

Gissel Velarde, PhD

CONTACT: <https://gvelarde.com>

Born: September 24, 1980-La Paz, Bolivia.

Nationality: Bolivian

Children: Two.

Maternity leave: 20/11/2010-8/3/2011 and 27/09/2013-4/5/2014

CV version: October, 2020

RESEARCH INTERESTS

Artificial Intelligence, Machine Learning, Deep Learning, Convolutional Neural Networks, Music informatics, Information Retrieval, Recommendation Systems, Evaluation, AI for Good.

EDUCATION

01/10/2012-
06/04/2017

PhD in Computer Science and Engineering

[Aalborg University, Denmark](#)

Europe's best and world's fourth top university in engineering in 2018, [see report](#).

(Funded by the Department of Architecture, Design and Media Technology, Aalborg University and partially funded by the EC-Project, FET grant number 610859)

Thesis Title: *Convolutional Methods for Music Analysis*. Supervisors: David Meredith and Tillman Weyde.

01/09/2006-
29/02/2008

MSc in Electronic Systems and Engineering Management

[University of Applied Sciences, FH Südwestfalen, Soest, Germany](#)

(Funded by the German Academic Exchange Service (DAAD)).

Project title: *Contributions to the analysis of welding parameters and quality data for the purpose of parameter optimization, trend analysis and preventive maintenance of special welding machines*, Hugo MIEBACH GmbH. Supervisor: Christine Kohring Score: B

01/02/2000-
01/12/2004

LIC Licenciatura en Ingeniería de Sistemas (Systems Engineering)

[Universidad Católica Boliviana, La Paz, Bolivia](#)

Third best university in Bolivia according to the [Webometrics](#) Ranking 2020.

Thesis title: *Wavelet Model for Patterns and Singularities Detection in ERP P300 Signal of Alzheimer's Disease*. Supervisor: Roberto Carranza. Score: 100/100

ART STUDIES

1990-2002

[Conservatorio Plurinacional de Música, La Paz, Bolivia](#)

07/1999

[Academie Internationale d' Eté de Wallonie, Music Stage, Libramont, Belgium](#)

1988-1996

[Ballet Expresión and Escuela del Ballet Oficial, La Paz, Bolivia](#)

POSITIONS HELD

- 15/02/2019-
15/07/2019 **Senior Data Scientist**
Pricewaterhouse Coopers GmbH., Düsseldorf, Germany. Tasks: Digitalization Tax Technologies.
- 01/04/2018-
31/01/2019 **Software developer / Machine Learning Lead.**
Moodagent A/S, Copenhagen, Denmark. Area: Recommendation systems. Tasks: Supervision, research, planing, and development.
- 16/10/2017-
18/01/2018 **Consultant.**
SONY Computer Science Laboratories, Paris, France. Remote work. Computational creativity. Tasks: Research and Development.
- 01/10/2012-
02/11/2016 **PhD fellow**
Aalborg University, Department of Architecture Design and Media Technology, Aalborg, Denmark. . Tasks: Research and teaching.
- 1/4/2012-
30/8/2012 **IT-Expert.**
Hugo Miebach GmbH, Welding Machines Division, Dortmund, Germany. Tasks: ERP and Oracle databases management and development.
- 1/8/2008-
31/07/2010 **Data analyst**
Hugo Miebach GmbH, Welding Machines Division, Dortmund, Germany. Analysis of welding parameters. Tasks: Databases and data analysis.
- 01/11/2005-
30/04/2006 **Technical Consultant IT Solutions.**
HANSA Ltda, Commercial and Industrial Society, IT&Communications Division, LA Paz, Bolivia. Tasks: IT Support.

EUROPEAN PROJECT

- 01/06/2015-
30/3/2016 Research Member of the EC-funded collaborative project, “**Learning to Create**” (Lrn2Cre8). Funded by the Future and Emerging Technologies (FET) programme within the Seventh Framework Programme for Research of the European Commission, under FET grant number 610859.

