

## Dr Jordi Bonada Sanjaume

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## ACADEMIC BACKGROUND

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- 2009 **PhD in Computer Science and Digital Communication**, Universitat Pompeu Fabra. **European Doctorate**. Title: "*Voice Processing and Synthesis by Performance Sampling and Spectral Models*". Supervisor: Dr. Xavier Serra.
- 2002 **Master in Computer Science and Digital Communication**, Universitat Pompeu Fabra. Title: "*Audio Time-Scale Modification in the Context of Professional Post-Production*". Supervisor: Dr. Xavier Serra.
- 1997 **Telecommunication Engineering**, Universitat Politècnica de Catalunya. Final Engineering Project: "*Desenvolupament d'un entorn gràfic per a l'anàlisi, transformació i síntesi de sons mitjançant models espectrals*", Supervisors: Dr. Climent Nadeu, Dr., Xavier Serra.
- 1981-1997 **Music studies** in the Conservatorio Isaac Albéniz, Girona. Composition studies in Alois Haba School, Barcelona.

## PROFESSIONAL EXPERIENCE

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- 2015 Visiting researcher, Centre for Digital Music (C4DM), Queen Mary University of London, London, UK, from June to September, under the supervision of Dr. Dan Stowell.
- Since 1998 Researcher and project manager in the Music Technology Group, Universitat Pompeu Fabra, Barcelona.
- Since 2011 Cofounder of Voctro Labs, S.L., Spin-Off of the Universitat Pompeu Fabra, Barcelona.
- 2010 Visiting researcher, Centre for Interdisciplinary Research on Music Media and Technology (CIRMMT), McGill University, Montreal, Canada, from May to August, under the supervision of Dr. Catherine Guastavino.
- 2003 Visiting researcher, Royal Institute of Technology (KTH), Stockholm, from June to August, funded by MOSART EU project IST-215244, under the supervision of Dr. Johan Sundberg.
- 2001 Software License Agreement of a polyphonic audio time-scaling software to the Universitat Pompeu Fabra, with the obligation to sublicense it to Yamaha Corporation.

## TEACHING EXPERIENCE

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- 2010-2011 Universitat Pompeu Fabra, Department of Information and Communication Technologies, Associated Professor, *Digital Speech Processing* course, Audiovisual Systems Engineering.
- 2011 Teacher of the program *Introduction to research: Estades d'Estiu de Ciència*, Science for young people (Joves i Ciència) E2C3, Caixa Catalunya.
- 2009 Positive evaluation as a PhD Professor (*Professor Lector*), Agency for the Quality of the University System in Catalonia (AQU).
- 2009 Teacher of the program *Introduction to research: Estades d'Estiu de Ciència*, Science for young people (Joves i Ciència) E2C3, Caixa Catalunya.
- 1999-2001 Universitat Pompeu Fabra, Department of Information and Communication Technologies, Associated Professor, *Audio Signal Processing* course, Computer Science Engineering.
- 1996-1998 Secondary education teacher at the *Escola de Formació Professional d'Imatge i So*, Barcelona.

## PhD Thesis Supervised

- Umbert, M., 2016. "*Expressive Control of Singing Voice Synthesis*". PhD program in Information, Communication and Audiovisuals Technologies, DTIC, Universitat Pompeu Fabra, Barcelona.
- Coleman, G., 2016. "*Audio Transformation by Descriptors*". PhD program in Information, Communication and Audiovisuals Technologies, DTIC, Universitat Pompeu Fabra, Barcelona.
- Musevic, S., 2013. "*Non-Stationary and High-Resolution Sinusoidal Analysis*". PhD program in Information, Communication and Audiovisuals Technologies, DTIC, Universitat Pompeu Fabra, Barcelona.

