

# Mylène C.Q. Farias

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## Profiles Online

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Orcid ID (0000-0002-1957-9943): [orcid.org/0000-0002-1957-9943](https://orcid.org/0000-0002-1957-9943)  
Google Scholar Profile (Mylene Farias): [bit.ly/21SfPNR](https://bit.ly/21SfPNR)  
Scopus Profile (authorID=34769791900) : [bit.ly/21NoCk9](https://bit.ly/21NoCk9)  
DBLP Profile: [dblp.org/pid/96/2885](https://dblp.org/pid/96/2885)  
ResearchGate Profile (Mylene Farias): [www.researchgate.net/profile/Mylene\\_Farias](https://www.researchgate.net/profile/Mylene_Farias)

## Education

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| 2004 | <b>Ph.D. in Electrical and Computer Engineering</b> , University of California, Santa Barbara, CA, Dissertation title: “No-Reference and Reduced Reference Video Quality Metrics: New Contributions”, Advisor: Dr. Sanjit K. Mitra. |
| 1998 | <b>M.Sc. in Electrical and Computer Engineering</b> , State University of Campinas, Dissertation title: “Wavelet Transform Applications in Image Compression,” Advisor: Dr. Amauri Lopes.                                           |
| 1994 | <b>B.Sc. in Electrical Engineering</b> , Federal University of Pernambuco, Undergraduate emphasis on Information Theory and Signal Processing.                                                                                      |

## Professional Experience

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|-------------|-------------------------------------------------------------------------------------------------|
| 2018 - now  | Associate Professor, Electrical Engineering Department, University of Brasilia, Brazil.         |
| 2012 - 2018 | Tenured Assistant Professor, Electrical Engineering Department, University of Brasilia, Brazil. |
| 2009 - 2012 | Assistant Professor, Computer Science Department, University of Brasilia, Brazil.               |
| 2008 - 2009 | Assistant Professor, Computer Science Department, Federal University of São Paulo, Brazil.      |
| 2006 - 2007 | Post-Doctoral Researcher at the Federal University of Campina Grande, Brazil.                   |
| 2005 - 2006 | Research Staff Member at Intel Corp., Arizona, US.                                              |
| 2004 - 2005 | Post Doctoral Researcher at the University of Santa Barbara, US.                                |
| 2002 - 2002 | Intern Researcher at Philips Research, The Netherlands.                                         |
| 1997 - 1998 | Research Engineer at CPqD, Campinas, SP, Brazil.                                                |

## Other Positions

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|-------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 2018 - 2019 | Visiting Researcher Scholar at the Computer Science Department, University of Texas at Dallas, TX, US (1 year).                                |
| 2011 - 2015 | Visiting Research Scholar at the Computer Science Department, University of Delft, Delft, The Netherlands (45 days each year, during 4 years). |

## Interests

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|------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Research:</b> | Visual Quality, Human Perception, Visual Attention, Image and Video Processing, Watermarking, Tampering.                       |
| <b>Teaching:</b> | Digital Image Processing, Computer Vision, Data Structures, Multimedia Signal Processing, Signals and Systems, Circuit Theory. |