TEACHING EXPERIENCE

- 2020 **Universidad Privada Boliviana**, Bolivia. Subject: Artificial Intelligence selected topics. Lecturer in the Licenciatura program of Computer systems engineering.
- 2013-2016 **Aalborg University**, Denmark. Subject: Supervision of student projects in the Medialogy Bachelor program. Teaching assistant in the Master of Science in Sound and Music Computing.
- 2013-2015 **Aalborg Ballet Club**, Denmark. Subject: Ballet.
- 15/08/2006 **Escuela Militar de Ingeniería**, La Paz, Bolivia. Subject: Matlab workshop.
- 01/10/2005-30/03/2006 **Conservatorio Plurinacional de Música**, La Paz, Bolivia. Subject: Workshops on improvisation and movement.
- 01/04/2005-15/10/2005 **Conservatorio Plurinacional de Música**, La Paz, Bolivia: Subject: piano teacher.

COMPLETED PEDAGOGICAL COURSES:

- 1999 Psychopedagogy of art (Psicopedagogía del arte), taken at the Conservatorio Plurinacional de Música, La Paz. Annual system. Score: 90/100.
- 2002 Interactive pedagogy and creativity (Pedagogía interactiva y creatividad.), taken at the Universidad Católica Boliviana, La Paz. Semestral system. Score: 94/100.

Skills

Research, project management, modeling and programming.
Excellent oral and written communication skills.

PROGRAMMING

Python, TensorFlow, Keras, Matlab (advanced).
C, SQL, PLSQL, Apex Administration of ORACLE database XE Edition and Oracle 10G (outdated).

CERTIFICATIONS:

- 08/10/2019 Scalable Machine Learning on Big Data using Apache Spark. coursera.org/verify/3MDVE7QEHM29
- 09/2019 TensorFlow in Practice specialization. [Certificate](#)
- 23/09/2019 Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning. coursera.org/verify/CD8YLYU54YDW
- 24/09/2019 Convolutional Neural Networks in TensorFlow. coursera.org/verify/5B8ZPR7D66HX
- 24/09/2019 Natural Language Processing in TensorFlow. coursera.org/verify/JYBZB93B5U5T
- 23/09/2019 Sequences, Time Series and Prediction. coursera.org/verify/VL3D7J6CY8WB
- 10/02/2006 Oracle 9i Technical Champion Skills, 82%.

Publications

Books

- [1] Velarde, G. (2020). [A 4.0 Artificial Intelligence strategy in Bolivia](#). Düsseldorf: PRICA.
- [2] Velarde, G. (2020). [Una estrategia 4.0 de inteligencia artificial en Bolivia](#). Publicación independiente.

PHD DISSERTATION

- [3] Velarde, G. (2017). [Convolutional Methods for Music Analysis](#). PhD Dissertation. Aalborg University Press.

ALGORITHM SUBMITTED TO THE MIREX

- [4] Velarde, G. and Meredith, D. (2014b). [A wavelet-based approach to the discovery of themes and sections in monophonic melodies](#). Music Information Retrieval Evaluation Exchange (MIREX 2014), Competition on Discovery of Repeated Themes and Sections, 27-31 October 2014, Taipei, Taiwan.

SELECTED JOURNAL PAPERS, PROCEEDINGS AND BOOK CHAPTERS

- [5] Velarde, G. (2019). [Artificial Intelligence and its impact on the Fourth Industrial Revolution: A Review](#). *International Journal of Artificial Intelligence & Applications*, 10(6), 41-48. Retrieved from <http://aircconline.com/ijaia/V10N6/10619ijaia04.pdf>
- [6] Velarde, G., Cancino Chacón, C., Meredith, D., Weyde, T., and Grachten, M. (2018a). [Convolution-based Classification of Audio and Symbolic Representations of Music](#). *Journal of New Music Research*. <https://doi.org/10.1080/09298215.2018.1458885>.
- [7] Velarde, G., Weyde, T., and Meredith, D. (2013a). [An approach to melodic segmentation and classification based on filtering with the haar-wavelet](#). *Journal of New Music Research*, 42(4):325-345.
- [8] Velarde, G., Meredith, D., and Weyde, T. (2015). [A wavelet-based approach to pattern discovery in melodies](#). In Meredith, D., editor, *Computational Music Analysis*, pages 303-333. Springer.
- [9] Velarde, G., Weyde, T., Cancino Chacón, C., Meredith, D. and Grachten, M. [Composer Recognition based on 2D-Transformed Piano-Rolls](#). *ISMIR 2016, The 17th International Society for Music Information Retrieval Conference*.