#### Final Project and Master Thesis Supervised

- Porcaro, L., 2015, "*Lemur Synthesis with Context Dependent HMMs*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Mimilakis, S.I., 2014, "*Voice Quality Modelling with the Wide-Band Harmonic Sinusoidal Modelling Algorithm*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Estiu-Graugés, A., 2014, "*Animal Vocalization Analysis and Synthesis*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Floría, H., 2013, "*Expressive speech synthesis for a Radio DJ using Vocaloid and HMMs*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Jewalikar, V., 2013, "*Improving automatic phonetic segmentation for creating singing voice synthesizer corpora*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Aldana, L., 2012, "*Speaking Nature: Strategies for Generating Credible Utterances of Nature Elements or Phenomena*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Freixes, M., 2012, "*Rapaloid: Adapting an Existing Framework for Emotional Speech Prosody Generation*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Bucci, A., 2011, "*Digital Equalization of the Electric Violin: Method for Obtaining Acoustic Violin Body Frequency Response based on Machine Bowing*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Roig, C., 2011, "*Vocal Riffs Library for Vocaloid 3*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Umbert, M., 2010, "*Emotional Speech Synthesis for a Radio DJ: Corpus Design and Expression Modeling*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Comajuncosas, J.M, 2010, "*Expressive Breath Modeling*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Musevic, S., 2009, "*Non-Stationary Sinusoidal Analysis*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Pantazis, V., 2009, "*Extraction and Processing of Auditory Streams as Tracks from a Stereo Mix*", Master Thesis TICMA, Universitat Pompeu Fabra, Barcelona.
- Stamatopoulos, C., 2009, "*Harmonic Audio Object Processing in Time Domain*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Huber, S., 2009, "*Harmonic Audio Object Processing in Frequency Domain*", Master Thesis SMC-DTIC, Universitat Pompeu Fabra, Barcelona.
- Caverivière, B., "*Audio Content Retrieval Using a Query-by-Imitation System*", Master S&T - mention Informatique, École Doctorale de Mathématiques et Informatique, Bordeaux, France.
- Nieto, O., 2008, "*Voice Transformation for Extreme Vocal Effects*", Master Thesis TICMA, Universitat Pompeu Fabra, Barcelona.
- Merchán, F., 2008, "*Expressive Characterization of Flamenco Singing*", Master Thesis TICMA, Universitat Pompeu Fabra, Barcelona.
- Pretel, C., 2006, "*Diagnóstico GRBAS a partir de una señal de voz*", Final Engineering Project, Universitat Pompeu Fabra, Barcelona.
- Vinyes, M., 2005, "*Auditory Stream Separation in Commercial Music Productions: Implementation of a Real-Time Method based on Pan Location*", Final Engineering Project, Telecommunication Engineering and Mathematics, Universitat Politècnica de Catalunya, Barcelona.
- Alonso, M., 2004, "*Model d'Expressivitat Emocional per a un Sintetitzador de Veu Cantada*", Final Engineering Project, Computer Science, Universitat Pompeu Fabra, Barcelona.

#### Member of the following PhD Juries

- Van der Schaar, M., 2010, "*An Acoustic Bio-Metric for Sperm Whales*", PhD Thesis, Automàtica, Robòtica i Visió Program, Universitat Politècnica de Catalunya.

#### GRANTS, AWARDS AND PRIZES

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- Sept. 2016 Winner of the Singing Synthesis Challenge 2016
- June 2013 National Commendation for Invention award given by the *Japan Institute of Invention and Innovation (JIII)* for the invention of original and natural singing voice synthesis technology disclosed in the patent No.4153220.
- Sept. 2012 *Premi del Consell social de la Universitat Pompeu Fabra a la transferència del Coneixement*. Prize awarded by the Social Council of the Universitat Pompeu Fabra to the excellent track-record in technology transfer.
- April 2011 Second prize of the VALORTEC contest on Business Initiatives organized by ACCIÓ

([www.acc10.cat](http://www.acc10.cat)) to the *Voctro Labs Spin-Off Company Initiative*.

- April 2011 Prize awarded by the *Centre Internacional de Negocis de Catalunya (CINC)* to the *Voctro Labs Spin-Off Company Initiative*.
- Sept. 2010 *Premi del Consell social de la Universitat Pompeu Fabra a la transferència del Coneixement*. Prize awarded by the Social Council of the *Universitat Pompeu Fabra* in the category of PhD thesis with big knowledge transfer potential.
- June 2007 *Rosina Ribalta Prize*, by *EPSON Foundation*, to the best PhD Project on Information Technology and Communications. The *EPSON foundation* awards the quality and methodology of the projects, their social and scientific interest and the merits of the candidate.
- 5-8/2003 Research grant at *Royal Institute of Technology (KTH)*, granted by *MOSART EU Project*, IST-215244.
- 1997-1998 Student grant for the project "*Audio Morphing*", granted by *Duy SA*.

## FINANCED PROJECTS

DATES	TITLE AND ROLE IN THE PROJECT	FINANCING ENTITY
4/2007-3/2017	<i>Singing Voice Synthesis</i> (seven one-year projects) Researcher and team manager	Yamaha Corp, Japan
4/2010-9/2012	<i>Monet</i> Researcher and team manager	Yamaha Corp, Japan
4/2009-3/2010	<i>MinusOne</i> Researcher and team manager	Yamaha Corp, Japan
01/2008-12/2010	<i>SAME (Sound And Music For Everyone Everyday Everywhere Everyway)</i> IST-FP7-ICT-39221 Research and development	European Commission
01/2008-12/2010	<i>SALERO (Semantic Audiovisual Entertainment Reusable Objects)</i> IST-FP6-027122 Research and development	European Commission
2009-2010	<i>Vericast Optimization</i> Research and development	BMAT Licensing, Spain
1/2009-6/2009	Exposition installation: " <i>La Veu dels Neanderthals</i> " Researcher and team manager	Fundació La Caixa - CosmoCaixa, Spain
2009	<i>KaleiVoiceCope</i> voice transformation installation for the exposition " <i>Les Veus de la Mediterrània</i> " Development	Can Quintana Museu de la Mediterrània, Spain
1/2008-7/2008	<i>Skore - A Singing Voice Performance Rating System</i> Researcher and team manager	BMAT Licensing, Spain
4/2006-3/2008	<i>Violin Performer</i> Researcher and team manager	Yamaha Corp, Japan
2006-2007	<i>Playable Audio</i> Researcher	Yamaha Corp, Japan
2007	Voice transformation installation for the exposition: " <i>Números!</i> " Development and team manager	Fundació La Caixa - CosmoCaixa, Spain
2005-2006	<i>ComboVox - Voice Processing plug-in</i> Research and development	Pinnacle Systems, USA
12/2003-12/2006	<i>Semantic-HIFI</i> IST-2003-507913 Research and development	European Commission
1999-2006	<i>Daisy - A Singing Voice Synthesizer</i> (seven one-year projects) Researcher and team manager	Yamaha Corp, Japan