## Professional Activities

- **Associate Editor:** IEEE Signal Processing Letters (12/2018 - current), SPIE Journal of Electronic Imaging (05/2021 - current).
- **Area Editor:** Elsevier Signal Processing: Image Communication (09/2020 - current).
- **Editorial Team:** ACM SIGMM Records - Social Media (2019 - current).
- **Area Chair:** IEEE Intern. Conference on Image Processing - ICIP (2019, 2020, 2021), IEEE Intern. Conference on Multimedia and Expo (2021, 2022), ACM International Conference on Multimedia (2021), Associate Chair ACM International Conference on Interactive Media Experiences - IMX (2021).
- **Conference Co-Chair:** ACM Multimedia Systems Conference - MMSys 2022, Electronic Imaging: Image Quality and System Performance (2020-2022), Short Course Co-Chair for Electronic Imaging (2022).
- **Program Co-Chair:** IEEE Intern. Conf. on Quality of Multimedia Experience - QoMEX (2020), ACM Workshop on Network and Operating System Support for Digital Audio and Video - NOSSDAV (2021).
- **Diversity Chair:** IEEE Intern. Conf. on Quality of Multimedia Experience - QoMEX (2021), ACM International Conference on Interactive Media Experiences - IMX (2022).
- **Member of Technical Program Committees:** Electronic Imaging: Image Quality and System Performance (2018-current), ACM Multimedia (2019, 2020), International Workshop on Immersive Mixed and Virtual Environment Systems (MMVE 2019), IEEE Intern. Conf. on Quality of Multimedia Experience - QoMEX (2020, 2014-2018), European Workshop on Visual Information Processing (2020, 2019, 2018, 2010), Conference on Graphics, Patterns and Images - SIBGRAPI (2020, 2019, 2017), Workshop on Quality of Multimedia Services - QUAMUS (2016-2018), Symposium on Emerging Topics in Computing and Communications (2017), Workshop on Video Processing and Quality Metrics - VPQM (2010-2015), Intern. Conf. on Multimedia Modeling (2012-2017, 2020), Simpósio Brasileiro de Sistemas Multimídia e Web - WebMedia (2021).
- **Journal Reviewer** (Detailed list at <https://publons.com/a/1084784>): IEEE Transactions on Image Processing, SPIE Journal of Electronic Imaging, IEEE Transactions on Multimedia, IEEE Signal Processing Letters, Elsevier Signal Processing: Image Communication, Springer Multidimensional Systems and Signal Processing, Elsevier Signal Processing, Elsevier Digital Signal Processing, Elsevier Journal of Visual Communication and Image Representation, ACM Transactions on Multimedia Computing, Communications and Applications, IET Electronics Letters, IET Image Processing, MDPI Sensors, SPIE Optical Engineering, IEEE Transactions on Mobile Computing, IEEE Transactions on Broadcasting, IEEE Transactions on Audio, Speech and Language Processing, IST Journal of Imaging Science and Technology, Elsevier Computers & Graphics.
- **Member of Funding Agency Committees:** Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) - Brazil.
- **Society Memberships:** Senior IEEE Member, IEEE Signal Processing Society Member, Member of the MMSP technical committee of the IEEE Signal Processing Society, IEEE Women in Engineering, ACM Member, SPIE Member.

## Honors, Awards, and Accomplishments

- 2019: Best student paper award for “Analyzing the influence of cross-modal IP-based degradations on the perceived audio-visual quality”, in Image Quality and System Performance, IST Electronic Imaging, co-authored with Helard Becerra.
- 2017: Best student paper award for “Blind Image Quality Assessment Using Multiscale Local Binary Patterns,” in Image Quality and System Performance, IST Electronic Imaging, co-authored with Pedro Freitas and Welington Akamine.
- 2016: Best paper for “High Dynamic Range Tone Mapping Algorithm Based on Image Feature Maps,” in the Workshop of Undergraduate Works, Conference on Graphics, Patterns and Images (SIBGRAPI), co-authored with Matheus Santos.

- 2015: Honorable Mention Award for the paper “Embedding Color Watermarks into Halftoning Images using Minimum-Distance Binary Patterns,” Conference on Graphics, Patterns and Images (SIBGRAPI), co-authored with Pedro Freitas.
- 2012: Best paper for “Studying The Added Value of Visual Attention in Objective Image Quality Metrics,” in the Workshop of Undergraduate Works, Conference on Graphics, Patterns and Images (SIBGRAPI), co-authored with Welington Akamine.
- 2005: Paper “Detectability and Annoyance of Synthetic Blockiness, Blurriness, Noisiness, and Ringing in Video Sequences” rated among the top papers in its category, co-authored with Sanjit Mitra.
- 2004: Paper “Detectability and Annoyance of Synthetic Blurring and Ringing in Video Sequences” rated among the top papers in its category by the reviewers, co-authored with Sanjit Mitra.

## Scholarships

- 2013-now: Research (Productivity) Scholarship by the Brazilian National Council for Scientific and Technological Development (CNPq), Brazil.
- 1998-2002: Full Ph.D. Scholarship (Tuition fees, stipend) by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES).
- 1995-1997: Master’s Scholarship by the Brazilian National Council for Scientific and Technological Development (CNPq).
- 1993-1994: Undergraduate research scholarship by the Brazilian National Council for Scientific and Technological Development (CNPq), Electrical Engineering Department, Federal University of Pernambuco, Brazil.
- 1991-1992: Undergraduate research scholarship by the Brazilian National Council for Scientific and Technological Development (CNPq), Physics Department, Federal University of Pernambuco, Brazil.