- [10] Velarde, G., Weyde, T., and Meredith, D. (2013b). *Wavelet-filtering of symbolic music representations for folk tune segmentation and classification*, pages 56–62. Meertens Institute; Department of Information and Computing Sciences; Utrecht University.

OTHER PUBLICATIONS, POSTERS & TALKS

- [11] Velarde, G. 2020. (2020b). Inteligencia Artificial e innovación para impulsar a Bolivia en el siglo XXI. *Presentación virtual organizada por la Universidad Privada Boliviana, 2020. La Paz, Bolivia, September 9, 2020.*
- [12] Velarde, G. 2020. (2020a). Estrategia 4.0 de Inteligencia Artificial en Bolivia. *Presentación virtual organizada por la Universidad Católica Boliviana, 2020. La Paz, Bolivia, May 25, 2020.* <https://youtu.be/JfgAfV23yZg>
- [13] Velarde, G. 2019. (2019b). Music for Good Workshop. *Woman in Music Information Retrieval. Satellite event of the 20th International Society for Music Information Retrieval, 2019. Delf, The Netherlands, November 3, 2019.* <https://youtu.be/y9IX1GtV7lg>
- [14] Velarde, G. 2019. (2019a). Impacto de la Inteligencia Artificial en Bolivia, Latinoamérica y el Mundo. *Ciclo de conferencias Industria 4.0, Universidad Privada de Santa Cruz de la Sierra, Bolivia, October 1, 2019.* <https://youtu.be/6vkJRqxt9NU>
- [15] Henderson, Steffensen, Dyrsting, Teglbjærg, Meeus, Jørgensen, Velarde, 2018. (2018b). Moodagent App: Novel ways of interacting with music streaming content. Poster presented at the *19th International Society for Music Information Retrieval Conference, Paris, France, from September 23-27, 2018*
- [16] Velarde, G. and Meredith, D. (2014a). Melodic pattern discovery by structural analysis via wavelets and clustering techniques. Paper presented at the *European Music Analysis Conference, Leuven, Belgium.*
- [17] Velarde, G. and Weyde, T. (2012a). Melodic structure and automatic classification in bach's 2-part inventions. In Abels, B., Grant, M., and Waczkat, A., editors, *Music | Musics. Structures and Processes.*
- [18] Velarde, G. and Weyde, T. (2012b). On symbolic music classification using wavelet transform. In *International Conference on Applied and Theoretical Information Systems Research*. Academy of Taiwan Information Systems Research. August, 2013. An error has been found in the code of the experiment that affects the results shown in tables and figures.
- [19] Velarde, G. and Weyde, T. (2012c). The relevance of wavelet representation of melodic shape. Abstract from *Music & Shape Conference, London, Storbritannien.*
- [20] Velarde, G. and Weyde, T. (2012d). Wavelet-based melody representation and segmentation for recognition of tune families. Poster presented at *DMRN+7: Digital Music Research Network One-day Workshop 2012, London, Storbritannien.*

- [21] Velarde, G. and Weyde, T. (2011). Symbolic melody classification using wavelets. Poster presented at Digital Music Research Network One-day Workshop 2011, London, Storbritannien.
- [22] Velarde, G. and Binroth, C. (2011). Regression analysis: A good practice for parameter exploration and optimisation in laser welding process. *Welding and Cutting*, 10(5):322–328.
- [23] Velarde, G. and Binroth, C. (2010). Dynamic pattern extraction of parameters in laser welding process. In Perner, P., editor, *Advances in Data Mining. Applications and Theoretical Aspects Lecture Notes in Computer Science Volume 6171*, volume 6171, pages 350–361. Springer.
- [24] Velarde, G. (2010). Pattern identification in melody via wavelets. Poster presented at International Society for Music Information Retrieval Conference, Utrecht, Holland.

