

# Emilio Molina Martínez

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**Date of birth:** 2/5/1985  
**Nationality:** Spanish  
**Website:** <http://emilio-molina.github.io/>

## Experience

### R&D Engineer

January 2015 →

BMAT Licensing S.L.

- Development of production-ready technologies in C++ and Python
- Development of web-based research tools for QA (Django)
- Research on robust audio fingerprinting in challenging environments
- Research on music detection in broadcast audio
- Supervision of industrial PhD on music detection using deep learning
- R&D team management tasks: OKRs planning, scrum, recruiting...

### Assistant Professor

October 2020 - December 2020

Universitat Pompeu Fabra

- Part-time assistant professor for subject "Audio and Video Encoding Systems"
- Responsible for laboratory classes and material

### Research Academic Staff

January 2012 - January 2015

ATIC Research Group, University of Málaga

- Research on singing / speech analysis with music applications
- Published several papers that eventually led to my PhD Thesis
- Development of demos in Matlab and C++

**Education**    **PhD in Telecommunication Engineering**    Thesis Defense: July 2017  
ATIC Research Group, University of Málaga

- Title: “Singing Information Processing: Techniques and Applications”
- Supervisors: Ana María Barbancho and Lorenzo J. Tardón

**Sound and Music Computing Master**    Sept. 2010 - June 2012  
Music Technology Group, Universitat Pompeu Fabra  
MSc Thesis: “Automatic scoring of singing voice based on melodic similarity measures”  
(Supervisors: Emilia Gómez & Isabel Barbancho)

**Telecommunication Engineering**    Sept. 2007 - March 2012  
University of Málaga

- Dissertation  
“Software tool for the correction of dissonances in polyphonic music”, awarded the Finalist Ericsson National Prize on Applications for Multimedia Environments in May 2013
- Erasmus studentship at Polytech Lille (France) (Sept. 2009 - June 2011).

**Technical Telecommunication Engineering**    Sept. 2003 - October 2007  
Universidad de Málaga

- Dissertation  
“Multitrack environment for audio recording in C#”, awarded the Best Project in Technical Telecommunication Engineering at University of Málaga in April 2008
- Award for the Best Academic Record in Technical Telecommunication Engineering at University of Málaga in 2007

## Music education

**Professional Degree of Classic Piano**    Sept. 2004 - June 2011  
Conservatori Profesional del Liceu (Barcelona) (2010-2011)  
Conservatorio Profesional de Música Manuel Carra (Málaga) (2004-2010)  
Elementary Degree: Conservatorio de Olula del Río (Almería) (1993-1998)

## Online courses

**Deep Learning Nanodegree Foundation**    January 2018  
Udacity (www.udacity.com)  
Projects: [https://github.com/EliosMolina/deep\\_learning\\_nanodegree](https://github.com/EliosMolina/deep_learning_nanodegree)

**Languages**    **English:** Certificate in Advanced English (CAE) (July 2013)  
(University of Cambridge)  
**French:** DELF B2 French Certificate (May 2010)  
(Université de Lille)  
**Spanish:** Mother tongue

**Interests /**    Hobbies: playing music (piano, guitar), reading, watching series/films, hanging out  
with friends, learning new skills, sport from time to time.  
**Other**           Organizer of Music Production Workshop at Universidad de Málaga (2014) (Blog:  
<http://produccionmusicaluma.blogspot.com.es/>)  
Organizer of I Forum of Telecommunication Enterprises at Universidad de Málaga  
(2014) (Website: <http://feti.ajilet.com/>)

## Publications

E. Molina, I. Barbancho, E. Gómez, A. M. Barbancho and L. J. Tardón, “Fundamental Frequency Alignment Vs. Note-Based Melodic Similarity For Singing Voice Assessment”, *Proceedings of ICASSP* 2013.

A. M. Barbancho, I. Barbancho, L. J. Tardón and E. Molina, “A Database of Piano Chords: An Engineering View of Harmony”, Springer, 2013.

C. Roig, I. Barbancho, E. Molina, L. J. Tardón and A. M. Barbancho, “Rumbator: A Flamenco Rumba Cover Version Generator Based On Audio Processing at Note-Level”, *Proceedings of DAFx* 2013.

E. Molina, A. M. Barbancho, L. J. Tardón and I. Barbancho, “Dissonance Reduction In Polyphonic Audio Using Harmonic Reorganization”, *IEEE Transactions on Acoustics, Speech and Audio Processing*, vol. 22, no. 2, pp. 325-334, Feb. 2014.

E. Molina, I. Barbancho, A. M. Barbancho and L. J. Tardón, “Parametric Model of Spectral Envelope to Synthesize Realistic Intensity Variations in Singing Voice”, *Proceedings of ICASSP* 2014.

E. Molina, L. J. Tardón, I. Barbancho and A. M. Barbancho, “The Importance of F0 Tracking in Query-By-Singing-Humming”, *Proceedings of ISMIR* 2014.

E. Molina, A. M. Barbancho, L. J. Tardón and I. Barbancho, “Evaluation framework for automatic singing transcription”, *Proceedings of ISMIR* 2014.

E. Molina, L. J. Tardón, A. M. Barbancho and I. Barbancho, “SiPTH : Singing Transcription Based on Hysteresis Defined on the Pitch-Time Curve”, *IEEE Transactions on Acoustics, Speech and Audio Processing*, vol. 23, no. 2, pp. 252-263, Feb. 2015.

J. L. Santacruz, L. J. Tardón, I. Barbancho and E. Molina, “VOICE2TUBA: Transforming singing voice into a musical instrument”, *Multimedia Tools And Applications*, pp. 1-21, 2016.

B. Meléndez, E. Molina, E. Gómez, “BAT: An open-source, web-based audio events annotation tool” in *Proceedings of the 3rd Web Audio Conference*, 2017.

B. Meléndez, E. Molina, E. Gómez, “Music detection in broadcast audio recordings: a non-binary approach with relative loudness annotations” in *Proceedings of ISMIR* 2018.

E. Molina, P. Cano, A. Ciurana, J. Lyda. “Estimating audibility of audio samples”. European patent application 16192913.8 - 1910. Nov. 2016. (Accepted)

E. Molina, A. Ciurana, P. Cano. “Identifying background audio in broadcast signals using multiple sources”. European patent application 17382440.0 - 1901. July 2017.

## Publications

B. Meléndez, E. Molina, E. Gómez, “Relative music loudness estimation using temporal convolutional networks and a CNN feature extraction front-end” in *Proceedings of DAFX*, 2020.

F. Yesiler, E. Molina, J. Serrà, and E. Gómez., “Investigating the efficacy of music version retrieval systems for setlist identification” in *Proceedings of ICASSP*, 2021.