2003-2004	(Enhanced Singing Performance Rating + Enhanced Sound Shift Operator) Researcher and team manager	Yamaha Corp, Japan
2002-2004	VoiceFX - A Singing Voice Processor Researcher and team manager	Yamaha Corp, Japan
28/12/2000-27/12/2003	TABASCO (Content based Audio Transformations). TIC 2000-1904- C02 Research and development	Spanish Ministry of Science and Technology
01/11/2001-31/10/2003	Open Drama. IST-2000-28197 Research and development	European Commission
2001-2002	Time Machine - High Quality Time-Scaling of Polyphonic Audio Researcher and team manager	Yamaha Corp, Japan
01/02/2000-31/10/2001	RAA (Recognition and Analysis of Audio). IST-1999-12585 Research and development	European Commission
1997-1999	Voice Morphing System for Impersonating in Karaoke Researcher and team manager	Yamaha Corp, Japan

## PATENTS

PRIORITY DATE AND NUMBER	INVENTORS, TITLE, PATENT NUMBER AND DESIGNATED STATES	APPLICANT
15/4/2013 JP2013000084579	Keijiro, S., Bonada, J. <i>Singing Synthesizing Database Generation Device, and Pitch Curve Generation Device</i> Patent pending JP	Yamaha Corp
10/1/2013 JP2013164584	Janer, J., Marxer, R., Bonada, J., Kazunobu, K. <i>Acoustic Processor</i> Patent pending JP	Yamaha Corp
21/6/2012 JP2012-139455 US20140006018	Bonada, J., Merlijn Blaauw, Yuji Hisaminato <i>Voice Synthesis Apparatus: Voice Quality Modification by Spectral Morphing</i> Patent pending JP, US	Yamaha Corp
7/6/2012 JP2012-129798	Bonada, J., Merlijn Blaauw, Makoto Tachibana <i>Voice Synthesis Apparatus: Phase Model</i> Patent pending JP	Yamaha Corp
18/5/2012 JP2012-115065 US20130311189	Bonada, J., Villavicencio, F. <i>Voice Synthesis Apparatus: Spectral Transformation Compensation for Probabilistic Envelope Conversion</i> Patent pending JP, US	Yamaha Corp
14/5/2012 JP2012-110359 EP2530671	Bonada, J., Merlijn Blaauw, Makoto Tachibana <i>Voice Synthesis Apparatus: Unit Interpolation</i> Patent pending JP, Europe	Yamaha Corp
07/02/2012 JP2012-165283 EP2485218	Umeyama, Y., Kondo, K., Takashi, Y., Bonada, J., Janer, J., Marxer, R. <i>Graphical Audio Signal Control</i> Patent Pending	Yamaha Corp

2012 JP2012-109924	Umeyama, Y., Kondo, K., Bonada, J., Janer, J., Marxer, R. <i>Sound Processing Device</i> Patent pending	Yamaha Corp
2012 JP2012-108453	Umeyama, Y., Kondo, K., Bonada, J., Janer J., Marxer, R., García, F. <i>Sound Processing Device</i> Patent pending	Yamaha Corp
28/10/2010	Bonada, J., Janer, J., Marxer, R., Umeyama, Y., Kondo, K., Garcia, F. <i>Technique for Estimating Particular Audio Component</i> Patent pending JP, US, AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR	Yamaha Corp
02/07/2009 JP20090157527	Keijiro, S., Bonada, J. <i>Apparatus and method for creating singing synthesizing database, and pitch curve generation apparatus and method</i> Patent pending JP, US	Yamaha Corp
02/07/2009 JP20090157531	Keijiro, S., Bonada, J. <i>Apparatus and method for creating singing synthesizing database, and pitch curve generation apparatus and method</i> Patent pending JP, US	Yamaha Corp
08/12/2008 JP20080312209	Kenmochi, H., Bonada, J. <i>Chorus Synthesizer, Chorus Synthesizing Method and Program</i> Patent pending JP	Yamaha Corp
06/02/2008 US20080026977	Janer, J., Bonada, J., de Boer, M., Loscos, A. <i>Audio Recording Analysis and Rating</i> Patent pending US	Universitat Pompeu Fabra, BMAT Licensing SL
10/10/2007 JP20070264052	Streich, S., Bonada, J., Samuel, R. <i>Elementary Piece Retrieving Device and Program</i> US7812240 JP,US	Yamaha Corp
09/10/2007 JP20070263253	Fujishima, T., de Boer, M., Bonada, J., Samuel, R., de Jong, F., Streich, S. <i>Music Piece Processing Device and Program</i> Patent pending JP	Yamaha Corp
25/09/2007 JP20070246610	Fujishima, T., de Boer, M., Bonada, J., Samuel, R., de Jong, F., Streich, S. <i>Music Piece Processing Device and Program</i> Patent pending JP	Yamaha Corp
13/09/2007 US20070900902	Bonada, J. <i>Audio Signal Transforming</i> US8706496 US	Universitat Pompeu Fabra
16/11/2007 US20070946860P US20070970109P US20070988714P	Gómez, E., Herrera, P., Cano, P., Janer, J., Serra, J., Bonada, J., El-Hajj Shadi, W., Aussenac, T., Holmbert, G. <i>Music Similarity Systems and Methods Using Descriptors</i> Patent pending US	Universitat Pompeu Fabra
30/03/2007 JP20070092185	Fujishima, T., Arimoto, K., Ong; B.S., Streich, S., Bonada, J., de Boer, M.	Yamaha Corp

