

## Personal information

Surname(s) / First name(s) **Luque Serrano, Jordi**  
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Nationality(-ies) Spanish  
Date of birth 19 of September of 1979  
Gender Male

## Short biography

Dr. Jordi Luque is an Associate Research Scientist at the Multimedia and User Modelling Group at Telefonica R&D, Barcelona, Spain. Currently he is conducting research on sentiment polarity, emotion and personality traits detection on phone call conversations by combining several cues of information. Jordi received his Engineering of Telecommunication degree from Universitat Politècnica de Catalunya in 2005, and his Ph.D. in the same University in 2012. He has collaborated in several national and international projects and technology evaluations related to speech applications. He also was a collaborating lecturer in the doctorate course, of the Department of Signal Theory and Communications (TSC), "Speech and Language Technology and Applications" and acted as supervisor of students. His research interests are related to the field of signal processing, speech processing, statistical learning and the physics of the complex networks.

## Education and training

Dates	September 2005 - December 2012
Title of qualification awarded	Ph.D. in Signal Theory and Communications - "Speaker diarization and tracking in multiple-sensor environments" <a href="http://upcommons.upc.edu/handle/10803/119777">http://upcommons.upc.edu/handle/10803/119777</a>
Name and type of organization providing education and training	Technical University of Catalonia, UPC
Dates	November 2009 - End of February 2010
Title of qualification awarded	Invited Research Assistant
Name and type of organization providing education and training	L <sup>2</sup> F - Spoken Language Systems Laboratory, INESC-ID Lisboa, Portugal
Dates	July-August 2007
Title of qualification awarded	eNTERFACE'07 Summer Workshop. The Similar NoE Summer on Multimodal Interfaces
Name and type of organization providing education and training	SIMILAR European Network of Excellence
Dates	2005
Title of qualification awarded	MS in Telecommunication Engineering - "Sistemas Complejos"
Name and type of organization providing education and training	Technical University of Catalonia, UPC

Dates	1998-2005
Title of qualification awarded	BS & MS in Telecommunication Engineering
Name and type of organization providing education and training	Technical University of Catalonia, UPC

## Positions

Dates	January 2013 - Today
Occupation	Post-doctoral Researcher in Telefonica R&D, Associate Research Scientist
Main Techniques	Signal processing and time series analysis techniques applied to speech. Modeling of sentiment polarity, emotions and personality traits in phone conversations through acoustic and textual cues.
Contacts	Dr. Nuria Oliver Ramirez, phone: 93-123-30-41 email: nuriao@tid.es Dr. Xavier Anguera , phone: 93-123-32-03 email: xanguera@tid.es
Occupation	Acted as reviewer for the following conferences: International Conference on Spoken Language Processing (ICSLP 2013, 2012 and 2010), and for the Cognitive Computation journal (ISSN: 1866-9956)
Dates	January 2012 - December 2013
Occupation	Research Assistant at Departamento Matemática Aplicada y Estadística associated to project MODELICO-CM (S2009ESP-1691), Escuela Técnica Superior de Ingenieros Aeronáuticos. Universidad Politécnica de Madrid.
Main Techniques	Signal analysis by means complex networks with application to speech processing.
Contacts	Dr. Bartolomé Luque, phone: +34-91-336-63-26 email: bartolome.luque@upm.es Dr. Lucas Lacasa, phone: +34-91-336-63-26 email: lucas.lacasa@upm.es
Dates	September 2011 - December 2011
Occupation	Research Assistant at Departamento de Tecnología Electrónica de la Universidad Rey Juan Carlos associated to project MODELICO-CM (S2009ESP-1691). Ingeniería de Telecomunicación.
Main Techniques	Signal analysis by means complex networks with application to speech processing.
Contacts	Dr. Bartolomé Luque, phone: +34-91-336-63-26 email: bartolome.luque@upm.es Dr. Lucas Lacasa, phone: +34-91-336-63-26 email: lucas.lacasa@upm.es
Dates	November 2010 - September 2011
Occupation	Transmural Biotech S.L. Spin-off Universitat de Barcelona (UB). Research Assistant in statistical learning in the framework of cvREMOD project: “Convergencia de Tecnologías Médicas para la Gestión Integral del Remodelado Cardiovascular”.
Main Techniques	Processing of MRI and ultrasound images for the evaluation of potential biomarkers applied to diseases diagnosis of fetus and neonates . R statistics, resampling techniques (bootstrap), Gradient Boost, Random Forest, Bagging Trees, Confidence measures
Contacts	Dr. Ivan Amat Roldán, phone: +34-647-977-452 email: ivan.amat@transmuralbiotech.com Dr. Eduard Gratacós, phone: +34-93-227-99-31 email: GRATACOS@clinic.ub.es
Dates	2006 - 2010

