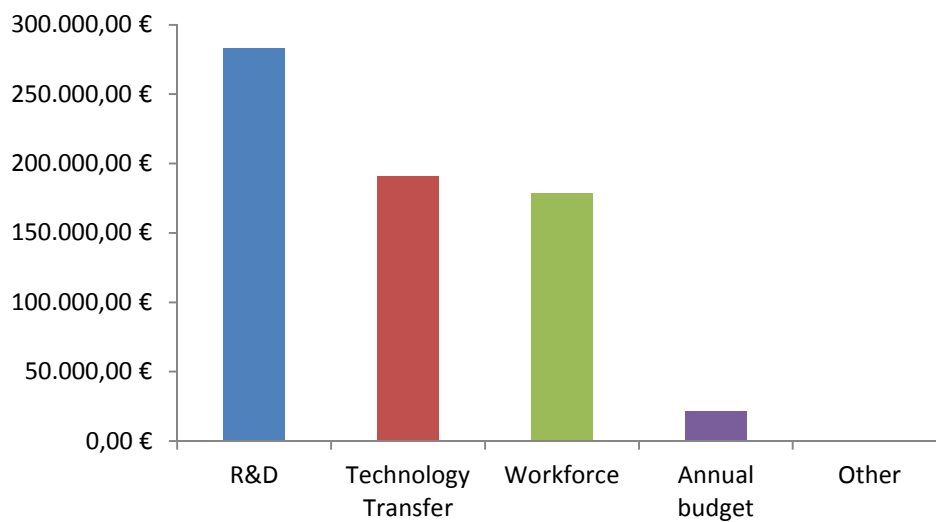


Figure 2 – IliA 2015 income broken down into categories (absolute values).



With regards to the sources of funding, 32% was raised at European level, 27% at Spanish level and 25% at Catalan level. The University of Girona's competitive grants and budget allocation account for the remaining 16%. Figures 3 and 4 illustrate the income sources in percentage and in absolute values.

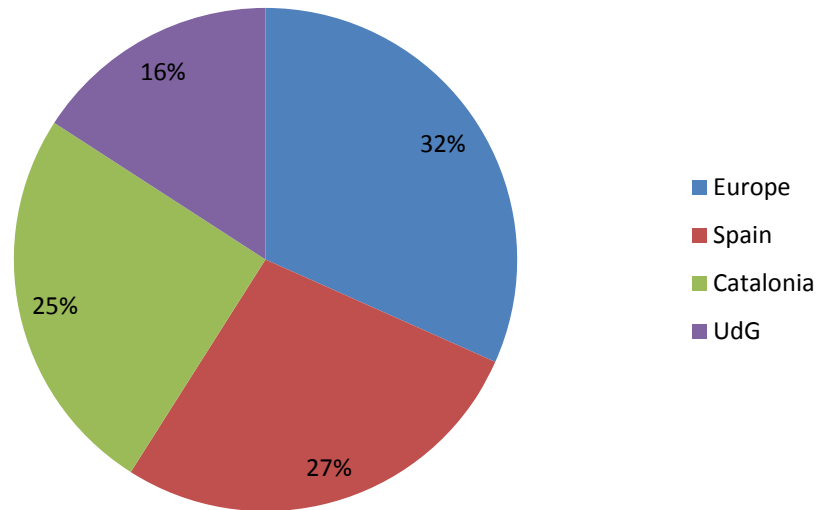


Figure 3 – IliA 2015 income broken down into sources (percentages).