## Outreach Activities

- Co-Founder and Advisor chair of the **IEEE Women in Engineering Chapter** in the University of Brasília (2012 - now);
- Co-organized the **1st Week of Women in Engineering** of the Technology College of the University of Brasília (2018).
- Co-organized the **Workshop Women in Technology (WiT)**, as part of the Brazilian Software Engineering Congress (CBSOFT) in the Brazilian Computer Society (2013).
- Member and co-organizer of the panel “Are we in balance yet? Stories from different continents about academia” in the **Grace Hopper** Celebration for Women in Computing Conference on October 3-6, 2012 in Baltimore, Maryland USA.
- Member of the outreach program **Computing Girls (Meninas na Computação)** of the Department of Computer Science of the University of Brasília. (2009-2012).

## Administrative Experience

- 2012-2018: Member of the Graduate Council of the Graduate Program in Electronics and Control Systems Engineering, Department of Electrical Engineering, University of Brasília, Brazil;
- 2016-2018: Director of the Graduate Program in Electronics and Control Systems Engineering, Department of Electrical Engineering, University of Brasília, Brazil;
- 2011-2013: Director of the Graduate Program in Computer Science, Department of Computer Science, University of Brasília, Brazil.

## Grants and Contracts

Follows the list of projects for which I am the principal investigator or a co-principal investigator. The values reported were converted from Brazilian Real. Therefore, one should take into account that consumer prices (including rent) in United States are 120.94% higher than in Brazil <sup>1</sup>.

- 2022: Project with Justice Ministry for identification of individuals driving under influence. Funding includes salaries for 1 Ph.D. student, 3 master students, and 3 undergraduate. It also includes equipment (computer, tablets, smart glasses, etc.) for the execution of the project.
- 2022-2023: Research collaboration grant with the University of Poitiers, France (Prof. Chaker Larabi), which includes the salary of 2 Ph.D. students and a co-tutelle Ph.D. agreement.
- 2022-2024: Research (Productivity) Scholarship by the Brazilian National Council for Scientific Technological Development(CNPq), Brazil.
- 2022-2024: Research project funded by FAPDF (State Research Agency) entitled “Automatic disease identification using dental medical images,” (BRL 976,000.00). Research team includes researchers in engineering, computer science, and health. Funding consists of equipment (3 computer servers for machine learning), 9 Ph.D. and 9 M.Sc. scholarships.
- 2021: Laboratory of Tests for the Brazilian Digital Television Project - TV 3.0 ([https://forumsbtvd.org.br/tv3\\_0/](https://forumsbtvd.org.br/tv3_0/)). Funding was provided by Brazilian Ministry of Communications and consists of scholarships and salaries for 10 researchers, including 3 M.Sc. graduates, 5 engineers and 2 professors.
- 2019-2021: FAPESP/MCTIC, Co-PI of Project “Perceptually-Efficient Streaming of 360-degree Edited Video” (US\$ 50,000). Funding includes 2 Ph.D. scholarships and equipment.
- 2020-2022: BRICS STI Framework Programme 3 coordinated call for BRICS multilateral projects, Project “Hybrid Methods for Radiological Medical Image Analysis and Pathological Grading Prediction” (US\$ 50,000 per year).
- 2009-2019: Undergraduate research scholarships, 2 scholarships per year (US\$ 2,460 per year).
- 2018-2019: NVIDIA GPU Grant for the project “Quality of Experience of Immersive Multimedia Applications” (equipment valued at US\$ 5,500).
- 2019-2021: Research (Productivity) Scholarship by the Brazilian National Council for Scientific Technological Development(CNPq), Brazil (US\$ 10,500).
- 2017-2019: Coordinator and Principal Investigator of “No-Reference Image Quality Assessment Methods Using Local Binary Patterns Variants,” Research Agency of the Brazilian Federal District (US\$ 16,000 + 4 undergraduate scholarships).
- 2016-2018: Research (Productivity) Scholarship by the Brazilian National Council for Scientific and Technological Development (CNPq), Brazil (US\$ 10,500).
- 2014-2018: Coordinator and Principal Investigator of “Modeling Digital Video Quality in Transmission Scenarios,” Brazilian National Council for Scientific and Technological (CNPq) (US\$ 22,000).
- 2013-2015: Research (Productivity) Scholarship by the Brazilian National Council for Scientific and Technological Development (CNPq), Brazil (US\$ 10,500).
- 2011-2015: Coordinator and Principal Investigator of “VARIUM - Visual ARTifacts Interference Understanding and Modeling,” International Collaboration Project. Funding 2 trips per year to The Netherlands (travel expenses and stipends) and 2 Ph.D. exchange scholarship of one year (travel expenses, health insurance, and stipends).
- 2010-2012: Productivity in Research Scholarship by the Brazilian National Council for Scientific and Technological Development(CNPq), Brazil (US\$ 10,500).
- 2008-2010: Coordinator and Principal Investigator of “Objective Quality Metrics for the Brazilian Digital Television System,” Brazilian National Council for Scientific and Technological Development (CNPq) (US\$ 20,000).