Occupation	PhD Student Grant from the Spanish Ministry of Science (FPI Grant), Departament de Teoria del Senyal i Comunicacions. Working on speech processing for human perception in a smart room environments. Associated with the Spanish project ACESCA (TIN2005-08852)
Main Techniques	Speaker recognition, speaker diarization, MAP model adaptation, multichannel processing, multi-stream HMM modeling
Contacts	Prof. Fco. Javier Hernando Pericás, phone: +34-93-401-64-33 email: javier.hernando@upc.edu Prof. Climent Nadeu Campubí, phone: +34-93-401-64-38 email: climent.nadeu@upc.edu Prof. Enric Monte Moreno, phone: +34-93-401-64-35 email: enric.monte@upc.edu
Dates	November 2009 - March 2010
Occupation	Invited Research Assistant at the L <sup>2</sup> F - Spoken Language Systems Laboratory, INESC-ID Lisboa, Portugal. Grant from the Universidade Técnica de Lisboa, Instituto Superior Técnico (IST) associated to I-DASH European project (SIP-2007-TP-131703).
Main Techniques	Robust modeling techniques as Joint Factor Analysis (JFA), Supervector modeling, GMM "push-back", neural network adaptation
Contacts	Prof. Isabel Trancoso, phone: +351-213-100-268 email: isabel.trancoso@l2f.inesc-id.pt Dr. Alberto Abad Gareta, phone: +351-213-100-313 email: alberto.abad@l2f.inesc-id.pt
Dates	2007 - 2010
Occupation	Participation in the Catalan project TECNOPARLA. Working on speaker diarization for the automatic transcription of Catalanian Broadcast News
Main Techniques	Development of applications for speaker diarization and tracking
Dates	July - November 2009
Occupation	Collaboration with Sabirmedical, a biomedical research and development company. Development of a C++ application for a non invasive blood pressure monitoring and glucose estimation system based on pulseoximetry
Main Techniques	Decision Trees modeling
Dates	2007 - 2009
Occupation	Participation in the Spanish project SAPIRE (TEC2007-65470). Working on multimodal speaker identification and localization in smart environments. Speech processing for human perception
Main Techniques	Speaker diarization and tracking, speaker clustering and temporal segmentation, multichannel processing, SVM modeling, particle filtering
Dates	2005 - Today
Occupation	Collaboration with the Depto. Matemática Aplicada y Estadística, ETSI Aeronáuticos, Universidad Politécnica de Madrid. Support for numerical results and algorithm development
Main Techniques	Complex networks, graph theory, fractal theory and theory of random numbers
Dates	2005 - 2006
Occupation	PhD Student Grant (CTT) at the UPC, Departament de Teoria del Senyal i Comunicacions. Working on multimodal technologies for human perception. Associated with the European project CHIL (IST-2004-506909)
Main Techniques	Speaker identification, GMM modeling, multimodality fusion techniques
Dates	2004 - 2005

Occupation	Student Grant (CTT) at the UPC, Departament de Teoria del Senyal i Comunicacions. Working on a demonstration of the integration of an Automatic Speech Recognizer and a Question&Answering system. Associated with the Spanish project ALIADO (TIC2002-04447-C02)
Main Techniques	Automatic speech recognition, triphone models and language and grammar modeling
Dates	2003 - 2004
Occupation	Student Grant (CTT) at the UPC, Departament de Matemática Aplicada IV. Aiding in the the elaboration of the documentation and the exercises books for a course of the Telecommunication Engineering School ETSETB, UPC
Main Techniques	Latex
Dates	July-September, 2004
Occupation	Technical development of a communication rural project in the Andes. In association with the Pontificia Universidad Catolica del Perú. Lima, the Enlace Hispano Americano de Salud (EHAS) Fundation and the Centro de Colaboración al Desarrollo (CCD-UPC)
Main Techniques	Radio Communications systems for rural communications.