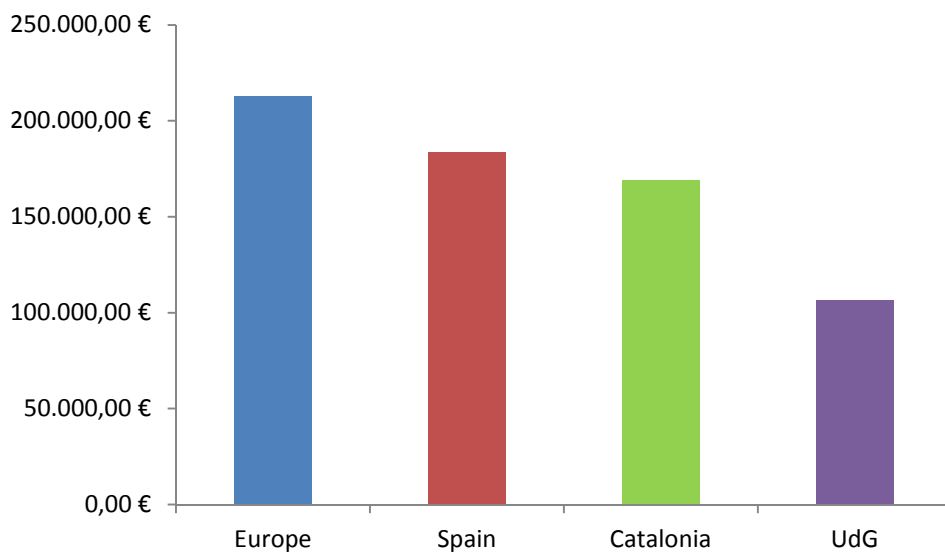


Figure 4 – IliA 2015 income broken down into sources (absolute values).

### Human Resources

The IliA had 78 researchers in 2015 along with one research manager, one technology transfer manager and two administrative staff. Table 1 shows the research workforce classified according to degree and gender.

	Male	Female	Total
PhD	37	8	45
Graduate and Master	22	11	33
<b>Total</b>	<b>59</b>	<b>19</b>	<b>78</b>

*Table 1 – IliA 2015 research workforce.*

It is also worth mentioning that 16 researchers, both PhD students and PhDs, enjoyed competitive fellowships or employment grants. Table 2 shows them classified according to the kind of fellowship and gender.

	Male	Female	Total
FI Fellowships	1		1
FPI Fellowships	2	1	3
UdG BR Fellowships	3	4	7
Ramón y Cajal	1		1
Other Fellowships	2	2	4
<b>Total</b>	<b>9</b>	<b>7</b>	<b>16</b>

*Table 2 – Researchers enjoying employment grants or fellowships.*

### ISI Publications

IliA researchers published 22 articles in 17 Thomson Reuters' ISI journals in 2015.



## Research, Development and Technology Transfer

### International and European projects

Reference	Acronym	Project	Start Date	End date	Funder	Grant	IliA Coordinator
CA15127	RECODIS	Resilient communication services protecting end-user applications from disaster-based failures	1/3/2016	29/2/2019	COST		JL Marzo *
680708	HIT2GAP	Highly Innovative Building Control Tools Tackling the Energy Performance Gap	01/09/2015	31/08/2019	EC H2020	€ 271,787	J. Meléndez **
1423411		Spreading processes over multilayer and interconnected networks	15/07/2014	30/06/2017	NSF	\$ 499,542	JL Marzo ***
ART-010000-2013-002	ACCUS	Adaptive Cooperative Control in Urban Systems	01/06/2013	31/05/2016	ARTEMIS JU + MINETUR	€ 77,000	J Meléndez

\* JL Marzo is the researcher in charge at the IliA. Prof. Jacek Rak, Gdansk University of Technology, is the global coordinator.

\*\*J. Meléndez is the researcher in charge at the IliA. NOBATEK is the global coordinator

\*\*\* JL Marzo is the researcher in charge at the IliA. Caterina Scoglio, Kansas State University, is the global coordinator.

