SMART LEARN

Dr. Santi Caballé
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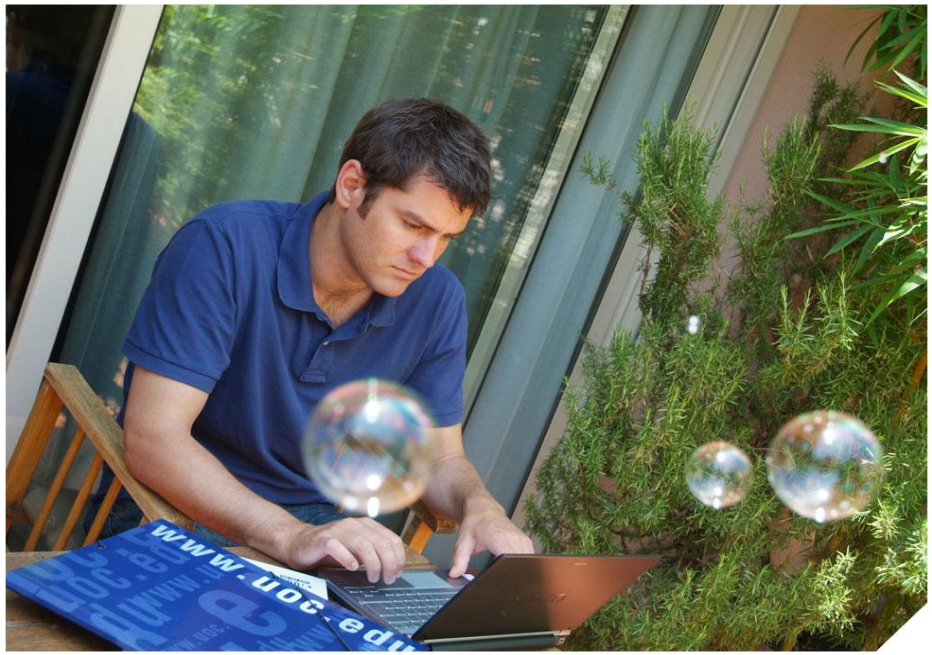
UOC – EIMT, February 1st, 2016

Mission and purpose

SMARTLEARN research group is devoted to the **intensive use of ICT** to improve and enhance any form of **e-Learning** (e-Training, m-Learning, CSCL, etc) from a **multidisciplinary** perspective.

→ The ultimate goal is to **meet the demanding and changing requirements** of the next generation of e-Learning systems and services.



SMARTLEARN purpose is to tackle the **full picture** of the e-Learning domain by promoting:

- **conceptualization** of e-Learning systems
- **technological and engineering methodologies**
- developments to be **piloted and integrated** in LMSs
- **dissemination of knowledge**
- **exploitation** of resulting tools and services

Research group members

Dr. Santi Caballé (Leader)
UOC Researcher (since 2003)
Collaborative Learning, Learning Analytics, e-Assessment, Distributed Computing, Security, Software Engineering,

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Dr. Jordi Conesa
UOC Researcher (2005)
Ontologies, Learning Analytics, Software Engineering,

Dr. Fatos Xhafa
Research associate (1998)
Distributed Computing, Collaborative Learning, Security

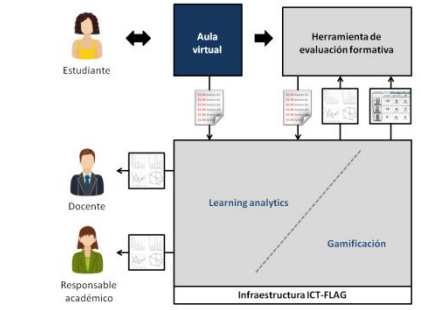
Dr. David Gañan
Technical staff (1999)
CEO DeltaDev (2010)
Learning Analytics, Software Engineering

Dr. Jorge Miguel
Postdoc researcher (2015)
CIO IT Systems (2005)
Collaborative Learning, Security

2 PhD students
Learning Analytics, collaborative learning, e-assessment

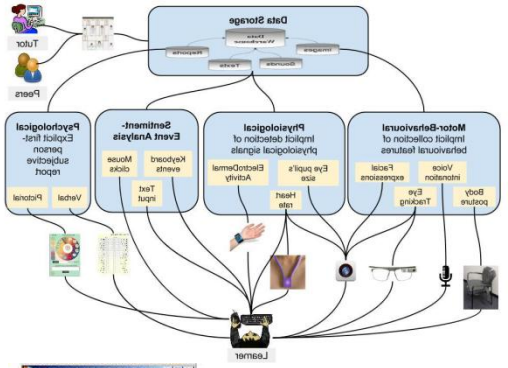
Research line 1/3: ICT education through Assessment, LA and Gamification

