Maurício do V. M. da Costa

Curriculum Vitae

Weidenstrasse 23
49080 Osnabrück, Niedersachsen
+49 15205796582
madovalemade@uni-osnabrueck.de

Research interests: Audio Signal Processing | Machine Learning | 3D Audio | Music Information Research | Acoustic Localization

Education

COPPE, Federal University of Rio de Janeiro — Rio de Janeiro, Brazil
D.Sc. in Electrical Engineering - Signal Processing — Sep 2015 - Apr 2020
Advisor: Dr. Luiz Wagner Pereira Biscainho
Dissertation: Novel Time-Frequency Representations for Music Information Retrieval - **download**

COPPE, Federal University of Rio de Janeiro — Rio de Janeiro, Brazil
M.Sc. in Electrical Engineering - Signal Processing — Sep 2013 - Sep 2015
Advisor: Dr. Luiz Wagner Pereira Biscainho
Thesis: Query-by-humming Systems with Automatic Generation of an Adaptive Database (in Portuguese) - **download**

Polytechnic School, Federal University of Rio de Janeiro — Rio de Janeiro, Brazil
B.Sc. in Electronic and Computer Engineering (equivalent to M.Sc.) — Mar 2008 - Sep 2013
Advisor: Dr. Luiz Wagner Pereira Biscainho
Thesis: Methods for Acoustic Sensors Localization (in Portuguese) - **download**

Institute of Arts and Techniques in Communication (IATEC) — Rio de Janeiro, Brazil
Audio Engineer — Mar 2008
Course: Editing, Mixing and Mastering

Experience

IEEE Signal Processing Society — Germany
IEEE SPS Mentoring Programs Subcommittee Chair — Apr 2025 - Present

IEEE Open Journal of Signal Processing — Germany
Consulting Associate Editor — Jul 2023 - Present
Editor-in-Chief: Dr. Brendt Wohlberg

University of Osnabrück — Osnabrück, Germany
Postdoctoral Researcher — Jan 2021 - Present
Project: **CA/AXR - Computer Audition & Acoustical Extended Reality**
Coordinator: Dr. Michael Oehler

Télécom Paris — Paris, France
Visiting PhD Student Researcher — Jan 2019 - Sep 2019
Project: Statistical Relational Learning for Music Information Extraction and Expressiveness Studies from Audio Recordings
Coordinators: Dr. Hélène Crayencour, Dr. Slim Essid, and Dr. Luiz Wagner Pereira Biscainho

Federal University of Rio de Janeiro — Rio de Janeiro, Brazil
Researcher — Mar 2017 - Dec 2018
Project: Development of a multi-channel sound reproduction system with 360º horizontal sound image applied to music, sound arts and bioacoustics
Coordinator: Dr. José Augusto Mannis
Institutions: Universidade Federal Fluminense (UFF), Laboratory of Acoustics and Sound Arts - LASom/DM/IA/Unicamp and the SMT/COPPE/Poli/UFRJ

Hewlett Packard Brasil and COPPETEC — Rio de Janeiro, Brazil
Federal University of Rio de Janeiro
Research Assistant — Dec 2011 - Dec 2014
Projects:
- MeDAL (Multiple-Device Acoustic Localization)
- MuQuE-AS (Automatic Tools for Multimedia Quality Evaluation / Multicapture for Quality Enhancement and Localization – Audio & Speech)

Engineering School, Universidad de la República — Montevideo, Uruguay
Visiting Student Researcher — Jun 2014 - Sep 2014
Advisors: Dr. Luiz Wagner Pereira Biscainho and Dr. Martín Rocamora
Topic: Automatic generation of music databases for query-by-humming systems

Matto Studio — Rio de Janeiro, Brazil
Owner/Producer — 2007 - 2020
Main roles: performing, recording, mixing and mastering music

Journal Publications

Lossy Numerical Simulation of HRTFs Using a Linear-Logarithmic Frequency Scale — 2025
da Costa, M. do V. M., Biscainho, L. W. P., Voong, T. M., Regener, M., Oehler, M.
Applied Acoustics, 230 (1), pp. 110430-110441

Classification of 1950 to 1960 Electronic Music Using the VGGish Neural Network and Random Forest — 2023
da Costa, M. do V. M., Zwißler, F., Schwarzbauer, P. , Oehler, M.
Music in the AI Era. CMMR 2021. Lecture Notes in Computer Science., vol. 13770, n. 1, pp. 195-201

The Fast Local Sparsity Method: A Low-cost Combination of Time-Frequency Representations Based on the Hoyer Sparsity — 2022
da Costa, M. do V. M., Biscainho, L. W. P.
New Trends in Audio Effects, special issue of Journal of the Audio Engineering Society, vol. 70, n. 9, pp. 698-707