## National research projects

Reference	Acronym	Project	Start date	End date	Funder	Grant (€)	Coordinator
TIN2014-53082-R	Open Co-creation	Creación colaborativa de recursos y prácticas educativas abiertas para la diversidad	01/01/2015	31/12/2017	MINECO	52,756	R. Fabregat
TIN2013-47276-C6-1-R	IMSERIOUS	Avances en contenidos digitales para juegos serios	01/01/2014	31/12/2016	MINECO	162,976	M. Sbert
DPI2013-47450-C2-1-R	MESC	Plataforma para la monitorización y evaluación de la eficiencia de los sistemas de distribución en smart cities	01/01/2014	31/12/2016	MINECO	96,800	J. Colomer C. Pous
DPI2013-46982-C2-2-R	SAFE-AP	Nuevos métodos para la eficiencia y seguridad del páncreas artificial domiciliario en diabetes tipo 1	01/01/2014	31/12/2016	MINECO	200,860	J. Vehí
TEC2012-32336	ROGER	Robustez ante fallos a gran escala en redes con encaminamiento interdominio	1/2/2013	31/1/2016	MINECO	34,515	E Calle

### National technology transfer projects

Reference	Acronym	Project	Start date	End date	Funder	Grant (€)	Coordinator
IDI-20141225	AGRONAUTA *	Automatización de las labores agronómicas en explotaciones agrícolas intensivas mediante robótica	01/01/2015	31/12/2018	CDTI	96,800	Serfruit
TSI-100501-2013-47	SEAS **	Smart Energy Aware Systems	1/12/2013	31/12/2015	MINETUR	65,600	Answare Tech

\* UdG subcontracted by a company in the consortium.

\*\* UdG subcontracted by the companies in the consortium. Joaquim Meléndez is the scientist in charge at the IliA.

### Main technology transfer contracts

Contractor	Acronym	Purpose	Start date	End date	Amount (€)	Coordinator
Institut de Diagnòstic per la Imatge	Starviewer	New functionalities for Starviewer 2015	02/01/2015	31/12/2015	100,000	I. Boada
IDASA	AGRONAUTA	Automation of agronomic tasks in farms by means of robotics	01/01/2015	31/12/2018	96,800	A. Bardera
Answare Tech	SEAS	Smart Energy Aware Systems	05/08/2013	05/12/2015	79,376	J. Meléndez
Generalitat de Catalunya	Speackcat	Technological upgrade of Speackcat, a course to learn Catalan	21/09/2015	31/12/2015	15,125	JL Marzo
Social Diabetes	Decipher	Distributed European Community Individual Patient Healthcare Electronic Record	01/07/2014	28/2/2015	13,906	J. Vehí
DOCEO Software	OCR	Image conversion and identification; information classification	01/12/2014	01/09/2015	12,337	M. Sbert

## Flagship projects

### **HIT2GAP: Highly Innovative Building Control Tools Tackling the Energy Performance Gap.**

**Reference:** 680708

**Start date:** 01/09/2015

**End date:** 31/08/2019

**Funding entity:** European Commission (H2020, RIA)

**Grant:** € 271,787.50

**Coordinator:** NOBATEK, France

**Coordinator UdG:** Joaquim Meléndez

**Link:** [www.hit2gap.eu](http://www.hit2gap.eu)

#### **Summary**

Measurement campaigns have shown major discrepancies in buildings energy performance between planned energy demand and real energy consumption, while nowadays most of the newly constructed offices buildings are equipped with BMS systems, integrating a more or less extended measurement layer providing large amounts of data. Their integration in the building management sector offers an improvement capability of 22 % as some studies demonstrate.

The HIT2GAP project will develop a new generation of building monitoring and control tools based on advanced data treatment techniques allowing new approaches to assess building energy performance data, getting a better understanding of building's behaviour and hence a better performance. From a strong research layer on data, HIT2GAP will build on existing measurement and control tools that will be embedded into a new software platform for performance optimization. The solution will be:

- Fully modular: able to integrate several types and generations of data treatment modules (different algorithms) and data display solutions, following a plug and play approach
- Integrating data mining for knowledge discovery (DMKD) as a core technique for buildings' behaviour assessment and understanding

The HIT2GAP solution will be applied as a novel intelligent layer offering new capability of the existing BMS systems and offering the management stakeholders opportunities for services with a novel added value. Applying the solutions to groups of buildings will also allow to test energy demand vs. local production management modules. This will be tested in various pilot sites across Europe. HIT2GAP work will be realized with a permanent concern about market exploitation of the solutions developed within the project, with specific partnerships about business integration of the tools in the activity of key energy services partners of the consortium.