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<sup>1</sup>[https://www.numbeo.com/cost-of-living/compare\\_countries\\_result.jsp?country1=Brazil&country2=United+States&displayCurrency=USD](https://www.numbeo.com/cost-of-living/compare_countries_result.jsp?country1=Brazil&country2=United+States&displayCurrency=USD)

## Journal Publications

- [1] R. Diniz, P. G. Freitas, and M. C. Farias, “Point cloud quality assessment based on geometry-aware texture descriptors,” *Computers & Graphics*, 2022.
- [2] Y. Ding, S. Ruan, Y. Wang, J. Shao, R. Sun, W. Tian, N. Xiang, W. Ge, X. Zhang, K. Su *et al.*, “Novel deep learning radiomics model for preoperative evaluation of hepatocellular carcinoma differentiation based on computed tomography data,” *Clinical and translational medicine*, vol. 11, no. 11, p. e570, 2021.
- [3] H. Becerra Martinez, A. Hines, and M. C. Farias, “Perceptual quality of audio-visual content with common video and audio degradations,” *Applied Sciences*, vol. 11, no. 13, p. 5813, 2021.
- [4] R. Diniz, M. Q. Farias, and P. Garcia-Freitas, “Color and geometry texture descriptors for point-cloud quality assessment,” *IEEE Signal Processing Letters*, 2021.
- [5] G. J. Ansari, J. H. Shah, M. C. Farias, M. Sharif, N. Qadeer, and H. U. Khan, “An optimized feature selection technique in diversified natural scene text for classification using genetic algorithm,” *IEEE Access*, vol. 9, pp. 54 923–54 937, 2021.
- [6] G. M. Nunes, F. D. Oliveira, M. C. Farias, J. G. R. Gomes, A. Petraglia, J. Fernández-Berni, R. Carmona-Galán, and Á. Rodríguez-Vázquez, “Comparison between digital tone-mapping operators and a focal-plane pixel-parallel circuit,” *Signal Processing: Image Communication*, vol. 88, p. 115937, 2020.
- [7] X. Min, G. Zhai, J. Zhou, M. C. Farias, and A. C. Bovik, “Study of subjective and objective quality assessment of audio-visual signals,” *IEEE Transactions on Image Processing*, vol. 29, pp. 6054–6068, 2020.
- [8] H. B. Martinez, A. Hines, and M. C. Farias, “Unb-av: An audio-visual database for multimedia quality research,” *IEEE Access*, vol. 8, pp. 56 641–56 649, 2020.
- [9] J. A. Lima, F. B. da Silva, R. von Borries, C. J. Miosso, and M. C. Farias, “Isotropic and anisotropic filtering norm-minimization: A generalization of the tv and tgv minimizations using nesta,” *Signal Processing: Image Communication*, vol. 85, p. 115856, 2020.
- [10] W. Y. Akamine, P. G. Freitas, and M. C. Farias, “A framework for computationally efficient video quality assessment,” *Signal Processing: Image Communication*, vol. 70, pp. 57–67, 2019.
- [11] P. G. Freitas, L. P. da Eira, S. S. Santos, and M. C. Farias, “Image quality assessment using bsif, clbp, lcp, and lpq operators,” *Theoretical Computer Science*, 2019.
- [12] M. E. V. Melgar and M. C. Farias, “A (2, 2) xor-based visual cryptography scheme without pixel expansion,” *Journal of Visual Communication and Image Representation*, p. 102592, 2019.
- [13] C. Sánchez-Ferreira, L. Coelho, H. Ayala, M. Farias, and C. Llanos, “Bio-inspired optimization algorithms for real underwater image restoration,” *Signal Processing: Image Communication*, 2019.
- [14] A. R. Silva and M. C. Q. Farias, “Perceptual quality assessment of 3d videos with stereoscopic degradations,” *Multimedia Tools and Applications*, Nov 2019.
- [15] P. Garcia Freitas, W. Y. Akamine, and M. C. Farias, “Referenceless image quality assessment by saliency, color-texture energy, and gradient boosting machines,” *Journal of the Brazilian Computer Society*, vol. 24, no. 1, p. 9, 2018.
- [16] P. Garcia, W. Y. L. Akamine, and M. C. Q. Farias, “Using Multiple Spatio-Temporal Features to Estimate Video Quality Signal Processing : Image Communication Using multiple spatio-temporal features to estimate video quality,” *Signal Processing: Image Communication*, vol. 64, no. March, pp. 1–10, 2018.
- [17] H. A. Martinez and M. C. Farias, “Combining audio and video metrics to assess audio-visual quality,” *Multimedia Tools and Applications*, vol. 77, no. 18, pp. 23 993–24 012, 2018.
- [18] H. B. Martinez and M. C. Q. Farias, “Using The Immersive Methodology to Assess The Quality of Videos Transmitted in UDP and TCP-Based Scenarios,” *Electronic Imaging*, vol. 2018, no. 12, pp. 231–233, 2018.

