

# ALBERTO ABAD

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## **1. GENERAL AND PERSONAL INFORMATION**



My name is Alberto Abad Garetà. I was born in Barcelona (Spain) on February the 20th of 1979. Since my early years in High School I was particularly attracted by Maths, Physics and computers, obtaining some minor student prizes in Mathematic competitions.

I obtained the Telecommunication Engineering degree on 2002 and now I have just finished my PhD dissertation at the TALP Research Centre of the Department of Signal Theory and Communications of the Technical University of Catalonia, where I have been supported by a Catalan Government grant. The title of the thesis is "A multi-microphone approach to speech processing in a smart-room environment".

My recent work is related with multi-microphone speech processing for speech enhancement, recognition and person localization and tracking, particularly in smart-room environments. I also have experience in other related fields of speech processing as robust Automatic Speech Recognition, speech enhancement and dereverberation or Speaker Identification. My future research interests include multimodal audio-visual applications and audio and sound research.

I am bilingual (Spanish and Catalan) and I also speak correctly English. I enjoy travelling, reading, sport competitive activities, music, joking and spending time with my friends. I don't like neckties, getting up early and intolerance.

## **2. PROFESSIONAL EXPERIENCE**

- 1999 – 2001, Undergraduate teaching activities.
- 2001 – 2002, Collaboration grant in the Department of Signal Theory and Communications for the participation in the aTTempS project.
- 2002 – 2006, Obtaining the FI (Training Researchers) Catalan Government grant for carrying out the PhD studies.

## **3. TEACHING**

### **ACCREDITATIONS**

- I obtained the accreditation of "Collaborating Lecturer" from the Agency for the Quality of the Educational System of Catalonia on December the 7th of 2005.

### **ACTIVITIES**

- Lecturer of the course "Laboratory of Communications II" of the Telecommunication Engineering School of Barcelona during the academic years 2004-2005 and 2005-2006. The main objectives of this course is programming signal processing applications over a DSP.
- Collaborating lecturer in the doctorate course of the Department of Signal Theory and Communications "Speech and Language Technology and Applications" (2004-2005).
- Graduation Project advisor:  
Sergio Prats, "Techniques for localization of sound sources with microphone arrays", Telecommunication Engineering School of Barcelona, February 2005.

#### **4. EDUCATION BACKGROUND**

- Telecommunication Engineer of the Technical Superior Telecommunication Engineering School of Barcelona, Technical University of Catalonia.  
MSc Thesis: "*Implementación de un sistema automático de información meteorológica por teléfono*", September 2002, Barcelona (Spain).
- Advanced Studies Diploma of the Department of Signal Theory and Communications  
PhD Thesis Proposal: "*Microphone array processing for speech enhancement and audio source localization*", March 2005, Barcelona (Spain).

#### **5. PROJECTS PARTICIPATION**

- FAME (Facilitating Agents in Multicultural Exchange, <http://islold.ira.uka.de/fame/>)  
Funding: European Union ID-project: IST-2000-2823.  
Dates: from 01/10/2001 to 01/02/2005 Main researcher: Climent Nadeu  
Task: Participation in the development of robust ASR systems. Participation in the demos of the Forum of Cultures 2004 at Barcelona.
- CHIL (Computers In the Human Interaction Loop, <http://chil.server.de/>)  
Funding: European Union ID-project: IST-506909  
Dates: from 01/01/2004 to 01/01/2007 Main researcher: Alexander Waibel  
Task: Responsible of the Speaker Tracking task at UPC.
- ALIADO (Speech Technologies for a Personal Assistant, <http://gps-tsc.upc.es/veu/aliado/>)  
Funding: Spanish Government ID-project: TIC-2002-04447-C02  
Dates: from 01/01/2002 to 31/12/2005 Main researcher: José B. Mariño  
Task: Research on robustness speech issues.
- ATTEMPS (Meteorological information by telephone, <http://gps-tsc.upc.es/veu/attempts/>)  
Funding: Catalan Government  
Dates: from 01/06/2001 to 01/06/2002 Main researcher: Javier Hernando  
Task: Design and development of the automatic telephone operated system aTTempS.
- ATTEMPS-3 (Incorporating oral interfaces to aTTempS)  
Funding: Catalan Government  
Dates: from 01/05/2004 to 01/09/2004 Main researcher: Javier Hernando  
Task: Responsible of the design and development of new features.

#### **6. PUBLICATIONS**

##### **JOURNAL PAPERS**

"*Architecture and Dialogue Design for a Voice Operated Information System*",  
L. Villarejo, J. Hernando, N. Castell, J. Padrell and A. Abad,  
The International Journal of Applied Intelligence, Academic Publishers.

"*Improved Jacobian Adaptation for Robust Speaker Verification*",  
Jan Anguita, Javier Hernando and Alberto Abad,  
IEICE Transactions on Information and Systems, Oxford University Press.

##### **INTERNATIONAL CONFERENCE PAPERS**

"*Jacobian adaptation based on the frequency-filtered spectral energies*",  
Alberto Abad, Climent Nadeu, Javier Hernando and Jaume Padrell,  
8th European Conference on Speech Communication and Technology, September 2003, Geneva  
(Switzerland).