	<i>Sound Conversion Apparatus and Program</i> JP4544258 JP	
09/01/2007 JP20070001058	Fujishima, T., Bonada, J., de Boer, M. <i>Tone Processing Apparatus and Method</i> US7750228 JP, US, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, AL, BA, MK, RS	Yamaha Corp
19/05/2006 JP20060139911	Oshita, H., Kenmochi, H., Bonada, J., Loscos, A. <i>Voice Processor and Program</i> Patent pending JP	Yamaha Corp
27/10/2004 JP20040311637	Fujishima, T., Bonada, J. <i>Pitch Shifting Apparatus</i> US7490035 JP, US, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR	Yamaha Corp
04/03/2006 JP20060058771	Kenmochi, H., Bonada, J., Loscos, A. <i>Singing Synthesis Device and Program</i> Patent pending JP	Yamaha Corp
21/06/2006 JP20060171331	Kenmochi, H., Yoshioka, Y., Bonada, J. <i>Singing Synthesizer, Singing Synthesizing Method, and Program for Singing Synthesis</i> Patent pending JP	Yamaha Corp
09/03/2001 JP20010067258	Hisaminato, Y., Bonada, J. <i>Voice Synthesizing Apparatus</i> US7065489 JP, US, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE, TR, AL, LT, LV, MK, RO, SI	Yamaha Corp
28/12/2000 JP20000401041	Kenmochi, H., Serra, X., Bonada, J. <i>Singing Voice Synthesizing Apparatus, Singing Voice Synthesizing Method, and Program for Realizing Singing Voice Synthesizing Method</i> US7016841 JP, US, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE, TR, AL, LT, LV, MK, RO, SI	Yamaha Corp
26/05/2006 JP20060146868	Fujishima, T., Bonada, J., Loscos, A., Mayor, O. <i>Device, Method, and Program for Processing Sound Signal</i> JP4367437 JP	Yamaha Corp
30/05/2005 JP20050157758	Kenmochi, H., Bonada, J., Loscos, A. <i>Device and Program for Synthesizing Singing</i> JP4432834 JP	Yamaha Corp
26/05/2005 JP20050154738	Fujishima, T., Loscos, A., Bonada, J., Mayor, O. <i>Sound Signal Processing Apparatus, Sound Signal Processing Method and Sound Signal Processing Program</i> Patent pending JP, US, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU	Yamaha Corp
10/03/2005 JP20050067907	Kenmochi, H., Yoshioka, Y., Bonada, J. <i>Voice Processor and Program</i> Patent pending JP, US, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,	Yamaha Corp

	HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU	
02/02/2005 JP20050026855	Kenmochi, H., Bonada, J. <i>Voice Synthesizer and Program</i> EP1688912 JP, US, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU	Yamaha Corp
15/12/2005 JP20050361612	Fujishima, T., Sekine, S., Kamiya, S., Bonada, J., Fabig, L., Mayor, O., Loscos, A. <i>Device, Method, and Program for Deciding Voice Quality</i> JP4432893 JP	Yamaha Corp
21/11/2005 JP20050336272	Hisaminato, Y., Bonada, J. <i>Voice Synthesizer</i> JP4353174 JP	Yamaha Corp
09/03/2001 JP20010067257	Yoshioka, Y., Bonada, J. <i>Device, Method, and Program for Analyzing and Synthesizing Voice</i> JP3711880 JP, US, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE, TR, AL, LT, LV, MK, RO, SI	Yamaha Corp
28/04/2005 JP20050132799	Yoshioka, Y., Bonada, J. <i>Voice Analysis and Synthesizing Apparatus, Method and Program</i> JP4349316 JP	Yamaha Corp
19/11/2004 JP20040336224	Kenmochi, H., Bonada, J. <i>Apparatus for and Program of Processing Audio Signal</i> Patent pending JP, US, DE, GB	Yamaha Corp
18/10/2004 JP20040302795	Kenmochi, H., Serra, X., Bonada, J. <i>Singing Synthesizer</i> JP3985814 JP	Yamaha Corp
21/10/1999 JP19990300268	Yoshioka, Y., Serra, X., Schiementz, M., Bonada, J. <i>Device and Method for Voice Conversion and Method of Generating Dictionary for Voice Conversion</i> JP4430174 JP, US	Yamaha Corp
27/02/2002 JP20020052006	Kenmochi, H., Bonada, J., Loscos, A. <i>Singing Voice Synthesizing Method</i> US6992245 JP, US, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LI, LU, MC, NL, PT, RO, SE, SI, SK, TR, AL, LT, LV, MK	Yamaha Corp
28/02/2002 JP20020054487	Kenmochi, H., Yoshioka, Y., Bonada, J. <i>Singing Voice Synthesizing Apparatus, Singing Voice Synthesizing Method and Program for Singing Voice Synthesizing</i> US7135636 JP, US	Yamaha Corp
12/08/2002 JP20020235039	Kenmochi, H., Bonada, J. <i>Apparatus and Method for Chorus Synthesis and Program</i> JP4304934 JP	Yamaha Corp
09/08/2002 JP20020233085	Kondo, K., Bonada, J. <i>Device, Method, and Program for Time-Base Companding of Audio Signal</i> JP3858784	Yamaha Corp