Sparse Time-Frequency Representations for Polyphonic Audio Based on Combined Efficient Fan-Chirp Transforms 2019
da Costa, M. do V. M., Apolinário, I. F., Biscainho, L. W. P.
Journal of the Audio Engineering Society, vol. 67, 11, pp. 894-905

Robust Acoustic Self-Localization of Mobile Devices 2016
Haddad, D. B., Martins, W. A., da Costa, M. do V. M., Biscainho, L. W. P., Nunes, L. de O., Lee, B.
IEEE Transactions on Mobile Computing, vol. 15, n. 4, pp. 982-995

A Volumetric SRP with Refinement Step for Sound Source Localization 2015
Lima, M. V. S., Martins, W. A., Nunes, L. de O., Biscainho, L. W. P., Ferreira, T. N., da Costa, M. do V. M., Lee, B.
IEEE Signal Processing Letters, vol. 22, n. 8, pp. 1098-1102

A Steered-Response Power Algorithm Employing Hierarchical Search for Acoustic Source Localization Using Microphone Arrays 2014
Nunes, L. de O., Martins, W. A., Lima, M. V. S., Biscainho, L. W. P., da Costa, M. do V. M., Gonçalves, F. M., Said, A., Lee, B.
IEEE Transactions on Signal Processing, vol. 62, n. 19, pp. 5171-5183

Conference Publications

On the Use of a Hybrid Linear-ERB Frequency Scale for Lightweight Simulation of HRTFs 2024
da Costa, M. V. M., Biscainho, L. W. P., Oehler, M.
Proceedings of the IEEE International Symposium on the Internet of Sounds, Erlangen, Germany.

Low-cost Numerical Approximation of HRTFs: a Non-Linear Frequency Sampling Approach 2023
da Costa, M. V. M., Biscainho, L. W. P., Oehler, M.
Proceedings of the 26th International Conference on Digital Audio Effects (DAFx23), Copenhagen, Denmark.

Importance of HRTF Personalisation for Audio Rendering in Music-Related Virtual Environments 2023
Oehler, M., Voong, T. M. , Regener, M., da Costa, M. V. M., Reuter, C.
Proceedings of the 10th Convention of the European Acoustics Association (Forum Acusticum). Torino, Italy.

Suitability of Bone Conduction Headphones for Virtual Acoustic Environments 2022
Voong, T.M., da Costa, M. do V. M., Regener, M., Reuter, C., Oehler, M.
In Proceedings of the 2022 International Conference on Audio for Virtual and Augmented Reality

Relevance of Individual Numerically Simulated Head-Related Transfer Functions for Different Applications in Virtual Environments 2022
Oehler, M., da Costa, M. do V. M., Regener, M., Voong, T.M.
In Proceedings of the 2022 International Conference on Audio for Virtual and Augmented Reality

Effect of Using Individually Simulated HRTFs on the Outcome of Tournament Selection Procedures in a Virtual Environment 2022
Oehler, M., Voong, T.M., Regener, M., da Costa, M. do V. M.
In Proceedings of the 19th Sound and Music Computing Conference, Saint-Étienne (France)

Classification of 1950 to 1960 Electronic Music Using the VGGish Neural Network and Random Forest 2021
da Costa, M. do V. M., Zwißler, F., Schwarzbauer, P. Oehler, M.
In Proceedings of the International Symposium on CMMR

High-Definition Time-Frequency Representation Based on Adaptive Combination of Fan-Chirp Transforms via Structure Tensor 2019
da Costa, M. do V. M., Biscainho, L. W. P.
In proceedings of the 22nd International Conference on Digital Audio Effects (DAFx-19)

Combining Time-Frequency Representations via Local Sparsity Criterion 2018
da Costa, M. do V. M., Biscainho, L. W. P.
In proceedings of the 2nd AES Latin American Congress of Audio Engineering

A Novel Dataset of Brazilian Rhythmic Instruments and Some Experiments in Computational Rhythm Analysis 2018
Maia, L. S., Tomaz Jr., P. D., Fuentes, M., Rocamora, M., Biscainho, L. W. P., da Costa, M. do V. M., Cohen, S.
In proceedings of the 2nd AES Latin American Congress of Audio Engineering

Structure Tensor Applied to Parameter Estimation in the Fan-Chirp Transform 2018
Apolinário, I. F., da Costa, M. do V. M., Biscainho, L. W. P.
In proceedings of the 2nd AES Latin American Congress of Audio Engineering

Combining Time-Frequency Representations for Music Information Retrieval 2017
da Costa, M. do V. M., Biscainho, L. W. P.
In proceedings of the 15º Congresso de Engenharia de Áudio da AES Brasil