"*Integrated adaptive beamforming and Wiener filtering for a robust microphone array*",  
Alberto Abad and Javier Hernando,  
IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM), July 2004, Sitges (Spain).

*"Jacobian adaptation with improved noise reference for speaker verification"*,  
Jan Anguita, Javier Hernando, Alberto Abad, Climent Nadeu and Jaume Pradell,  
8th International Conference on Spoken Language Processing (ICSLP), October 2004, Jeju (Corea).

*"Speech enhancement and recognition by integrating adaptive beamforming and Wiener filtering"*,  
Alberto Abad and Javier Hernando,  
8th International Conference on Spoken Language Processing (ICSLP), October 2004, Jeju (Corea).

*"First Experiments of Automatic Speech Activity Detection, Source Localization and Speech Recognition in the CHIL Project"*,  
D. Macho, J. Padrell, A. Abad, C. Nadeu, J. Hernando, J. McDonough, U. Klee, M. Wolfel, M. Omologo,  
A. Brutti, P. Svaizer, G. Potamianos, S.M. Chu,  
Workshop for Hands-Free Speech Communication and Microphone Arrays, March 2005, Piscataway (USA).

*"Automatic Speech Activity Detection, Source Localization, and Speech Recognition on the CHIL Seminar Corpus"*,  
D. Macho, J. Padrell, A. Abad, C. Nadeu, J. Hernando, J. McDonough, M. Wolfel, U. Klee, M. Omologo,  
A. Brutti, P. Svaizer, G. Potamianos, S.M. Chu,  
IEEE International Conference on Multimedia & Expo (ICME), July 2005, Amsterdam (Holland).

*"Effect of Head Orientation on the Speaker Localization Performance in Smart-room Environment"*,  
Alberto Abad, Dusan Macho, Carlos Segura, Javier Hernando and Climent Nadeu,  
9th European Conference on Speech Communication and Technology, September 2005, Lisboa (Portugal).

*"Audio Person Tracking in a Smart-Room Environment"*,  
Alberto Abad, Carlos Segura, Dusan Macho, Javier Hernando and Climent Nadeu,  
9th International Conference on Spoken Language Processing (ICSLP), September 2006, Pittsburgh (USA).

*"UPC Audio, Video and Multimodal Person Tracking Systems in the CLEAR Evaluation Campaign"*,  
A. Abad, C. Canton-Ferrer, C. Segura, J. L. Landabaso, D. Macho, J.R. Casas, J. Hernando, M. Pardas,  
C. Nadeu,  
Lecture Notes in Computer Science, Springer-Verlag, 4122, 93–104, 2007.

*"Multimodal head orientation towards attention tracking in smart rooms"*,  
C. Segura, C. Cantón, A. Abad, J. R. Casas and J. Hernando ,  
International Conference on Acoustics, Speech, and Signal Processing (ICASSP), April 2007,  
Honolulu (USA).

#### **NATIONAL CONFERENCE PAPERS**

*"Verificación robusta del locutor mediante adaptación Jacobiana"*,  
Jan Anguita, Javier Hernando, Alberto Abad, Climent Nadeu and J. Pradell,  
III Jornadas en Tecnología del Habla, November 2004, Valencia (Spain).

*"aTTemp: Un sistema de diàleg oral per donar informació meteorològica"*,  
J. Padrell, A. Abad, J. Hernando,  
II Congrés d'Enginyeria en Llengua Catalana, November 2004, Andorra.

*"Segmentació de locutor per a l'indexat automàtic de bases de dades multimèdia en català"*,  
X. Anguera, M. Farrús, J. Hernando, A. Abad,  
II Congrés d'Enginyeria en Llengua Catalana, November 2004, Andorra.

#### **SCIENTIFIC REPORTS**

*"UPC Early Evaluation Report for Audio Related Technologies"*,  
A. Abad, J. Anguita, J. Hernando, D. Macho, C. Nadeu, J. Padrell and A. Temko,  
CHIL project, 2004.

*"Description of Speaker Localization Data from UPC CHIL Room – I"*,

D. Macho, A. Abad, C. Segura, J. Hernando and J.R Casas,  
CHIL Project, 2004.

*"Multi-sensor input management to generate 3D images/sound maps"*,  
R. Brunelli et al,  
CHIL Project, 2004.

*"Baseline System for Far-field Speech Recognition using Microphone Networks"*,  
A. Abad, S. CHu, J. Hernando, L. Lamel, D. Macho, M. Omologo, G. Potamianos, F. Talantzi, M. Wölfel,  
CHIL Project, 2005.

#### **OTHER MERITS**

- Participation in International and National Conferences, for instance EUROSPEECH 2003 (Geneva), SAM 2004 (Sitges, Spain), ICSLP 2004 (Jeju, Korea), HSC-MA 2005 (Piscataway, USA), ICASSP 2005 (Philadelphia, USA), EUROSPEECH 2005 (Lisboa, Portugal), ICSLP 2006 (Pittsburgh, USA)...
- Good programming skills in C, C++, Matlab, ShellScript...
- Representative activities in various government bodies of the Technical University of Catalonia.
- Intense student association activity. Particularly, leader of the organization of the most important student Spanish party and member of a sound dedicated association, where I had experience as amateur sound technician.