**Spreading processes over multilayer and interconnected networks****Reference:** 1423411**Start date:** 15/07/2014**End date:** 30/06/2017**Funding entity:** National Science Foundation**Grant:** \$ 499,542**Coordinator:** Caterina Scoglio, Kansas State University**Coordinator UdG:** Josep Lluís Marzo**Link:** [http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1423411](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1423411)**Summary**

This project advances the boundaries of network theory by analyzing spreading processes over multilayer and interconnected networks, which abound in nature and man-made infrastructures, and about which many interesting questions remain unanswered. Multilayer networks are an abstract representation where multiple types of links exist among nodes. Interconnected networks are an abstract representation where two or more simple networks, possibly with different and separate dynamics, are coupled to each other. The rationale for this project is that viral-spreading dynamics over multilayer and interconnected networks exhibit behaviors that cannot be attributed to single-network characteristics and play a highly relevant role in practice. This project uses rigorous mathematical tools from network science, spectral graph theory, nonlinear dynamics, stochastic processes, controls, game theory, and optimization.

**SAFE-AP: New methods for an efficient and safe domiciliary artificial pancreas in type 1 diabetes**

**Reference:** DPI2013-46982-C02-02-R

**Start date:** 01/01/2014

**End date:** 31/12/2016

**Funding entity:** MINECO

**Grant:** € 200,860

**Coordinator:** Josep Vehí Casellas

**Link:** [closedloop4meal.org](http://closedloop4meal.org)

**Summary**

The artificial pancreas, or automatic glucose control, is the technology big companies in the diabetes area are betting on since it is expected it will revolutionize the management of type 1 diabetes, freeing the patient from the current burden of decision making and improving metabolic control. Nowadays several artificial pancreas prototypes have been validated in controlled inpatient studies. However, the domiciliary use of the artificial pancreas requires, besides an efficient controller able to face the daily life conditions, the safety mechanisms that allow its use without additional risk for the patient:

- (a) Fault tolerance with regard to the instrumentation and communication between devices.
- (b) Patient supervision allowing for risk assessment, beyond impending hypoglycemia, such as altered patient states or controller malfunctioning.
- (c) Controller robustness and efficiency in face of disturbances like typical meals in the patient's diet, exercise of different nature, diverse situations of stress and concomitant diseases.
- (d) Optimization of the controller tuning and risk minimization in the clinical practice facing groups of patients with particular metabolic characteristics, transient alterations and metabolic changes due to the progression of the disease.

These challenges constitute the main objective of this project: the development of new methods and tools for efficiency and long-term safety of the artificial pancreas at home. This is reflected in the following specific objectives:

Objective 1. Development and validation of methods for the detection and diagnosis of faults in the instrumentation. Obstructions in insulin infusion, loss of signal by the continuous glucose monitor, failed sensors, calibration errors, etc. will be considered, among others.

Objective 2. Development and validation of methods for improving the accuracy of continuous glucose monitors and mitigating errors in the glucose readings or trends due to metabolic states related to hemodynamic changes associated with exercise and stress, present in the patient's daily life.

Objective 3. Development of methods for risk assessment. Prediction of hypoglycemia and severe hyperglycemia will be addressed, as well as detection of abnormal or altered states of the patient outside the operating range of the controller and controller malfunction or detuning due to metabolic changes.

Objective 4. Development and validation of control algorithms for fault tolerance and robustness to disturbances.

Objective 5. Design and implementation of an artificial pancreas for home use based on "smartphone", integrating previous methods for efficiency and safety during the life of the system.

Objective 6. Design and implementation of a remote supervision system to optimize performance and safety. The system will be a tool to generate knowledge using massive data mining techniques ("big data") to support decision making of medical personnel.