**Personal skills and competences**

Mother tongue(s)

Other language(s)

*Self-assessment  
European level<sup>(\*)</sup>*

**English**

**Portuguese**

**Catalan**

Computer skills and competences

**Spanish**

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user
C2	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user
C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user

<sup>(\*)</sup> Common European Framework of Reference (CEF) level

Programming Languages: C/C++, JAVA, UNIX shell-script, MATLAB, R, FORTRAN, PERL, HTML, JAVAscript, LISP, Qt  
 Operating Systems: Administration Level in Unix/Linux, MS Windows

## Participation in Technology Evaluations

Dates	2013
Evaluation Name	INTERSPEECH 2013 Computational Paralinguistics Challenge, Emotion Task
Name of organization	Björn Schuller (Université de Genève, Switzerland / TUM, Germany / Imperial College London, England), et al.
Dates	November 2010, Assistant organizer of the evaluation
Evaluation Name	Albayzin 2010 Diarization Evaluation, during the FALA 2010 workshop (Joint VI Jornadas en Tecnologías del Habla/II SIG-IL Workshop on Speech and Language Technologies for Iberian Languages
Name of organization	Spanish Speech Technologies Thematic Network (Red Temática en Tecnologías del Habla)
Dates	2010
Evaluation Name	NIST Speaker Recognition Evaluation 2010, SRE'10
Name of organization	US National Institute of Standards and Technology
Dates	2009
Evaluation Name	NIST Rich Transcription Evaluation Spring 2009. Speaker diarization in conference environment
Name of organization	US National Institute of Standards and Technology
Dates	2007
Evaluation Name	NIST Rich Transcription Evaluation Spring 2007. Speaker diarization in conference environment
Name of organization	US National Institute of Standards and Technology
Dates	2007
Evaluation Name	Classification of Events Activities and Relationships Evaluation and Workshops, CLEAR Evaluation 2007. Acoustic speaker identification. <b>Best ranked system</b>
Name of organization	Computer in the Human Interaction Loop, CHIL consortium
Dates	2006
Evaluation Name	The Spanish Tracking Challenge, Broadcast News
Name of organization	Spanish Network on Speech Technology, IV Jornadas en Tecnología del Habla. <b>Best ranked system</b>
Dates	2006
Evaluation Name	Classification of Events Activities and Relationships Evaluation, CLEAR Evaluation 2006
Name and type of organization providing education and training	Computer in the Human Interaction Loop, CHIL consortium. Multimodal, video and acoustic person identification

## Publications

### Journal and Book Papers

M. Zelenák, C. Segura, J. Luque, J. Hernando, "Simultaneous Speech Detection With Spatial Features for Speaker Diarization," IEEE Transactions on Audio, Speech, and Language Processing, vol.20, no.2, pp.436-446, Feb. 2012

B. Luque, L. Lacasa, F. Ballesteros and J. Luque "Horizontal visibility graphs: Exact results for random time series", Physical Review E, PRE, vol. 80, Issue 4, id. 046103, 2009

L. Lacasa, B. Luque, J. Luque, J. C. Nuño. "The visibility graph: A new method for estimating the Hurst exponent of fractional Brownian motion", Journal on Europhysics Letters, EPL, vol. 86, pp. 30001, 2009

A. A. Salah, R. Morros, J. Luque, C. Segura, J. Hernando, O. Ambekar, B. Schouten and E. Pauwels, "Multimodal identification and localization of users in a smart environment", Journal on Multimodal User Interfaces, Springer Berlin / Heidelberg, ISSN 1783-7677 (Print) 1783-8738 (Online), 2008

L. Lacasa, B. Luque, F. Ballesteros, J. Luque, J.C. Nuño, "From time series to complex networks: The visibility graph", Proceedings of the National Academy of Science of the USA, PNAS, vol. 105, no. 13, pp. 4972-4975, 2008

J. Luque, J. Hernando, "Robust Speaker Identification for Meetings: UPC CLEAR'07 Meeting Room Evaluation System", LNCS Springer-Verlag, vol. 4625, pp. 266-275, CLEAR 2007 and RT 2007, 2008

J. Luque, X. Anguera, A. Temko, J. Hernando, "Speaker Diarization for Conference Room: The UPC RT07s Evaluation System", LNCS Springer-Verlag, vol. 4625, pp. 543-553, CLEAR 2007 and RT 2007, 2008

