



ERCIM "ALAIN BENSOUSSAN"  
FELLOWSHIP PROGRAMME



## Scientific Report

First name / Family name	Mario Montagut
Nationality	Spanish
Name of the <i>Host Organisation</i>	CWI, The Netherlands
First Name / family name of the <i>Scientific Coordinator</i>	Pablo Cesar
Period of the fellowship	15/03/2015 to 14/03/2016

### I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

The main topic of my PhD thesis was **media synchronization (mediasync)**. Due to the relevance of this topic and the satisfactory results of my PhD thesis, my Scientific Coordinator and I agreed on **continuing this research line** during the ERCIM fellowship. In particular, three mediasync-related aspects have been investigated. The first one is related to the theoretical foundations of mediasync. A thorough study was conducted, reflecting the need for a new modular and extensible theoretical framework to efficiently structure and synthesize this research area, meeting the requirements of the latest advances in multimedia systems and emerging media consumption paradigms. Second, new technological aspects have been devised and evaluated with the goal of not only enhancing the performance (Quality of Service, QoS) of mediasync solutions, but also contributing to a better Quality of Experience (QoE) when mediasync solutions are applied. Third, many of the contributions of my PhD thesis have been adapted and adopted in order to be applied in other increasingly relevant delivery technologies and standards, such as HTML5 and HbbTV 2.0. The research on these three aspects has been successful and has contributed to **strengthen and broaden my areas of expertise and interest**. As a result, **various articles** in high-impact journals, conferences, book chapters and workshops **have been published** and submitted (see next Section).

I have also been (Lead) Editor of a Special Issue of the IEEE Computer Society Special Technical Community on Social Networking (STCSN) E-Letter and of a complete book in Springer-Verlag Editorial.

Another key objective of the fellowship was to **expand my scientific network**. Several activities have been conducted to achieve it. First, I have experienced **rich interactions and collaborations with researchers** of the host organization and of other international organizations (including universities, research centres, standardization organizations and companies). Second, I have attended 6 research events, including conferences and workshops, giving talks in all of them and making new contacts. Third, I have participated in the co-organization of research events, such as the MediaSync 2015 Workshop (June 2015, Belgium) and the Special Session on MediaSync at ACM Multimedia Systems (MMSYS) 2016 Conference (May 2016, Austria). As the result of the networking, I have been invited to participate in both national and European project proposals.

I have participated in the **preparation and submission of project proposals** and have **applied for 2 calls for postdoc grants**. I have also been nominated and applied for the **Best PhD Thesis Award at UPV (Spain)**.

I have participated in a national research project and co-supervised 3 BsC theses and 2 MsC theses, all of them related to my areas of expertise.

I have also been invited as Evaluator and Committee Member of 2 PhD theses at UPV (Spain), in the Communications and Computer Science Departments.

With the goal of **developing my research, communication and teamwork skills**, I have completed the prestigious 3 full-day “*Boostering Your Career*” course, given by the Imperial College of London in Amsterdam (February 2016). I got the completion certificate (with “*excellent results*”).

Summarizing, the ERCIM fellowship has substantially contributed to develop my career, to increase the impact of my research, to expand my network, to shape my research vision and to clarify my priorities and objectives.

Finally, I would like to remark that CWI, and in particular the group led by my Scientific Coordinator (Pablo Cesar), has provided me a perfect environment to interact with other researchers and to develop my research career. That is the reason why I really hope to **keep the collaboration** with them in the future.

## II – PUBLICATION(S) DURING YOUR FELLOWSHIP

(I do not include the abstracts due to the length limitations)

### Journals (3 publications)

L. Beloqui, F. Boronat, **M. Montagud**, H. Melvin, “Understanding Timelines within MPEG Standards”, IEEE Communications Surveys and Tutorials, 18(1), pp. 368-400, 2016, **JCR - Q1**

(Under 2nd Round Review) **M. Montagud**, F. Boronat, B. Roig, A. Sapena, “How to Perform AMP? Cubic Adjustments for Improving the QoE”, IEEE Communications Letters, **JCR - Q2**

**M. Montagud**, “Design, Development and Evaluation of an Adaptive and Standardized RTCP-based IDMS Solution”, ACM SIGMM Records, 7(2), ISSN 1947-4598, 2015.

\* We are working on other two journal papers that will be submitted soon.

#### E-Articles (2 publications)

**M. Montagud**, P. Cesar, F. Boronat, D. Marfil, "Social Media Usage Combined with TV/Video Watching: Opportunities and Associated Challenges; Towards Augmented, Interactive, Personalized and Shared Experiences", IEEE Computer Society Special Technical Community on Social Networking (STCSN) E-Letter, 3(2), December 2015.