**IMSERIOUS: Advances in digital content for serious games****Reference:** TIN2013-47276-C06-01-R**Start date:** 01/01/2014**End date:** 31/12/2016**Funding entity:** MINECO**Grant:** € 162,976**Coordinator:** Mateu Sbert, Miquel Feixas**Summary**

SuperData Research group reported that the US digital games market reached \$1,032 million in total sales in October, with an increase of 11% in October, 2013, compared to the same month last year. Serious games are a part of the game market which is also growing fast and becoming more and more popular. Upon the report of Ambient Insight, The US Serious Games Market: Segment Size and Opportunity, August 2011, the serious game market in US, will reach about \$2,5 billions by 2015. Ambient Insight reports that involvement of academic institutions in game based learning initiatives and entrepreneurial accelerators supports the learning market.

A serious game is defined as a game with specific intention such as education, training, treatment, skill enhancement, widely used in many areas including military, health care, business management, or social science. As game technology is widely used nowadays in simulation serious game concept includes both simulated based learning and game based learning. The term Serious Games was introduced by David Rejeski and Ben Sawyer, in the white paper Serious Games Initiative (2002), as entertaining games with non entertainment goals. Since this first definition, many different ones have been proposed. Amongst them, D. Michael and S. Chen (Serious games: games that educate, train, and inform, Boston MA: Course Technology PTR, 2005) defined serious games as games that educate, train and inform. Although there is no single definition of the serious game concept, all the proposed definitions convey the same idea which is using games to teach or transmit skills. This has led some analysts to describe them as the next wave of technology-mediated learning. As an example, in the health and medical context, serious games are designed to educate and train health care professionals to avoid medical errors or in rehabilitation processes, to reproduce the repetitive tasks that have to be done by the patients. As is expressed by Michael Foley, from Ambient Insight "technology may not directly cure people but it can be used to educate the entire population, from active youth to parents to grandparents, and to help them look after their own health."

At the same time the technological challenge is enormous and the expectations of industry and consumers are still far from being satisfied. Thus new advances in this field attained through technological research are required. In this direction, the proposed project deals with different aspects related to the design and development of serious games covering the whole pipeline of creation of a serious game, including: the automatic creation of virtual worlds, the improvement in realism in its rendering, the management of contents and the interaction with the user. It will also be investigated how well the serious game concepts can be brought to mobile devices. The tablet for instance is considered by Michael Foley a game changer in health applications.

The improvements in this project will be demonstrated in the development of several serious games in fields like education and e-learning, social networks, geographic information systems, cultural heritage and medical applications.

This project includes multidisciplinary teams, as serious games by nature are multidisciplinary, requiring the expertise from computer scientists, education technology practitioners, industrial simulation engineers, music&sound technology experts, art professors and industrial engineers.

## **Education**

### **PhD Programs**

- Doctoral Programme in Technology

### **Master Programs**

- Master in Smart Cities

## PhD Theses 2015

PhD Student	Dissertation	Place and time	Advisor/advisors
Ferran Torrent Fontbona	Optimisation methods meet the smart grid. New methods for solving location and allocation problems under the smart grid paradigm	Universitat de Girona, 23 June 2015	Beatriz López
Màrius Vila Duran	Information theory techniques for multimedia data classification and retrieval	Universitat de Girona, 9 July 2015	Miquel Feixas Mateu Sbert
Xavier Bonaventura Brugués	Perceptual Information-theoretic measures for viewpoint selection and object recognition	Universitat de Girona, 10 July 2015	Miquel Feixas Mateu Sbert