13/09/2001 JP20010278292	JP Bonada, J., Hisaminato, Y. <i>Sound Source Waveform Generator, Voice Synthesizer, Sound Source Waveform Generation Method and Program</i> JP3967571	Yamaha Corp
22/12/1999 JP19990365271	JP Kawashima, T., Schiementz, M., Bonada, J. <i>Device and Method for Voice Conversion</i> JP4509273	Yamaha Corp
21/10/1999 JP19990300275	JP Kayama, H., Serra, X., Bonada, J. <i>Device and Method for Aural Signal Processing</i> JP4455701	Yamaha Corp, Universitat Pompeu Fabra
21/10/1999 JP19990300270	JP Kondo, T., Loscos, A., Cano, P., Bonada, J. <i>Device and Method for Adding Harmony Sound</i> Patent pending	Yamaha Corp, Universitat Pompeu Fabra
21/10/1999 JP19990300269	JP Yoshioka, Y., Bonada, J. <i>Signal Analyzer and Singal Analysis Method</i> JP4286405	Yamaha Corp, Universitat Pompeu Fabra
21/10/1999 JP19990300267	JP Kawashima, T., Serra, X., Bonada, J. <i>Device and Method for Processing Musical Sound</i> JP3802293	Yamaha Corp, Universitat Pompeu Fabra
16/06/1998 JP19980169045	JP Yoshioka, Y., Bonada, J. <i>Voice Transforming Device, Voice Transforming Method and Storage Medium which Records Voice Transforming Program</i> JP3706249 JP, US, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE, AL, LT, LV, MK, RO, SI	Yamaha Corp

## PUBLICATIONS

### PhD Dissertation

- Bonada, J., "Voice Processing and Synthesis by Performance Sampling and Spectral Models", PhD Dissertation in Computer Science and Digital Communication with European Mention, Departament de Tecnologies de la Informació i les Comunicacions (DTIC), Universitat Pompeu Fabra, Feb. 2009.
- Bonada, J., "Audio Time-Scale Modification in the Context of Professional Post-Production", Master in Computer Science and Digital Communication, Universitat Pompeu Fabra, 2002.

### Journals

- Umbert, M., Bonada, J., Goto, M., Nakano, T., Sundberg J., "Expression Control in Singing Voice Synthesis: Features, Approaches, Evaluation, and Challenges", IEEE Signal Processing Magazine, vol. 32, no. 6, Nov. 2015, ISSN 1053-5888, Impact factor (JRC): 5,852 Q1 T1 4/249 in Engineering, Electrical & Electronic.
- Gómez, E., Bonada, J., "Towards Computer-Assisted Flamenco Transcription: An Experimental Comparison of Automatic Transcription Algorithms from a Cappella Singing", Computer Music journal 37 (2), 73-90, 2013, ISSN 0148-9267, Impact factor (JRC): 1,588, Q2 T2 34/97 in Computer Science, Interdisciplinary Applications.
- Pérez, A., Bonada, J., Maestre, E., Gaus, E., Blaauw, M., "Performance Control Driven Violin Timbre Model Based on Neural Networks", IEEE Transactions on Audio, Speech and Language Processing, vol. 20, no. 3, pp. 1007-1021, March 2012, ISSN 1558-7916, Impact factor (JRC): 1,498, Q2 T2 11/30 in Acoustics, Q2 80/245 in Engineering, Electrical & Electronic.
- Pérez, A., Bonada, J., Patynen, J., Valimaki, V., "Method for Measuring Violin Sound Radiation based on Bowed Glissandi and its Application to Sound Synthesis", Journal of the Acoustical Society of America, vol. 130, no. 2, pp. 1020-1029, August 2011, ISSN 0001-4966, Impact factor (JRC): 1,644, Q1 T1 6/30 in Acoustics.
- Maestre, E., Blaauw, M., Bonada, J., Gaus, E., Pérez, A., "Statistical Modeling of Bowing Control Applied



to *Violin Sound Synthesis*", IEEE Transactions on Audio, Speech and Language Processing, vol. 18, no. 4, pp. 855-871, May 2010, ISSN 1558-7916, Impact factor (JRC): 1,668, Q1 5/30 in Acoustics, Q2 T1 62/247 in Engineering, Electrical & Electronic.