ALBUMS

- [25] Velarde, G. (2011). Angeles. Cdbaby. 884502963397. MP3.
- [26] Velarde, G. (2008). Colores en movimiento. Cdbaby. 884502897579. CD.
- [27] Arce Sejas, G. and Velarde, G. (2004). CDI884502963397 Estudio aleatorio no. 3, op. 30: To mr. Joseph. Mca (American Contemporary Music) 002 (700261990460). MP3.

LANGUAGES

Spanish: Native Speaker, *English*: (Full professional), *German*: (Professional working)

- 1999-2001 English Studies: Centro Boliviano Americano CBA, La Paz. MTELP-Michigan Test of English Language Proficiency. TOEFL Internet-based Test. Score: 97/120. Taken in 2012.
- 2004 German Studies: Goethe Institut La Paz, Basic Level. Goethe Institut Berlin, Medium. Zertificat ZD - Zertificat Deutsch. Score: 257/300. Taken in 2004.

PRESS CLIPPING

- 21/12/2014 Forskning i musiktemaer, *Jyllands-Posten*
- 14/01/2012 Velarde habla con ángeles, *La Prensa*
- 19/04/1994 La Paz mostró su predominio en el IV Concurso de Piano, *Presencia*

REVIEWING

- 2019 Journal of New Music Research
- 2018 Computer Music Journal
- 2015-2018 International Conference for Music Information Retrieval (ISMIR)
- 2015 European Association for Signal Processing Conference (EUSIPCO)
- 2013 Journal of Mathematics and Music

MENTORING

- 2017-2018 Mentor of the [Women in Music Information Retrieval](#) program.

GRANTS, HONORS & AWARDS

- 2019 & 2020 Selected to join the Top Women Tech Summit.
- 08/2016 Women in MIR (WiMIR) Grant supporting female first or supporting authors of accepted full papers at the 17th International Society for Music Information Retrieval Conference in New York.
- 01/10/2012-02/11/2016 Scholarship for the PhD program of the Faculty of Engineering and Science awarded by the Department of Architecture, Design and Media Technology, Aalborg University
- 14/07/2010 Nominated for Best Paper Award for the talk “Dynamic Pattern Extraction of Parameters in Laser Welding Process”, at the Industrial Conference on Data Mining, Berlin, Germany
- 1/9/2006-29/2/2008 DAAD (Deutscher Akademischer Austausch Dients) Scholarship in MSc. Electronic Systems and Engineering Management at FH Sudwetfalen University of Applied Sciences, Soest, Germany
- 14/10/2005 Honor Diploma to have obtained an excellent qualification in her Thesis, Systems Engineering program, Faculty of Exact Sciences and Engineering, Universidad Católica Boliviana, La Paz, Bolivia
- 10-12/2004 German Course Scholarship, Goethe Institut, Berlin, Germany
- 07/1999 Summer Stage Scholarship, Classical and Jazz music master classes, Academie Internationale d’ Eté de Wallonie, Libramont, Belgium
- 1995 & 2002 Scholarship at the Conservatorio Plurinacional de Música, La Paz, Bolivia
- 1994 & 1997 First and second prizes in the IV and VII National Competition of Piano “Abril en Tarija”, respectively, Tarija, Bolivia
- 1993, 1998 & 2002 Prize “Prof. Fanny Salgueiro Ch.”, granted by The Conservatorio Plurinacional de Música and the Succession Prof. Fanny Salgueiro Chavarria. Best regular student in her category and instrument, La Paz, Bolivia
- 1994, 1996 & 2001 Honor Diploma granted by the Conservatorio Plurinacional de Música and the National Secretary of Culture, La Paz, Bolivia
- 1986 First prize, first category. Painting contest. Subsecretary of Maritime, Fluvial and Lacustrine Interests in its V Anniversary, La Paz, Bolivia