- **Goal:** design and **build a set of e-assessment tools and services** to support the learning process in **university ICT degrees** that include very practical competencies, which can only be acquired by means of experience, performing exercises, designs, projects, etc.
- **Keywords:** Formative e-assessment, automatic evaluation, Learning Analytics, Big Data, Gamification, Software Engineering,
- **SMARTLEARN leading researchers:** Dr. Santi Caballé, Dr. Jordi Conesa, Dr. David Gañán.
- **Recent publications:**
  - Caballé, S., Clarisó, R. (2016). **Formative Assessment, Learning Data Analytics and Gamification in ICT Education.** *Book Series "Intelligent Data-Centric Systems".* Elsevier. In process**.** Book Citation Index
  - Miguel, J., Caballé, S., Xhafa, F., Prieto, J. (2015). **A Methodological Approach for Trustworthiness Assessment and Prediction in Mobile Online Collaborative Learning**. *Computer Standards & Interfaces*. In press. ISI-JCR.
  - Gañán, D., Caballé, S., Conesa, J., Xhafa, F. (2015). **An Application Framework to Systematically Develop Complex Learning Resources Based on Collaborative Knowledge Engineering**. International *Journal of Applied Mathematics and Computer Science*, 25(2), 361–375: ISI-JCR.



Research line 2/3: Multi-modal emotion-awareness e-learning tools

- **Goal:** Develop tools and services which support the **detection and representation of learners' emotions**, as well as emotion-based learning adaptation and affective feedback. The aim is to improve **learners' drop-out rates**, **satisfaction** and **learning performance**,
- **Keywords:** Emotional awareness, affective feedback, multi-modal sensing and interface detection, Software Engineering.
- **SMARTLEARN leading researchers:** Dr. Santi Caballé, Dr. Jordi Conesa, Dr. David Gañán, Dr. Fatos Xhafa.
- **Recent publications:**
  - Caballé, S., Mora, N., Feidakis, M., Gañán, D., Conesa, J., et al. (2014). **CC-LR: Providing Interactive, Challenging and Attractive Collaborative Complex Learning Resources**. *Journal of Computer Assisted Learning,* 30(1), 51–67. ISI-JCR.
  - Feidakis, M., Caballé, S., Daradoumis T., Gañán, D., Conesa, J. (2014). **Providing emotion awareness and affective feedback to virtualized collaborative learning scenarios**. *International Journal of Continuing Engineering Education and Life-Long Learning*, 24(2),141-167. Indexed in: Scopus, Compendex, Inspec, Scirus.
  - Feidakis, M., Daradoumis, T., Caballé, S., Conesa, J., Gañán, D. (2013). **A Dual-Modal System that Evaluates User's Emotions in Virtual Learning Environments and Responds Affectively.** *Journal of Universal Computer Science*, 19(11)., 1638-1660. ISI-JCR.

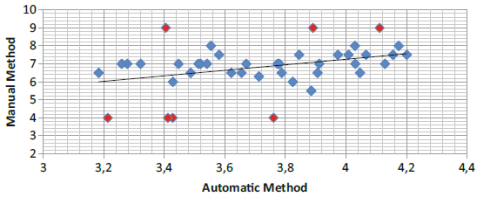


(a) Emotion report (b) Affective feedback

Research line 3/3: Information models for enhancing security in eLearning

- **Goal:** Design innovative **security solutions**, based on methodical approaches, to provide e-Learning designers and managers with guidelines for **incorporating security into on-line learning**. The aim is to **support all security processes** involved in e-Learning design and management, such as security analysis, learning activities design, detection of anomalous actions, etc.
- **Keywords:** Information security, collaborative learning, Trustworthiness, massive data processing, distributed computing, AI
- **SMARTLEARN leading researchers:** Dr. Santi Caballé, Dr. Fatos Xhafa, Dr. Jorge Miguel.
- **Recent publications:**
  - Miguel, J., Caballé, S., Xhafa, F. (2015). **Trustworthy Web Services for Secure e-Assessment in Collaborative Learning Grids.** *International Journal of Web and Grid Services.* In press**.** ISI-JCR.
  - Miguel, J., Caballé, S., Xhafa, F., Prieto, J. (2015). **Security in Online Web Learning Assessment. Providing an Effective Trustworthiness Approach to Support e-Learning Teams**. *World Wide Web Journal,*18(6), 1655–1676. ISI-JCR.
  - Miguel, J., Caballé, S., Xhafa, F., Prieto, J. (2014). **Massive Data Processing Approach for Effective Trustworthiness in Online Learning Groups**. *Concurrency and Computation: Practice and Experience* , 27(8), 1988–2003. ISI-JCR.