- Bonada, J., Serra, X., "Synthesis of the Singing Voice by Performance Sampling and Spectral Models", IEEE Signal Processing Magazine, vol. 24, no. 1, pp. 69-79, March 2007, ISSN 1053-5888, Impact factor (JRC): 4,914 Q1 T1 1/246 in Engineering, Electrical & Electronic.
- Amatriain, X., Bonada, J., Loscos, A., Arcos, J., Verfaillie, V., "Content-based Transformations", Journal of New Music Research, vol. 32, no. 1, March 2003, Impact factor (JRC): 0,574, Q3 T2 48/83 in Computer Science, Interdisciplinary Applications.

#### Book Chapters

- Bonada, J., Serra, X., Amatriain, X., Loscos, A., "Spectral Processing", Chapter 10 in "DAFX: Digital Audio Effects, Second Edition", Udo Zölzer (Editor), John Wiley & Sons Publishers, pp. 393-446, ISBN: 978-0-470-66599-2, published on March 2011.
- Arfib D., Keiler, F., Zölzer, U., Verfaillie, V., Bonada, J., "Time-Frequency Processing", Chapter 7 in "DAFX: Digital Audio Effects, Second Edition ", Udo Zölzer (Editor), John Wiley & Sons Publishers, pp. 219-278, ISBN: 978-0-470-66599-2, published on March 2011.
- Gouyon, F., Herrera, P., Gómez, E., Cano, P., Bonada, J., Loscos, A., Amatriain, X., Serra, X., "Content Processing of Music Audio Signals", Polotti, P., and Rocchesso, D., Editors, "Sound to Sense, Sense to Sound: A State of the Art in Sound and Music Computing", Ed Logos Verlag Berlin GmbH , pp. 83-160, ISBN: 9783832516000, published on 2008.
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- Blaauw, M., Bonada, J., "Modeling and Transforming Speech Using Variational Autoencoders", Interspeech, San Francisco, USA, Sept 2016.
- Bonada, J., Lachlan, R., Blaauw, M., "Bird Song Synthesis Based on Hidden Markov Models", Interspeech, San Francisco, USA, Sept 2016.
- Villavicencio, F., Yamagishi, J., Bonada, J., Espic, F., "Applying Spectral Normalisation and Efficient Envelope Estimation and Statistical Transformation for the Voice Conversion Challenge 2016", Interspeech, San Francisco, USA, Sept 2016.
- Musevic, S., Bonada, J., "Distribution Derivative Method for Generalised Sinusoid with Complex Amplitude Modulation", Proceedings of 18th Int. Conference on Digital Audio Effects (DAFx-15), Trondheim, Norway, Nov30-Dec3, 2015.
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- Kroher, N., Gómez, E., Guastavino, C., Gómez-Martín, F., Bonada, J., "Computational models for perceived melodic similarity in a cappella flamenco cantes", 15th International Society for Music Information Retrieval Conference (ISMIR), Taipei, Taiwan, 2014.
- Janer, J., Geraerts, R., van Toll, W. G., Bonada, J., "Talking Soundscapes: Automatizing Voice Transformations for Crowd Simulation", AES 49th International Conference, Audio for Games, London, UK, 2013.
- Umbert, M., Bonada, J., Blaauw, M., "Generating Singing Voice Expression Contours Based on Unit Selection", Stockholm Music Acoustics Conference (SMAC), pp. 315-320, Stockholm, Sweden, 2013.
- Umbert, M., Bonada, J., Blaauw, M., "Systematic Database Creation for Expressive Singing Voice Synthesis", 8th ISCA Speech Synthesis Workshop (SSW8), pp. 213-216, Barcelona, Spain, 2013.
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  - Musevic, S., Bonada, J., "Comparison of non-Stationary Sinusoid Estimation Methods using Reassignment and Derivatives", Proceedings of the Sound and Music Computing Conference, Barcelona, Spain, 2010.
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  - Janer, J., J. Bonada, and S. Jordà, "Groovator - an implementation of real-time rhythm transformations", Proceedings of 121st Convention of the Audio Engineering Society. San Francisco, CA, USA, 2006.
  - Maestre, E., J. Bonada, and O. Mayor, "Modeling musical articulation gestures in singing voice performances", Proceedings of 121st Convention of the Audio Engineering Society. San Francisco, CA, USA, 2006.
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  - Vinyes, M., J. Bonada, and A. Loscos, "Demixing Commercial Music Productions via Human-Assisted Time-Frequency Masking", Proceedings of the 120th Convention of the Audio Engineering Society, Paris, France, 2006.
  - Bonada, J. "Voice Solo to Unison Choir Transformation", Proceedings of 118th Audio Engineering Society Convention. Barcelona, Spain, 2005.
  - Gómez, E., and J. Bonada, "Tonality visualization of polyphonic audio", Proceedings of the International Computer Music Conference. Barcelona, Spain, 2005.
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  - Bonada, J., A. Loscos, and H. Kenmochi, "Sample-based Singing Voice Synthesizer by Spectral Concatenation", Proceedings of the Stockholm Music Acoustics Conference. Stockholm, Sweden, 2003.
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  - Amatriain, X., J. Bonada, A. Loscos, and X. Serra, "Spectral Modeling for Higher-level Sound Transformation", Proceedings of MOSART Workshop on Current Research Directions in Computer Music. Barcelona, Spain, 2001.
  - Bonada, J., O. Celma, A. Loscos, J. Ortolà, and X. Serra, "Singing Voice Synthesis Combining Excitation plus Resonance and Sinusoidal plus Residual Models", Proceedings of International Computer Music Conference. Havana, Cuba, 2001.
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  - Bonada, J., "Automatic Technique in Frequency Domain for Near-Lossless Time-Scale Modification of Audio", Proceedings of the International Computer Music Conference. Berlin, Germany, 2000.
  - de Boer, M., J. Bonada, P. Cano, A. Loscos, and X. Serra, "Singing Voice Impersonator Application for PC", Proceedings of International Computer Music Conference. Berlin, Germany, 2000.
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  - Loscos, A., P. Cano, and J. Bonada, "Low-Delay Singing Voice Alignment to Text", Proceedings of International Computer Music Conference. Beijing, China, 1999.
  - Amatriain, X., J. Bonada, and X. Serra, "METRIX: A Musical Data Definition Language and Data Structure for a Spectral Modeling Based Synthesizer", Proceedings of COST G6 Conference on Digital Audio Effects. Barcelona, Spain, 1998.
  - Herrera, P., and J. Bonada, "Vibrato Extraction and Parameterization in the Spectral Modeling Synthesis framework", Proceedings of COST G6 Conference on Digital Audio Effects. Barcelona, Spain, 1998.
  - Serra, X., and J. Bonada, "Sound Transformations Based on the SMS High Level Attributes", Proceedings of COST G6 Conference on Digital Audio Effects. Barcelona, Spain, 1998
  - Serra, X., J. Bonada, P. Herrera, and R. Loureiro, "Integrating Complementary Spectral Models in the Design of a Musical Synthesizer", Proceedings of International Computer Music Conference. Thessaloniki, Greece, 1997.