## Master theses 2015

### Master in Smart Cities

Student	Dissertation	Place and time	Tutor / Tutors
María Carla Barresi Bertarini	Método de planificación turística basado en colaboraciones y participación ciudadana	Universitat de Girona, 8 September 2015	Maria Lluïsa Marsal
Adrià Pérez Arnau	Sistema de lectura d'informació d'espais a través de dades obertes amb geolocalització en una aplicació mòbil	Universitat de Girona, 7 September 2015	Josep Lluís de la Rosa
Laura García de Miguel	Método para la implantación de una red de movilidad inteligente para escolares en bicicleta	Universitat de Girona, 8 September 2015	Maria Lluïsa Marsal
Romà Garrido Puig	Mètode propositiu de validació i transformació de l'estació intermodal urbana i el seu entorn en espais públics resilents	Universitat de Girona, 8 September 2015	Maria Lluïsa Marsal
Pau Fraguell Hernando	Método para la propuesta de cambio de uso de edificios	Universitat de Girona, 8 September 2015	Maria Lluïsa Marsal
Josep Lluís Fita López	Metodología para la evaluación y análisis del potencial fotovoltaico de fachadas en entornos urbanos	Universitat de Girona, 7 September 2015	Gonzalo Besuievsky Gustavo Patow
Carlos García Rubio	TOFLUNVE (TOurist FLEet of UNmanned Vehicles)	Universitat de Girona, 7 September 2015	Josep Lluís de la Rosa
Noelia Uribe Pérez	A Novel Approach of the Communication System of the Smart City based on Neural System. The Role of Optical Fiber	Universitat de Girona, 7 September 2015	Carles Pous
Juan Ramón López Soler	Optimización de la distribución urbana de mercancías. Sistema integral de reparto urbano de mercancías	Universitat de Girona, 8 September 2015	Rodolfo de Castro
Artemis Psaltoglou	Activity density and time-based identification of critical points in a public transport network	Universitat de Girona, 7 September 2015	Eusebi Calle
Paulo Nicolás Carrillo Peña	Implementación de subastas electrónicas para la preservación de objetos digitales complejos con presupuesto limitado, motor de la gestión de ciudades inteligentes	Universitat de Girona, 7 September 2015	Josep Lluís de la Rosa
Pol Nadal Cros	Recuperant el benestar. Mètode per a la creació i promoció de zones urbanes tranquil·les.	Universitat de Girona, 8 September 2015	Maria Lluïsa Marsal
Ivo Rosa Bernardo	Strolling Dial-a-Ride Problem: definition and applicability	Universitat de Girona, 7 September 2015	Esteve del Acebo
Albert Boix Comajuan	Estudi, disseny i fabricació d'un control d'horaris dinàmics per a sistemes de telegestió d'enllumenat públic. Estudi de la seva implementació en una ciutat	Universitat de Girona, 7 September 2015	Carles Pous

## Publications in ISI journals

### **"Social Heritage" Augmented Reality Application to Heritage Education**

Raynel Mendoza Garrido, Danilo Vargas Jiménez, Silvia Baldiris, Ramon Fabregat  
Augemented and Virtual Reality, AVR 2015. Lecture Notes in Computer Science, Volume 9254,  
Pages 17 - 24

### **A multi-objective routing algorithm for wireless mesh network in a smart cities environment**

Carlos Lozano Garzón, Miguel Camelo, Pere Vilà, Yezid Donoso  
Journal of networks, Volume 10, Issue 1, Pages 60 - 69

### **Special issue on performance modeling and evaluation of computer and telecommunication systems**

Mohammad S Obaidat, Pere Vilà  
Journal of Networks, Volume 10, Issue 1, Pages 1 - 3

### **Community-based traffic preservation in telecommunication networks**

Víctor Torres, Marc Manzano, Eusebi Calle, José Luis Marzo  
International Journal of Communication Systems, Volume 28, Issue 4, Pages 762 - 778

### **Lessons in urban monitoring taken from sustainable and livable cities to better address the Smart Cities initiative**

Maria Lluïsa Marsal, Joan Colomer, Joaquim Meléndez  
Technological forecasting and social change, Volume 90, Pages 611 - 622, Subdivision B

### **Short-term load forecasting in a non-residential building contrasting models and attributes**

Joaquim Massana, Carles Pous, Llorenç Burgas, Joaquim Meléndez, Joan Colomer  
Energy and buildings, Volume 92, Pages 322 - 330

### **Multivariate statistical monitoring of buildings. Case study: Energy monitoring of a social housing building**

Llorenç Burgas, Joaquim Meléndez, Joan Colomer, Joaquim Massana, Carles Pous  
Energy and buildings, Volume 103, Pages 338 - 351