- [19] A. F. Silva and M. C. Q. Farias, “Using perceptual strength estimates to predict the perceived annoyance of videos with combinations of spatial and temporal artifacts,” *Journal of Electronic Imaging*, vol. 27, no. 4, p. 43018, 2018.
- [20] P. G. Freitas, W. Y. L. Akamine, and M. C. Q. Farias, “No-Reference Image Quality Assessment Using Orthogonal Color Planes Patterns,” *IEEE Transactions on Multimedia*, vol. 20, no. 12, pp. 3353–3360, dec 2018.
- [21] P. Garcia Freitas, L. da Eira, S. Santos, and M. Farias, “On the Application LBP Texture Descriptors and Its Variants for No-Reference Image Quality Assessment,” *Journal of Imaging*, vol. 4, no. 10, p. 114, oct 2018.
- [22] P. G. Freitas, A. F. Silva, J. A. Redi, and M. C. Q. Farias, “Performance analysis of a video quality ruler methodology for subjective quality assessment,” *Journal of Electronic Imaging*, vol. 27, no. 5, p. 53020, sep 2018.
- [23] P. G. Freitas and M. C. Q. Farias, “Fast video artistic transfer via motion compensation,” *The International journal of Multimedia & Its Applications*, vol. 9, no. 2, pp. 15–20, 2017.
- [24] J. A. Lima, C. J. Miosso, and M. C. Farias, “Per-pixel mirror-based method for high-speed video acquisition,” *Journal of Visual Communication and Image Representation*, vol. 47, pp. 23–35, 2017.
- [25] P. G. Freitas, W. Y. Akamine, and M. C. Farias, “Blind image quality assessment using multiscale local binary patterns,” *Journal of Imaging Science and Technology*, vol. 60, no. 6, pp. 60405–1, 2016.
- [26] P. G. Freitas, M. C. Farias, and A. P. Araújo, “Hiding color watermarks in halftone images using maximum-similarity binary patterns,” *Signal Processing: Image Communication*, vol. 48, pp. 1–11, 2016.
- [27] —, “Enhancing inverse halftoning via coupled dictionary training,” *Signal Processing: Image Communication*, vol. 49, pp. 1–8, 2016.
- [28] P. Garcia Freitas, R. Rigoni, and M. C. Q. Farias, “Secure self-recovery watermarking scheme for error concealment and tampering detection,” *Journal of the Brazilian Computer Society*, vol. 22, no. 1, p. 5, 2016.
- [29] M. Leszczuk, M. Hanusiak, M. C. Farias, E. Wyckens, and G. Heston, “Recent developments in visual quality monitoring by key performance indicators,” *Multimedia Tools and Applications*, vol. 75, no. 17, pp. 10745–10767, 2016.
- [30] R. Rigoni, P. G. Freitas, and M. C. Q. Farias, “Detecting tampering in audio-visual content using QIM watermarking,” *Information Sciences*, vol. 328, pp. 127–143, 2016.
- [31] C. Sánchez-Ferreira, J. Y. Mori, M. C. Farias, and C. H. Llanos, “A real-time stereo vision system for distance measurement and underwater image restoration,” *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, vol. 38, no. 7, pp. 2039–2049, 2016.
- [32] A. F. Silva, M. C. Farias, and J. A. Redi, “Perceptual Annoyance Models for Videos with Combinations of Spatial and Temporal Artifacts,” *IEEE Transactions on Multimedia*, vol. 18, no. 12, pp. 2446–2456, 2016.
- [33] P. G. Freitas, W. Y. L. Akamine, and M. C. Q. Farias, “Blind Image Quality Assessment Using Multiscale Local Binary Patterns,” *Journal of Imaging Science and Technology*, vol. 60, no. 6, pp. 604051–604058, nov 2016.
- [34] W. Y. L. Akamine and M. C. Q. Farias, “Video quality assessment using visual attention computational models,” *Journal of Electronic Imaging*, vol. 23, no. 6, p. 061107, sep 2014.
- [35] H. B. Martinez and M. C. Q. Farias, “Full-reference audio-visual video quality metric,” *Journal of Electronic Imaging*, vol. 23, no. 6, p. 061108, sep 2014.
- [36] M. Farias and W. Akamine, “On performance of image quality metrics enhanced with visual attention computational models,” *Electronics Letters*, vol. 48, no. 11, p. 631, 2012.
- [37] M. C. Q. Farias and S. K. Mitra, “Perceptual contributions of blocky, blurry, noisy, and ringing synthetic artifacts to overall annoyance,” *Journal of Electronic Imaging*, vol. 21, no. 4, p. 043013, nov 2012.

