Carlos Eduardo Cancino-Chacón

PERSONAL DETAILS

Birth	June 6, 1986
Citizenship	Mexican
Address	Austrian Research Institute for Artificial Intelligence Freyung 6 / 6 1010, Vienna, Austria
E-Mail	carlos.cancino@ofai.at
Website	http://www.carloscancinochacon.com

ACADEMIC QUALIFICATIONS

Ph.D. in Computer Science 2014-present
Johannes Kepler University of Linz, Austria
Supervisor: Gerhard Widmer

M.Sc. in Electrical Engineering and Audio Engineering 2011-2014
Graz University of Technology/University of Music and Performing Arts Graz, Austria
Supervisor: Franz Pernkopf
Thesis: Tarkus Belief Propagation: On Message Passing Algorithms and Computational Commutative Algebra
With distinction.

Licenciatura como Físico
(Bachelor's degree in Physics) 2006-2011
National Autonomous University of Mexico, Mexico City, Mexico
Supervisor: Marcos Ley Koo
Thesis: Anlisis terico experimental de transductores de ultrasonido tipo Langevin
GPA: 9.21/10

Licenciatura en Concertista de Piano
(Bachelor's degree in Piano Performance) 1999-2011
National Conservatory of Music, Mexico City, Mexico
Supervisor: Héctor Alfonso Rojas Ramírez
GPA: 9.4/10

RESEARCH EXPERIENCE

Researcher 2014-present
Austrian Research Institute for Artificial Intelligence
Intelligent Music Processing and Machine Learning Group
Supervisors: Maarten Grachten and Gerhard Widmer

TEACHING

Course Lecturer Level B National Conservatory of Music, Mexico City, Mexico
Courses: Elementary Music Theory I and Harmony (Levels I-III)
2011

ACADEMIC ACTIVITIES

INVITED TALKS

1. *¿Escuchan los androides música electrónica?* (November 2016). Talk series: Pláticas DeMentes. Faculty of Psychology, National Autonomous University of Mexico.
2. *En busca del factor Mozart* (November 2016). National Conservatory of Music, Mexico City.

REVIEWING

1. **Journals:** Journal of New Music Research (2017), Neural Computing and Applications (2018)
2. **Conferences:** MCM (2015), DLM17 (2017), ISMIR (2014, 2015, 2016, 2017)

AWARDS AND GRANTS

Fundación INBA – CONACYT Scholarship
Mexican National Council for Science and Technology
€13,355 per annum stipend, tuition fees and medical insurance to study at Graz University of Technology
2012-2014
Award for Creative Achievement
AccompaniX Competition, 2017 Turing Tests in the Creative Arts.
$500 team award for development of an expressive computer accompaniment system.

PUBLICATIONS

PEER REVIEWED PUBLICATIONS

1. Gissel Velarde, Carlos Cancino Chacón, David Meredith, Tillman Weyde, and Maarten Grachten. Convolution-based classification of audio and symbolic representations of music. *Journal of New Music Research*, 0(0):1–15, 2018

2. Carlos Eduardo Cancino-Chacón, Maarten Grachten, David Robert William Sears, and Gerhard Widmer. What were you expecting? using expectancy features to predict expressive performances of classical piano music. In *Proceedings of the 10th International Workshop on Machine Learning and Music (MML 2017)*, Barcelona, Spain, 2017

3. Carlos Cancino-Chacón, Maarten Grachten, and Kat Agres. From Bach to The Beatles: The Simulation of Human Tonal Expectation Using Ecologically-Trained Predictive Models. In *18th International Society for Music Information Retrieval Conference ISMIR*, Suzhou, China, 2017

4. Carlos Eduardo Cancino-Chacón, Thassilo Gadermaier, Gerhard Widmer, and Maarten Grachten. An evaluation of linear and non-linear models of expressive dynamics in classical piano and symphonic music. *Machine Learning*, 106(6):887–909, 2017

5. Maarten Grachten, Carlos Eduardo Cancino-Chacón, Thassilo Gadermaier, and Gerhard Widmer. Towards computer-assisted understanding of dynamics in symphonic music. *IEEE Multimedia*, 24(1):36–46, 2017

6. Maarten Grachten and Carlos Eduardo Cancino-Chacón. Temporal dependencies in the expressive timing of classical piano performances. In Micheline Lessafre, Pieter-Jan Maes, and Marc Leman, editors, *The Routledge Companion to Embodied Music Interaction*, pages 360–369. Routledge, New York, NY, 2017

7. Gissel Velarde, Tillman Weyde, Carlos Cancino-Chacón, David Meredith, and Maarten Grachten. Composer Recognition Based On 2D-Filtered Piano Rolls. In *17th International Society for Music Information Retrieval Conference*, pages 116–121, New York, 2016

8. Thassilo Gadermaier, Maarten Grachten, and Carlos Eduardo Cancino-Chacón. Basis-Function Modeling of Loudness Variations in Ensemble Performance. In *2nd International Conference on New Music Concepts (ICNMC 2016)*, Treviso, Italy, 2016