Choosing Coherent Times of Flight for Improved Acoustic Sensor Localization 2014
Haddad, D. B., Martins, W. A., Biscainho, L. W. P., da Costa, M. do V. M., Kyu-Han Kim.
In proceedings of the International Telecommunications Symposium (ITS), 2014, São Paulo

Time-of-Flight Selection for Improved Acoustic Sensor Localization Using Multiple Loudspeakers 2013
Martins, W. A., Nunes, L. de O., Haddad, D. B., Biscainho, L. W. P., Lima, M. V. S., da Costa, M. do V. M., Lee, B.
In proceedings of the XXXI Simpósio Brasileiro de Telecomunicações (SBrT), 2013, Fortaleza

External Services

Technical Reports

Statement on the validity of patents PI0304541-2 and PI0409327-5 granted by INPI to KONINKLIJKE PHILIPS, in light of the documents presented by SEMP TCL INDÚSTRIA E COMÉRCIO DE ELETROELETRÔNICOS S.A. and SEMP TCL MOBILIDADE LTDA. 2022
Netto, S. L., da Costa, M. do V. M.
Philips | Licks Attorneys

Technical Report on the Validity of Patent PI 0304541-2 2022
Netto, S. L., da Costa, M. do V. M.
Philips | Licks Attorneys

Technical Report on the Validity of Patent PI 0409327-5 2022
Netto, S. L., da Costa, M. do V. M.
Philips | Licks Attorneys

Assessing the use of the HE-AAC v2 audio coding standard in mobile handsets 2021
Netto, S. L., da Costa, M. do V. M.
Philips | Dolby | Licks Attorneys

Technical Report on the Measurement of the use of the HE-AAC v2 audio decoding standard in television sets 2021
Netto, S. L., da Costa, M. do V. M.
Philips | Dolby | Licks Attorneys

Declaration Regarding Android Operating System Compatibility with the AAC Audio Signal Decoding Standard 2021
Netto, S. L., da Costa, M. do V. M.
Dolby | Licks Attorneys

Technical Report on the Validity of Patents PI0014642-0, PI0009138-3 and PI0111362-3 – Part 2 2021
Netto, S. L., da Costa, M. do V. M.
Dolby | Licks Attorneys

Technical Report on the Validity of Patents PI0014642-0, PI0009138-3 and PI0111362-3 2021
Netto, S. L., da Costa, M. do V. M.
Dolby | Licks Attorneys

Reviews

Conference Review

- DAFx
- AES Latin American Congress of Audio Engineering
- AES Brasil

Journal Review

- IEEE Signal Processing Letters
- IEEE Transactions on Audio, Speech and Language Processing
- Circuits, Systems, and Signal Processing
- Elsevier Signal Processing

Teaching

University of Osnabrück - Musicology and Music Pedagogy Institute Osnabrück, Germany
Lecturer Apr 2023 - Present
Introduction to Digital Audio and Music Processing

Licks Attorneys Rio de Janeiro, Brazil
In-house course lecturer Oct 2020
Principles of audio coding

15º Congresso de Engenharia de Áudio da AES Brasil Santa Catarina, Brazil
Mini-course presenter Sep 2017
Equalization and Compression Techniques for Mixing

Federal University of Rio de Janeiro - Polytechnic School Rio de Janeiro, Brazil
Teaching assistant Mar 2016 - Jun 2016
Linear Systems II

Mentoring

Polytechnic School of the Federal University of Rio de Janeiro Rio de Janeiro, Brazil
B.Sc. final project Present
Title: Phase Estimation for Multi-Resolution Time-Frequency Representations

Polytechnic School of the Federal University of Rio de Janeiro Rio de Janeiro, Brazil
B.Sc. final project 2023
Title: High-Performance Implementations and Applications of High-Definition Time-Frequency Representations

Polytechnic School of the Federal University of Rio de Janeiro Rio de Janeiro, Brazil
B.Sc. final project 2016
Title: A system for monophonic vocal signals tuning with graphic user interface

Polytechnic School of the Federal University of Rio de Janeiro Rio de Janeiro, Brazil
Undergraduate scientific initiation project 2015
Topic: A study of Ambisonics

Additional Information

Membership

- IEEE Signal Processing Society
- Audio Engineering Society

Skills

- Audio signal processing
- Acoustics
- Machine Learning
- Sound recording
- Music production
- Musical instruments
- Photography

Languages

- Portuguese (native)
- English (fluent)
- Spanish (upper intermediate)
- German (basic)
- French (basic)

Nationality Brazilian

Current visa Blaue Karte EU