- [38] M. C. Q. Farias, “Visual-quality estimation using objective metrics,” *Journal of the Society for Information Display*, vol. 19, no. 11, p. 764, 2011.
- [39] C. D. M. Regis, R. B. Rocha, M. C. Q. Farias, and M. S. Alencar, “Objective and Subjective Evaluation of Spatially Transcoded Videos for Mobile Receivers,” *Journal of Communications Software and Systems*, vol. 6, no. 2, p. 49, jun 2010.
- [40] J. M. Foley, S. L. Varadharajan, C. C. Koh, and M. C. Q. Farias, “Detection of gabor patterns,” *Journal of Vision*, vol. 5, no. 8, pp. 181–181, mar 2010.
- [41] M. Farias, M. M. Carvalho, and M. S. Alencar, “Digital Television Broadcasting in Brazil,” *IEEE Multimedia*, vol. 15, no. 2, pp. 64–70, apr 2008.
- [42] M. C. Q. Farias, J. M. Foley, and S. K. Mitra, “Detectability and Annoyance of Synthetic Blocky, Blurry, Noisy, and Ringing Artifacts,” *IEEE Transactions on Signal Processing*, vol. 55, no. 6, pp. 2954–2964, jun 2007.
- [43] J. M. Foley, S. Varadharajan, C. C. Koh, and M. C. Farias, “Detection of Gabor patterns of different sizes, shapes, phases and eccentricities,” *Vision Research*, vol. 47, no. 1, pp. 85–107, jan 2007.
- [44] C. Adsumilli, M. Farias, S. Mitra, and M. Carli, “A robust error concealment technique using data hiding for image and video transmission over lossy channels,” *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 15, no. 11, pp. 1394–1406, nov 2005.
- [45] M. Farias, M. Carli, and S. Mitra, “Objective video quality metric based on data hiding,” *IEEE Transactions on Consumer Electronics*, vol. 51, no. 3, pp. 983–992, aug 2005.

## Peer-reviewed Conference Publications

- [1] H. B. Martinez, A. H. da Costa, B. Azambuja, A. Hines, and M. C. Farias, “Exploring the boundaries of an ae-based quality model: a performance analysis via synthetic content,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2021, pp. 6–1.
- [2] S. Alamgeer, M. Irshad, and M. C. Farias, “Cnn-based no-reference video quality assessment method using a spatiotemporal saliency patch selection procedure,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2021, pp. 6–1.
- [3] R. Diniz, P. G. Freitas, and M. Farias, “A novel point cloud quality assessment metric based on perceptual color distance patterns,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2021, pp. 6–1.
- [4] D. D. Morais, L. S. Althoff, R. Prakash, M. M. Carvalho, and M. C. Farias, “A content-based viewport prediction model,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2021, pp. 6–1.
- [5] M. Irshad, C. Sanchez-Ferreira, S. Alamgeer, C. H. Llanos, and M. C. Farias, “No-reference image quality assessment of underwater images using multi-scale salient local binary patterns,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2021, pp. 6–1.
- [6] A. H. Costa, H. B. Martinez, D. G. Silva, and M. C. Farias, “Analyzing the effect of adding temporal features to an autoencoder-based video quality model,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2021, pp. 6–1.
- [7] V. E. Karnaukhov, A. S. Krylov, Y. Ding, and M. C. Farias, “Hybrid method for biomedical image poisson denoising,” in *Proceedings of the 2020 5th International Conference on Biomedical Signal and Image Processing*, 2020, pp. 32–36.
- [8] H. D. Garcia, M. C. Farias, R. Prakash, and M. M. Carvalho, “Statistical characterization of tile decoding time of hevc-encoded 360° video,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2020, pp. 6–1.