9. Carlos Eduardo Cancino Chacón and Maarten Grachten. An Evaluation of Score Descriptors Combined with Non-linear Models of Expressive Dynamics in Music. In *18th International Conference on Discovery Science*, pages 48–62, Banff, AB, Canada, 2015. Springer International Publishing

10. Kat Agres, Carlos Cancino, Maarten Grachten, and Stefan Lattner. Harmonics co-occurrences bootstrap pitch and tonality perception in music: Evidence from a statistical unsupervised learning model. In *CogSci 2015: The annual meeting of the Cognitive Science Society*, Pasadena, CA, USA, 2015

11. Stefan Lattner, Maarten Grachten, Kat Agres, and Carlos Eduardo Cancino Chacón. Probabilistic Segmentation of Musical Sequences using Restricted Boltzmann Machines. In *Fifth Biennial International Conference on Mathematics and Computation in Music*, pages 1–12, London, UK, 2015

12. Stefan Lattner, Carlos Eduardo Cancino Chacón, and Maarten Grachten. Pseudo-Supervised Training Improves Unsupervised Melody Segmentation. In *Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence (IJCAI 2015)*, pages 2459–2465, Buenos Aires, Argentina, 2015

13. Carlos Eduardo Cancino Chacón and Pejman Mowlaee. Least Squares Phase Estimation of Mixed Signals. In *15th Annual Conference of the International Speech Communication Association (INTERSPEECH 2014)*, Singapore, August 2014

14. Carlos Eduardo Cancino-Chacón, Stefan Lattner, and Maarten Grachten. Developing Tonal Perception Through Unsupervised Learning. In *Proceedings of the 15th Conference of the International Society for Music Information Retrieval*, pages 195–200, Taipei, Taiwan, August 2014

15. Maarten Grachten, Carlos Eduardo Cancino Chacón, and Gerhard Widmer. Analysis and prediction of expressive dynamics using Bayesian linear models. In *Proceedings of the 1st International Workshop on Computer and Robotic Systems for Automatic Music Performance*, pages 545–552, Venice, Italy, 2014

16. Sebastian Tschiatschek, Carlos Eduardo Cancino Chacón, and Franz Pernkopf. Bounds for Bayesian network classifiers with reduced precision parameters. In *International Conference on Acoustics, Speech and Signal Processing 2013*, pages 3357–3361, Vancouver, Canada, 2013. IEEE

EXTENDED ABSTRACTS

1. Carlos Cancino-Chacón, Martin Bonev, Amaury Durand, Maarten Grachten, Andreas Arzt, Laura Bishop, Werner Goebl, and Gerhard Widmer. The ACCompanion v0.1: An Expressive Accompaniment System. In *Late Breaking/ Demo, 18th International Society for Music Information Retrieval Conference (ISMIR 2017)*, Suzhou, China, 2017

2. Laura Bishop, Carlos Cancino-Chacón, and Werner Goebel. Mapping visual attention of duo musicians during rehearsal of temporally-ambiguous music. In *Proceedings of the International Symposium on Performance Science (ISPS 2017)*, Reykjavik, Iceland, 2017

3. Carlos Eduardo Cancino Chacón and Maarten Grachten. The Basis Mixer: A Computational Romantic Pianist. In *Extended abstracts for the Late-Breaking Demo Session of the 17th International Society for Music Information Retrieval Conference*, pages 1–3, New York City, NY, August 2016

THESES

1. Carlos Eduardo Cancino Chacón. Tarkus Belief Propagation. Master's thesis, Graz University of Technology, Graz, Austria, October 2014

2. Carlos Eduardo Cancino-Chacón. Análisis teórico experimental de transductores de ultrasonido tipo Langevin. Undergraduate thesis, Universidad Nacional Autónoma de México, Facultad de Ciencias, UNAM, February 2011

TECHNICAL REPORTS

1. Carlos Eduardo Cancino-Chacón and Maarten Grachten. Rendering Expressive Performances of Musical Pieces Through Sampling From Generative Probabilistic Models. Technical Report OFAI-TR-2014-01, Austrian Research Institute for Artificial Intelligence, Vienna, Austria, August 2016

2. Maarten Grachten and Carlos Eduardo Cancino Chacón. Strategies for Conceptual Change in Convolutional Neural Networks. Technical Report OFAI-TR-2015-04, Austrian Research Institute for Artificial Intelligence, Vienna, Austria, October 2015

3. Carlos Eduardo Cancino-Chacón, Maarten Grachten, and Gerhard Widmer. Bayesian linear basis models with gaussian priors for musical expression. Technical Report OFAI-TR-2014-12, Austrian Research Institute for Artificial Intelligence, Vienna, Austria, October 2014

4. Carlos Eduardo Cancino-Chacón. Reduced Precision Bayesian Network Classifiers. Technical report, SPSC Lab, Graz University of Technology, Graz, May 2013