#### Technical Reports

- Villavicencio, F., Bonada, J., Yamagishi, J., Pucher, M., "Efficient Pitch Estimation on Natural Opera-Singing by a Spectral Correlation based Strategy", IEICE Technical Report (IPJS-SLP-107), July 2015.

### Invited Presentations

- Bonada, J., "Probabilistic based Synthesis of Animal Vocalizations", Research workshop "Listening in the Wild: Animal and machine audition in multisource environments", Queen Mary University of London (QMUL), London, August, 2015.
- Bonada, J., "Vocaloid: A Success Story?", 9th Pan-European Voice Conference (PEVOC9), Marseille, France, September, 2011.
- Bonada, J., "Aplicaciones Informáticas para la música: Sistemas de recomendación musical y procesamiento de voz cantada", V Jornadas Imaginática, Computer Science Engineering School, University of Seville, March, 2009.
- Bonada, J., "Análisis y Procesado de Canto", II Seminario de Ciencia Computacional y Flamenco, Escuela Superior de Ingenieros, Sevilla, April, 2008.
- Bonada, J., "Singing Voice Analysis, Processing and Synthesis", Research Seminar, La Salle, Universitat Ramon Llull, April, 2006.
- Bonada, J., Loscos, A., Jordà, S., "Música i Tecnologia", Cicle de Conferències del Cosmocaixa, Barcelona, December, 2004.
- Bonada, J., "Canvi de Tempo i Síntesi de veu", Sonology Seminar, Escola Superior de Música de Catalunya, ESMUC, April, 2005.
- Bonada, J., "Singing Voice Synthesis", Audio Days Seminar organized by the AES Finnish Section, Helsinki, May, 2004.
- Several seminars in different European and Asiatic institutions: AIST (*Advanced Industrial Science and Technology, Japan*), Yamaha Corporation (*Hamamatsu, Japan*), Helsinki University of Technology TKK (*Department of Electrical and Communications Engineering Laboratory of Acoustics and Audio Signal Processing, Espoo, Finland*), Tampere University of Technology (*Institute of Signal Processing, Tampere, Finland*), KTH (*Royal Institute of Technology, Stockholm, Sweden*), OFAI (*Austrian Research Institute for Artificial Intelligence, Vienna, Austria*).