### **Multi-dimensional fairness for auction-based resource allocation**

Albert Pla, Beatriz López, Javier Murillo  
KNOWLEDGE BASED SYSTEMS, Volume 73, Pages 134-148

### **Power reallocation for reducing contracted electric power costs**

Ferran Torrent, Beatriz López  
Energy and buildings, Volume 89, Pages 112 - 122

### **Measuring the standardized definition of "smart city": a proposal on global metrics to set the terms of reference for urban "smartness"**

Maria Lluïsa Marsal Llacuna  
Computational Science and its Applications - ICCSA 2015, PT III. Lecture Notes in Computer Science, Volume 9157, Pages 477 - 494

**Conceptualizing, modeling and simulating sustainability as tools to implement urban smartness**

Maria Lluïsa Marsal Llacuna

Computational Science and its Applications - ICCSA 2015, PT III. Lecture Notes in Computer Science, Volume 9157, Pages 477 - 494

**3D shape retrieval using viewpoint information-theoretic measures**

Xavier Bonaventura, Jianwei Guo, Weiliang Meng, Miquel Feixas, Xiaopeng Zhang, Mateu Sbert  
COMPUTER ANIMATION AND VIRTUAL WORLDS, Volume 26, Issue 2, Pages 147 - 159

**Using a serious game to complement CPR instruction in a nurse faculty**

Imma Boada, Antonio Rodríguez-Benítez, Juan Manuel García González, Josep Olivet, Vicenç Carreras, Mateu Sbert

Computer methods and programs in biomedicine, Volume 122, Issue 2, Pages 282 -291

**Hierarchical clustering based on the information bottleneck method using a control process**

Ester Bonmatí, Anton Bardera, Imma Boada, Miquel Feixas, Mateu Sbert

PATTERN ANALYSIS AND APPLICATIONS, Volume 18, Issue 3, Pages 619 - 637

**Assessment of vegetable wastes for basic violet 14 removal: role of sorbent surface chemistry and porosity**

Maria Àngels Olivella, Núria Fiol, Florencio de la Torre, Jordi Poch, Isabel Villaescusa

Desalination and water treatment, Volume 53, Issue 8, Pages 2278 - 2288

**Biosorbent encapsulation in calcium alginate: Effects of process variables on Cr (VI) removal from solutions**

Hana Sillerova, Michael Komarek, Chang Liu, Jordi Poch, Isabel Villaescusa

International Journal of Biological Macromolecules, Volume 80, Pages 260 - 270

**New insights into the role of chemical components on metal ion sorption by grape stalks waste**

C. Liu, D. Pujol, N. Fiol, MA Olivella, F. de la Torre, Jordi Poch, Isabel Villaescusa

Water air and soil pollution, Volume 226, Issue 3, Article Number 2006

**The role of exhausted coffee compounds on metal ions sorption**

C. Liu, D. Pujol, MA Olivella, F. de la Torre, N. Fiol, Jordi Poch, Isabel Villaescusa

Water air and soil pollution, Volume 226, Issue 9, Article Number 289

**Toward energy-aware balancing of mobile graphics**

Efstathios Stavrakis, Marios Polychronis, Nectarios Pelekanos, Alessandro Artusi, Panayiotis Hadjichristodoulou, Yiorgos Chrysanthou

Mobile devices and multimedia: enabling technologies, algorithms, and applications 2015, Volume 9411, Article Number 94110D

**Postprandial response improvement via safety layer in closed-loop blood glucose controllers**

Fabián León Vargas, Fabricio Garelli, Hernán de Battista, Josep Vehí

Biomedical signal processing and control, Volume 16, Pages 80 - 87



**MCR-ALS on metabolic networks: obtaining more meaningful pathways**

A. Folch Fortuny, M. Tortajada, JM Prats Montalban, Francisco Llaneras, J. Pico, A. Ferrer  
Chemometrics and intelligent laboratory systems, Volume 142, Pages 293 - 303

**Testing PID and MPC performance for mobile robot local path-following**

Lluís Pacheco, Ningsu Luo

International Journal of Advanced Robotic Systems, Volume 12, Article Number: 155