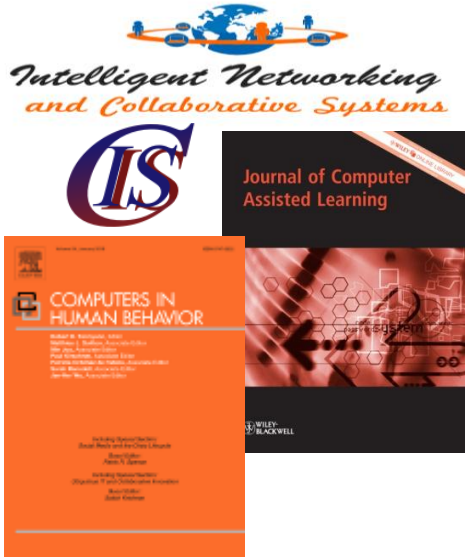
		M1	M2	M3	M4	M5	M6	M7
M1	Pearson Correlation	1,00	**,70**	,64	,54	,59	,54	,63
	Sig. (2-tailed)		,00	,00	,01	,01	,02	,03
	N	40	26	22	20	20	18	12
M2	Pearson Correlation	,70	1,00	**,89**	,81	,86	,81	,69
	Sig. (2-tailed)	,00		,00	,00	,00	,00	,02
	N	26	26	20	18	19	16	11
M3	Pearson Correlation	,64	,89	1,00	**,83**	,76	,80	,79
	Sig. (2-tailed)	,00	,00		,00	,00	,00	,00
	N	22	20	23	19	18	16	12
M4	Pearson Correlation	,54	,81	,83	1,00	**,78**	,76	,80
	Sig. (2-tailed)	,01	,00	,00		,00	,00	,00
	N	20	18	19	20	16	15	11
M5	Pearson Correlation	,59	,86	,76	,78	1,00	**,75**	,90
	Sig. (2-tailed)	,01	,00	,00	,00		,00	,00
	N	20	19	18	16	21	16	11
M6	Pearson Correlation	,54	,81	,80	,76	,75	1,00	**,86**
	Sig. (2-tailed)	,02	,00	,00	,00	,00		,00
	N	18	16	16	15	16	18	12
M7	Pearson Correlation	,63	,69	,79	,80	,90	,86	1,00
	Sig. (2-tailed)	,03	,02	,00	,00	,00	,00	
	N	12	11	12	11	11	12	12



Objective 1/3: Research excellence

1. **Funding:** SMARTLEARN is **self-funded** and **economically self-sufficient** in order to have the required resources to conduct high-quality research. Main funding targets:
   - Prepare project proposals for **2016 H2020 calls** (“Technologies for Learning and Skills”).
   - Project proposals for **2016 Spanish programs** (“Excelencia”)
   - Apply for **UOC grants** to help prepare research project proposals and cover mobility expenses.

2. **Dissemination:** SMARTLEARN aims at **quantity and quality publication production**. Main targets:
   - Paper submission to specialized **conference** tracks and **indexed journals**.
   - Edition of **books** and **special issues** of journals
   - **Create new research journals** specialized in SMARTLEARN topics
   - **Organize workshops and conferences** to widely disseminate the SMARTLEARN topics.



Objective 2/3: Internationalization and talent recruitment

1. **Conference organization:** SMARTLEARN members organize a number of international conferences, workshops and research events:
   - Guarantee **collaboration/networking** with international researchers in SMARTLEARN topics
   - Meet **research groups (partners)** to jointly prepare cooperative project proposals
   - Identify **research centers** in the same field to foster researchers' mobility in both ways.

International Conferences on Complex, Intelligent, and Software Intensive Systems (CISIS)

Invitation Letter to organize the 2017 CISIS conference

Fukuoka, Japan, 02 September 2015

Dear **Dr. Santi Caballé**,

I am pleased to inform you that your request to organize the 11th edition of CISIS conference in summer of 2017 has been accepted. I am also delighted to invite your institution (Universitat Oberta de Catalunya) to manage the local organization of the conference in Barcelona, thus becoming the UOC the main sponsor supporting the 2017 edition of the conference.

I trust that this invitation letter will assist you in obtaining the permission of your institution to organize the conference in Barcelona. As talked in our conversations, the UOC is only expected to provide the appropriate rooms to hold the conference sessions (approximately 8 regular rooms to hold the parallel sessions plus an auditorium room to hold the plenary sessions). All the conference services, including social events, accommodation, meals, registration, etc will solely be managed by the CISIS organizers, the UOC is not expected to get involved in this part of the organization.