### OTHER RELEVANT SCIENTIFIC COLLABORATIONS

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The multidisciplinary aspect of Dr. Bonada's research has been emphasized with several collaborations with researchers of different fields:

- Dr. Henkan Honing, University of Amsterdam, on rhythm perception, providing time-scale modifications of audio excerpts.
- Dr. Pascal Belin, McGill University, on gender perception, providing morph between voice recordings.
- Dr. Michel André, Universitat Politècnica de Catalunya, on the analysis of sperm whale sounds, developing algorithms and tools to assist the analysis.
- Dr. Paul Vershure and Dr. Jonatas Manzolli, Universitat Pompeu Fabra, on music therapy research, designing and providing a vowel synthesizer.
- Dr. Catherine Guastavino, McGill University, on melodic similarity perception, providing tools for melodic transcription and synthesis.

It is also worth to highlight the collaboration with the Sant Pau Hospital in Barcelona supervising a Master Thesis that focused on the GRBAS diagnosis from voice signals.

### SCIENTIFIC SERVICES

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- Reviewer for the Austrian Science Fund (FWF), 2014.
- Member of the Evaluation Committee of the European Course for Musical Composition and Technologies (ECMCT), Leonardo da Vinci Programme, European Commission, October 2006 - June 2007
- Reviewer of International Journals: *IEEE Signal Processing Magazine (IEEE-SPM)*, *IEEE Transactions on Audio, Speech and Language Processing (IEEE-TASLP)*, *Computer Music Journal (CMJ)*, *Journal of Interdisciplinary Music Studies (JIMS)*
- Reviewer for Conferences in Sound and Music Computing: *International Computer Music Conference (ICMC)*, *Digital Audio Effects (DAFX)*, *Audio Engineering Society (AES)*
- Member of the program committee of the 12<sup>th</sup> *International Digital Audio Effects Conference (DAFx-2009)*
- Session chair in *MAVEBA-03 (Firenze)* and *AES-05 (Barcelona)* international conferences

### DISSEMINATION IN MEDIA

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Dr. Bonada's research and its application have appeared in different media along the past years (see [mtg.upf.edu/news/media](http://mtg.upf.edu/news/media) for more details).

- Newspaper articles on *The New York Times*, *El Periódico*, *La Vanguardia*, *El País*, *El Punt*, *El Mercantil Valenciano*, *Gaceta Universitaria*.

- TV news on US (ABC) and Spain (TVE, TVE2, TV3, Tele5, Antena 3).
- TV programs (*Redes* on TVE2, *Punt Omega* and *QueQuiCom* on TV3).
- Spanish TV show *Operación Triunfo*, a singing contest where the participants used a software tool to display in real-time relevant parameters of their performance.
- Moto GP broadcasting, where a signal analysis algorithm was used to estimate and display in real-time the engines' rpm.
- Radio interviews in *Catalunya Radio*, *Catalunya Cultura*, *Cadena Ser*, *iCat FM*.
- Magazines: *Electronic Musician*, *Producción Audio*, *Teclado Total*, *TimeOut*, *Expansión*.

It is worth to highlight the celebration and appearance on several media of the ten-year anniversary celebration of the collaboration between the Music Technology Group (MTG) of the Universitat Pompeu Fabra (UPF) and the Japanese company Yamaha Corp., with the presence of the rector of the UPF and the general director of Yamaha Corp.

## MISCELLANEOUS

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- Languages: Spanish, Catalan (mother tongue), fluent English
- Hobbies: music (piano player), nature, hiking, swimming
- Co-founder of the spin-off company *Barcelona Music and Audio Technologies, S.L.* (BMAT)
- Married, two sons born in 2007 and 2011
- Born on 25/03/1973

## REFEREES

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- Dr. Xavier Serra, Professor and head of the Music Technology Group from the Departament de Tecnologies de la Informació i les Comunicacions of the Universitat Pompeu Fabra, Barcelona, Spain, [xavier.serra@upf.edu](mailto:xavier.serra@upf.edu)
- Dr. Udo Zölzer, Professor and head of the Department of Signal Processing and Communications at the Helmut Schmidt University - University of the Federal Armed Forces in Hamburg, Germany, [udo.zoelzer@hsu-hamburg.de](mailto:udo.zoelzer@hsu-hamburg.de)
- Dr. Vesa Valimäki, Professor at the Department of Signal Processing and Acoustics, in the School of Electrical Engineering of the Aalto University, Espoo, Finland, [vesa.valimaki@tkk.fi](mailto:vesa.valimaki@tkk.fi)
- Hideki Kenmochi, Corporate Research & Development Center, Yamaha Corporation, Japan, [kenmochi@beat.yamaha.co.jp](mailto:kenmochi@beat.yamaha.co.jp)
- Dr. Johan Sundberg, emeritus Professor at the Royal Institute of Technology, Stockholm, Sweden, [jsu@csc.kth.se](mailto:jsu@csc.kth.se)
- Dr. Climent Nadeu, Professor at the Signal Processing and Communications Department of the Universitat Politècnica de Catalunya, Barcelona, Spain, [climent.nadeu@upc.edu](mailto:climent.nadeu@upc.edu)