- [9] M. Irshad, A. R. Silva, S. Alamgeer, and M. C. Farias, “Perceptual quality assessment of enhanced images using a crowd-sourcing framework,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2020, pp. 6–1.
- [10] H. B. Martinez, M. C. Farias, and A. Hines, “Analyzing the performance of autoencoder-based objective quality metrics on audio-visual content,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2020, pp. 6–1.
- [11] H. Martinez, A. Hines, and M. C. Farias, “How deep is your encoder: An analysis of features descriptors for an autoencoder-based audio-visual quality metric,” in *2020 Twelfth International Conference on Quality of Multimedia Experience (QoMEX)*. IEEE, 2020, pp. 1–6.
- [12] R. Diniz, P. G. Freitas, and M. C. Farias, “Towards a point cloud quality assessment model using local binary patterns,” in *2020 Twelfth International Conference on Quality of Multimedia Experience (QoMEX)*. IEEE, 2020, pp. 1–6.
- [13] —, “Multi-distance point cloud quality assessment,” in *2020 IEEE International Conference on Image Processing (ICIP)*. IEEE, 2020, pp. 3443–3447.
- [14] J. A. Lima, C. J. Miosso, and M. C. Farias, “Hybrid motion magnification based on same-frame optical flow computations,” in *2020 IEEE 22nd International Workshop on Multimedia Signal Processing (MMSP)*. IEEE, 2020, pp. 1–7.
- [15] R. Diniz, P. G. Freitas, and M. C. Farias, “Local luminance patterns for point cloud quality assessment,” in *2020 IEEE 22nd International Workshop on Multimedia Signal Processing (MMSP)*. IEEE, 2020, pp. 1–6.
- [16] R. Diniz and M. C. Farias, “Real-time 3d volumetric human body reconstruction from a single view rgb-d capture device,” in *International Symposium on Electronic Imaging*, vol. 2019, no. 16. Society for Imaging Science and Technology, 2019, pp. 6–1.
- [17] P. G. Freitas, L. P. Eira, S. S. Santos, and M. C. Farias, “A referenceless image quality assessment based on BSIF, CLBP, LPQ, and LCP texture descriptors,” in *International Symposium on Electronic Imaging, Image Quality and Systems Performance Conference*. Society for Imaging Science and Technology, 2019, pp. 6–1.
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## Books and Book Chapters

- [1] M. C. Farias, “Video quality metrics,” in *Digital Video*. InTech, 2010.
- [2] M. M. Carvalho and M. Farias, “Digital terrestrial television multimedia broadcasting (dtmb),” in *Digital Television Systems*. Cambridge University Press, 2009.
- [3] M. Farias and M. M. Carvalho, “International system for digital television (isdtv),” in *Digital Television Systems*. Cambridge University Press, 2009.
- [4] M. C. Q. Farias *et al.*, *No-reference and reduced reference video quality metrics: new contributions*. Saarbrücken, Germany: VDM Verlag, 2008.

## Recent Datasets

All datasets are available for download in [www.ene.unb.br/mylene/databases.html](http://www.ene.unb.br/mylene/databases.html).