J. Luque, R. Morros, A. Garde, J. Anguita, M. Farrús, D. Macho, F. Marqués, C. Martínez, V. Vilaplana, J. Hernando, "Audio, video and multimodal person identification in a smart room", LNCS, Springer-Verlag, vol. 4122, pp. 258-269, CLEAR '06 Classification of Events, Activities and Relationships, 2007

### International Conferences

J.C. Pereira, J. Luque, X. Anguera, "Sentiment retrieval on web reviews using spontaneous natural speech", in Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing, (ICASSP'14), May 2014

S.H. Yella, X. Anguera, J. Luque, "Inferring social relationships in a phone call from a single party's speech", IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP'14), May 2014

X. Anguera, M. Skácel, V. Vorwerk, J. Luque, "The Telefonica Research Spoken Web Search System for MediaEval 2013", CEUR Workshop Proceedings, 2013

- J. Luque and J. Hernando, "On the use of Agglomerative and Spectral Clustering in Speaker Diarization of Meetings" in Proceedings Odyssey'12, The Speaker and Language Recognition Workshop 2012, September 2012
- E. Bonet-Carne, T. Cobo, J. Luque, M. Martínez-Terrón, A. Perez-Moreno, M. Palacio, E. Gratacós, I. Amat-Roldan, "Consistent Association Between Image Features of Fetal Lungs from Different Ultrasound Equipments and Fetal Lung Maturity from Amniocentesis", IEEE International Symposium on Biomedical Imaging (ISBI'12)
- A. Abad, J. Luque, I. Trancoso, "Parallel Transformation Network features for Speaker Recognition", in Proceedings of International Conference on Acoustics, Speech and Signal Processing (ICASSP'11), May 2011
- M. Sanz-Cortés, F. Figueras, N. Padilla, N. Bargalló, E. Bonet, J. Luque, I. Amat, E. Gratacós, "Evaluation of a computer-based analysis of brain textures on fetal MRI to detect changes in small for gestational age (SGA) fetuses and to predict neurodevelopmental outcome", ISUOG'11 World Congress, International Society of Ultrasound in Obstetrics and Gynecology
- A. Abad and J. Luque, "Connectionist Transformation Network Features for Speaker Recognition", Proceedings Odyssey'10, The Speaker and Language Recognition Workshop 2010, pp. 5300-5303
- J. Luque, C. Segura, J. Hernando, "Clustering initialization based on spatial information for speaker diarization of meetings", Proceedings International Conference on Spoken Language Processing (ICSLP'08), pp. 383-386, 2008
- R. Morros, A.A. Salah, B. Schouten, C. Segura, J. Luque, O. Ambekar, C. Kayalar, L. Akaru, "Event Recognition for meaningful human-computer interaction in a smart environment", Proceedings of the eNTERFACE'07 Workshop on Multimodal Interfaces, pp. 71-86, 2008
- J. Hernando, M. Farrús, P. Ejarque, A. Garde, J. Luque, "Person verification by fusion of prosodic, voice spectral and facial parameters", International Conference on Security and Cryptography (SECRYPT'06), pp. 17-23, 2006
- M. Farrús, A. Garde, P. Ejarque, J. Luque, J. Hernando, "On the fusion of prosody, voice spectrum and face features for multimodal person verification", 9th International Conference on Spoken Language Processing (ICSLP'06), pp. 2106-2109, 2006
- B. Luque, J. Luque, F. J. Ballesteros, J. C. Nuño, "From Temporal Series to Complex Networks", IX Latin American WorkShop on nonlinear phenomena (LAWNP), Proceedings LAWNP, San Carlos de Bariloche, Argentina, 2005
- J. Luque, L. Lacasa, B. Luque, "Power Laws and Scaling in the Waiting Time Distribution of Speech ", XVIII Congreso de Física Estadística, FisEs'12, Palma, Mallorca. October 2012
- J. Luque, D. Ferrés, J. Hernando, J.B. Mariño, H. Rodríguez, "GeoVAQA: A Voice Activated geographical Question Answering system" IV Jornadas en Tecnología del Habla, pp. 309-314, 2006
- J. Luque, R. Morros, J. Anguita, M. Farrús, D. Macho, F. Marqués, C. Martínez, V. Vilaplana, J. Hernando, "Multimodal person identification in a smart room, IV Jornadas en Tecnología del Habla", pp. 327-331, 2006

#### National Conferences