



## Diego Castán, PhD

PhD. Electrical Engineer  
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### Education

- **Ph.D. Speech/Audio Signal Processing and Pattern Recognition** 2009 – 2014  
*University of Zaragoza* *Zaragoza, Spain*
  - Thesis: “Advances on Audio Segmentation and Audio Content Description for Multimedia Documents” - Graduated Cum Laude
  - Relevant areas: Audio Segmentation, Multimedia Events Detection, Speech Analytics, Speaker diarization, Language ID, Pattern Recognition, Machine Learning, Speech/Signal Processing, Probabilistic Graphical Models, Natural Language Processing, Statistical Signal Processing
- **M.Sc. Information technology and Radiomovil technology** 2008 – 2009  
*University of Zaragoza* *Zaragoza, Spain*
  - Final Project: “Music/Speech classification systems” - Graduated Cum Laude
  - Relevant courses: Speech Technologies, Pattern Recognition, Signals and Systems, Information Theory
- **M.Sc. Electrical Engineering (Erasmus scholarship)** 2006 – 2007  
*University of Roma Tre* *Rome, Italy*
  - Erasmus Programme: European Union (EU) student exchange programme
- **M.Sc. Electrical Engineering (Telecommunications)** 2001 – 2008  
*University of Zaragoza* *Zaragoza, Spain*
  - Relevant courses: Signal Processing, Electronic Desing, Information Theory, Telematics
- **Intermediate Music Degree** 1991 – 2002  
*Professional Music Conservatory of Zaragoza* *Zaragoza, Spain*
  - Relevant areas: Classic Guitar, Chamber Music, Musical Composition, History of Music

### Work Experience

- **Instituto de Investigación de Aragón (I3A)**, Zaragoza, Spain 2013 – present  
Research staff associated to “TIMPANO: Technology for complex Human-Machine conversational interaction with dynamic learning”. Granted by TIN2011-28169-C05-02, Ministry of Economy and Competitiveness. Research topics: Performance of anti-spoofing systems and audio segmentation-by-classification approaches.

- **Instituto de Investigación de Aragón (I3A)**, Zaragoza, Spain 2009 – 2013  
PhD. student researcher associated to “SD-TEAM: Personalization and autonomous adaptation to the constraints of context in multidomain spoken dialogue systems”. Granted by TIN2008-06856-C05-04, Commission for Science and Technology. Research topics: Automatic audio content based on acoustic event detection.
- **Teacher Assistant - University of Zaragoza**, Zaragoza, Spain Fall-2011 & Fall-2012  
Taught laboratory of “Telecommunications Theory”: characterization of the elements of communication systems (transmitter, receiver, channel) and the signals associated to the communication process.
- **SRI International**, Menlo Park, CA, USA Spring & Summer 2012  
International internship: Designed and executed experiments for performing audio-based multimedia event detection on large collection of video files.
- **Lab.ROSA Columbia University**, New York City, NY, USA Spring & Summer 2011  
International internship: Implementation of acoustic event detection system based on factor analysis.
- **Fondazione Brunno Kessler**, Trento, Italy Spring & Summer 2010  
International internship: Implementation of acoustic event detection system based on Hidden Markov Models and Classification Trees (C4.5).
- **Instituto Tecnológico de Aragón (ITA)**, Zaragoza, Spain 2008 – 2009  
Scholarship: Development of a DGPS in the electronic area.

## Awards, Grants & Honours

Cum Laude PhD. Thesis . . . . .	2014
FPI Spanish Government Scholarship . . . . .	2009 – 2013
Cum Laude Final Master Project . . . . .	2009

## Publications

- D. Castán, A. Ortega, A. Miguel and E. Lleida **Audio Segmentation-by-Classification Approach Based on Factor Analysis in Broadcast News Domain** EURASIP Journal on Audio, Speech, and Music Processing, July 2014
- D. Castán A. Ortega, A. Miguel and E. Lleida **A preliminary study of Acoustic Events Classification With Factor Analysis in Meeting Rooms** Advances in Speech and Language Technologies for Iberian Languages, IberSPEECH-2014, Las Palmas de Gran Canaria, España, Noviembre, 2014
- D. Castán and M. Akbacak **Indexing Multimedia Documents with Acoustic Concept Recognition Lattices** 14th Annual Conference of the International Speech Communication Association, Interspeech-2013, Lyon, France, August 2013
- D. Castán, A. Ortega, A. Miguel and E. Lleida **Broadcast News Segmentation with Factor Analysis System** InterSpeech Satellite Workshop on Speech, Language and Audio in Multimedia, SLAM-2013, Marseille, France, August 2013
- D. Castán and M. Akbacak **Segmental-GMM Approach based on Acoustic Concept Segmentation** InterSpeech Satellite Workshop on Speech, Language and Audio in Multimedia, SLAM-2013, Marseille, France, August 2013

- D. Castán, A. Ortega, J. Villalba, A. Miguel and E. Lleida **Segmentation-by-Classification System based on Factor Analysis** IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP-2013, Vancouver, Canada, May 2013
- J. van Hout, M. Akbacak, D. Castán, E. Yeh and M. Sanchez **Extracting Spoken and Acoustic Concepts for Multimedia Event Detection** IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP-2013, Vancouver, Canada, May 2013
- A. Ortega, D. Castán, A. Miguel and E. Lleida **The Albayzin 2012 Audio Segmentation Evaluation** Advances in Speech and Language Technologies for Iberian Languages, IberSPEECH-2012, Madrid, Spain, November, 2012
- D. Castán, A. Ortega, A. Miguel and E. Lleida **Factor Analysis Segmentation and Classification in Broadcast News Domain** Advances in Speech and Language Technologies for Iberian Languages, IberSPEECH-2012, Madrid, Spain, November, 2012
- D. Castán, C. Vaquero, A. Ortega, D. Martínez, J. Villalba, A. Miguel and E. Lleida **Hierarchical Audio Segmentation with HMM and Factor Analysis in Broadcast News Domain** 12th Annual Conference of the International Speech Communication Association, Interspeech-2011, Florence, Italy, September 2011
- D. Castán, A. Ortega, C. Vaquero, A. Miguel and E. Lleida **VIVOLAB-UZ Audio Segmentation System for Albayzín Evaluation 2010 II** Iberian SLTech Workshop, FALA-2010, Vigo, Spain, November, 2010
- D. Castán, A. Ortega, C. Vaquero, A. Miguel and E. Lleida **Speech/Music classification by using the C4.5 decision tree algorithm II** Iberian SLTech Workshop, FALA-2010, Vigo, Spain, November, 2010

## Technical Skills

**Programming Languages:** Matlab, Python (numpy, scipy, matplotlib, mechanize), C/C++, Bash scripting, Perl, Low-Level Programming (DSP, VHDL, Assembly)

**Specialized Software:** Multi-job threading software in clusters (Condor, Sun Grid Engine), Weka, HTK

**Others:** Linux, Windows, L<sup>A</sup>T<sub>E</sub>X

## Hobbies & Passions

Playing tennis, Playing guitar, Riding bike, Magic with playing cards