I look forward to start organizing with you the 2017 edition of CISIS!

Sincerely,

Prof. Leonard Barolli
On behalf of the CISIS organizers

Leonard Barolli
Full Professor
Department of Information and Communication Engineering
Faculty of Information Engineering
Fukuoka Institute of Technology (FIT)
3-30-1 Wajiro-Higashi, Higashi-ku, Fukuoka 811-0295 Japan
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2. **Mobility:** SMARTLEARN in/out mobility is essential to **acquire and attract experience** that enrich the group. Main actions:
   - **Long and short stays** in other universities, research centers and companies (SME) will be promoted
   - **Prepare mobility grant** proposals
   - **Attract external pre- and post-doctorate** researchers for short and long stays at EMT within the SMARTLEARN group.
   - **Invite prestigious experts** (visiting professors) to share knowledge and establish firm and stable collaborations.

FULBRIGHT

AGAUR Agencia de Gestió d'Ajuts

MARIE CURIE ACTIONS

Objective 3/3: Knowledge transfer

1. **Event organization** is the driving force to meet companies and professionals to **transfer the knowledge** acquired in SMARTLEARN in terms of eLearning systems and services:
   - Organize the innovative events **Synergys22@** co-organized with SMARTLEARN, 22@Barcelona and KIMbcn.
   - Involve **UOC's network of associated companies** and the **technological companies** affiliated with the **Barcelona City Council**
   - Create **strong collaboration between public and private bodies** from academia, industry and government (Triple Helix model).

Synergys

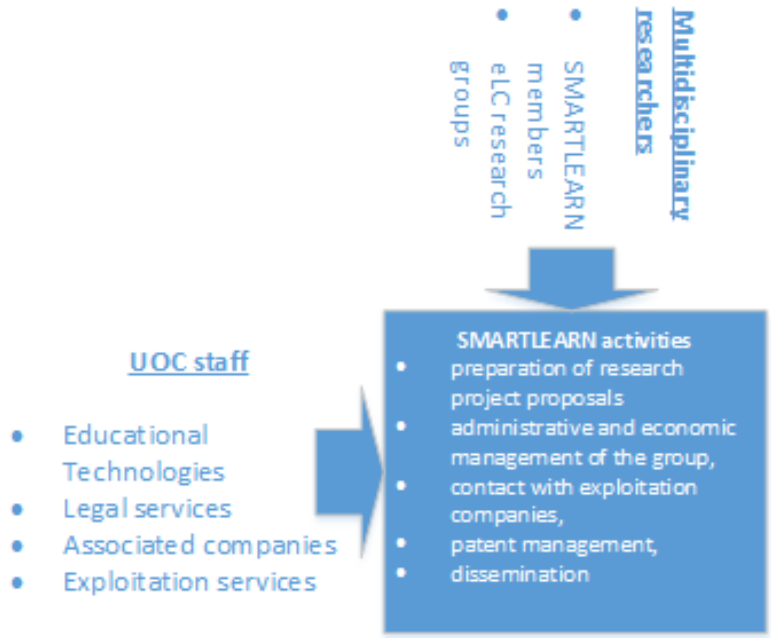
The Triple Helix Model

2. **Teaching innovation at UOC** to transfer the SMARTLEARN knowledge to improve UOC's teaching and learning processes. Main UOC actors:
   - **UOC Educational Technology** bridges the SMARTLEARN results and its deployment and maintenance in the UOC Virtual Campus
   - **UOC Teaching collaborators and students** are part of the pilots to experiment with the developed systems and tools.
   - **Corporate training programs** based on UOC model to gain knowledge from SMARTLEARN results.

UOC
Universitat Oberta de Catalunya

Methodology and singularity

- **SMARTLEARN group is structured as a matrix:**
  - → Researchers from **multidisciplinary disciplines** form part of the group (SMARTLEARN members, eLC research groups)
  - → **UOC management staff**, associated companies and professionals of educational technologies, legal aspects and exploitation services
- **All participants are integrated in SMARTLEARN as permanent and active participants**
  - → Preparation of research project proposals
  - → Group administrative and economic management of the group,
  - → Contact with exploitation companies
  - → Patent management, etc.



- **SMARTLEARN** covers all the **scientific**, **methodological** and **technological** perspectives of the **eLearning** research (ie. full picture)
  - → from the pedagogical models till the technological implementations, evaluation and exploitation.
  - → **SMARTLEARN technological research lines are unique** and provide outstanding opportunities to **enhance the eLearning experience** at greater levels of satisfaction while **improving the learning outcomes**.

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