**M. Montagud**, F. Boronat, M. Garcia, O. Niamut, "Impact of Social Media on TV Content Consumption: New Market Strategies, Scenarios and Trends", IEEE Computer Society Special Technical Community on Social Networking (STCSN) E-Letter, 3(2), December 2015.

#### Book Chapters (1+3 publications)

**M. Montagud**, F. Boronat, J. Belda1, D. Marfil, "Use of Web Components to Develop Interactive, Customizable and Multi-Device Video Consumption Platforms", Communications in Computer and Information Science (Springer), To Be Published.

\* As the result of my Editorship of the MediaSync book (mentioned before), I have committed with Springer to contribute with three additional chapters to this book.

#### Conferences (3+1 publications)

H. Stokking, P. Cesar, F. Boronat, and M. Montagud, "Media Synchronization Workshop", ACM TVX 2015, Brussels (Belgium), June 2015.

J. Belda, M. Montagud, F. Boronat, J. Pastor, "Plataforma Web 2.0 para la Sincronización Distribuida de Contenidos Multimedia e Interacción Social", TVDi 2015, Mallorca (Spain), October 2015.

M. Montagud, F. Boronat, M. Martínez, J. Belda, P. Cesar, "Impacto de Parámetros de QoS en Aspectos de QoE: Análisis desde el Punto de Vista de la Sincronización Multimedia", Workshop QoS y QoE en Comunicación Multimedia, JITEL 2015, Mallorca (Spain), October 2015.

(Under Review) D. Gómez, F. Boronat, M. Montagud, "End-to-End DASH Platform including a Network-based and Client-based Adaptive Quality Switching Module", ACM MMSYS 2016.

#### Workshops (1 publication)

M. Montagud, Jack Jansen, Fernando Boronat, Pablo Cesar, "Review of Media Sync Reference Models: Advances and Open Issues", MediaSync Workshop 2015, Brussels (Belgium), June 2015.

#### Editorship (2 contributions)

M. Montagud, F. Boronat, M. García, O. Niamut, Special Issue on "Impact of Social Media on TV Content Consumption - New Market Strategies, Scenarios and Trends" - IEEE Computer Society Special Technical Community on Social Networking (STCSN) E-Letter (<http://stcsn.ieee.net/e-letter/stcsn-e-letter-vol-3-no-2>).

M. Montagud, P. Cesar, J. Jansen, F. Boronat, “Mediasync: Handbook on Multimedia Synchronization”, Springer-Verlag, <https://sites.google.com/site/mediasynchronization/book>. More than 30 high-quality chapters by distinguished researchers have been gathered and accepted.

### III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

#### June 2015

ACM International Conference on Interactive Experiences for Television and Online Video (**ACM TVX 2015**), Brussels (Belgium). *Co-author of 2 papers, speaker, and TPC member.*

**MediaSync Workshop 2015**, collocated with ACM TVX 2015, Brussels (Belgium). *Co-author of 2 papers, speaker and Co-Organizer.*

#### October 2015

VI Congreso de TV Digital Interactiva (**TVDI 2015**) – IV Jornadas Iberoamericanas de Aplicaciones y Usabilidad de la TVDi, Mallorca (Spain). *Co-author of 3 papers, speaker and Co-Organizer.*

XII Jornadas de Ingeniería Telemática (**JITEL 2015**), Mallorca (Spain), October 2015. *Co-author of 2 papers and speaker.*

#### February 2016

**Comunica2**: Sexta Edición del Congreso Internacional Sobre Redes Sociales, Grau de Gandia (Spain), February 2016. *Co-author of 1 paper and speaker.*

\* I will attend ACM MMSYS 2016 (May 2016, Austria). *Co-author of 1 papers, speaker, TPC member and Co-Organizer of a Special Session*

### IV – RESEARCH EXCHANGE PROGRAMME (REP)

As part of the Research Exchange Programme (REP), I visited MINTLAB (Meaningful Interactions Lab), formerly known as Centre for User Experience Research (CUO), at KU Leuven - iMinds (Belgium), from 7/3/2016 to 11/3/2016. My stay was supervised by David Geerts. The reason why I chose MINTLAB is because it is one of the premier centres in Human-Computer Interaction (HCI) and User Experience (UX), which are very relevant topics in my areas of expertise and interest. During my stay there, I presented my research contributions and areas of interest, and I had productive meetings and experienced rich interactions with some of the group’s members. Possibilities of establishing future collaborations were also explored.

It was a very positive experience and I really hope that the interactions and collaborations with that team will continue in the future.