1. UnB 360-degree: Open dataset of head movement traces of 360-degree video viewing, containing 6 different content categories and eighteen 360-degree videos. The dataset contains head movements (yaw, pitch, and roll angles) of 120 users while watching these videos on a BOBOVR X1 Head-Mounted Display (HMD).
2. UnB-AVQ 2018: Composed by data collected from three experiments, where groups of observers rated the audio-visual quality of a set of video sequences (with audio). All experiments used the immersive experimental methodology. In the first experiment, only the video component was degraded (video coding, packet loss, and frame freezing), in the second experiment only the audio component was degraded (background noise, clipping, echo, and chop). In the last experiment, both audio and video components were subject to the same types of degradation used for the previous two experiments. For all three experiments, subjects were asked to rate the overall audio-visual quality.
3. UnB-AVQ 2013: Contains data from three psychophysical experiments. For the first experiment, participants watched and rated only the video component of the sequences, containing compression degradations (H.264 at different bitrate values). For the second experiment, participants watched and rated only the audio component of the sequences, containing compression degradations (MPEG-1 layer-3 codec, at different bitrate values). Finally, for the third experiment, participants watched and rated both the video and audio components, containing audio and video compression degradations.
4. UnB-3D: The database is a set of five CGI 3D scenes rendered using 3D models with various camera configurations.
5. VARIUM Database: Contains the data of three psychophysical experiments, which measured annoyance and detection characteristics of two spatial artifacts (blockiness and blurriness) and a temporal artifact (packetloss). The artifacts appear in isolation or in combination. The three experiments shared identical experimental methodology, interface, protocol, and viewing conditions.

## Registered Software

- Farias, Mylene C.Q.; Melgar, Max E. Vizcarra, “Color Visual Cryptography System,” Register Number: BR51201700052, date: 09/09/2016.
- Max E. Vizcarra; Farias, Mylene C.Q.; “HD2DC Barcode,” Register Number: BR51201700052, date: 06/13/2017.

## Invited Talks

1. “Audio-Visual Quality Assessment Methodologies for Multimedia Applications,” April 12, 2019, University of Texas at Austin, US.
2. “Influence of cross-modal IP-based degradations on the perceived audio-visual quality,” VQEG Meeting - Mountain View, California, USA, November 15, 2018.
3. “Using Machine Learning to Estimate Audio-Visual Quality,” Self-Organizing Conference on Machine Learning (SOCML 2018), December 1, 2018, Toronto, Canada.
4. “Blind Quality Estimation Using Local Binary Patterns,” 22 November, 2017, Federal University of Rio de Janeiro.
5. “Blind Image Quality Assessment Using Local Binary Patterns,” 7 February, 2017, University of Texas at Dallas, US.
6. “Designing Algorithms to Estimate Image and Video Quality,” 19 February, 2015, Universidade Tecnológica Federal do Paraná, Brazil.
7. “Designing Algorithms to Estimate Image and Video Quality,” 25 October, 2013, State University of Campinas (Unicamp), Brazil.
8. “Designing Objective Visual Quality Metrics,” 21st February 2012, TU Delft, The Netherlands.

## Supervised Students

### Current Ph.D. Students

1. Alessandro R. Silva (Computer Science), 3D Video quality assessment;
2. Henrique Garcia (Co-Advisor, Electrical Engineering), Omnidirectional Video Transmission;
3. Dario Daniel Ribeiro Moraes (Electrical Engineering), Viewport Prediction for Omnidirectional Videos;
4. Sana Alamgeer (Electrical Engineering), Light Fields Quality Assessment;
5. Muhammad Irshad (Electrical Engineering), Video Quality Assessment of Underwater Images;
6. Lucas dos Santos Althoff (Computer Science), Quality of Experience of Omnidirectional Videos.

### Current M.Sc. Students

1. André Henrique Macedo da Costa (Electrical Engineering), Audio-Visual Video Quality;
2. Armando Heras Tang (Computer Science), Automatic Diagnostic System;
3. Aline Alves Soares Thomaz, Design of MRI reconstruction System;
4. Paulo Henrique de Castro Oliveira, Using saliency to improve the detection of critical findings in MRI images.

### Ph.D. Graduates

1. Rafael Diniz, “3D Point-Cloud Quality Assessment Using Color and Geometry Texture Descriptors,” July 2021, Ph.D. Dissertation (Computer Science) - University of Brasília.
2. Kerlla de Souza Luz, “Processo de Desenvolvimento de Novos Produtos e o Modelo de Referência Macetrônico: Uma experiência didática na escola de empreendedores do CDT-UnB.” 2019, Ph.D. Dissertation (Electrical Engineering) - University of Brasília.
3. Jonathan Alis Salgado Lima, “The application of analysis filters in compressed sensing algorithms for magnetic resonance imaging reconstruction,” August 2019, Ph.D. Dissertation (Computer Science) - University of Brasília.
4. Helard Becerra Martinez, “A Three Layer System for Audio-visual Quality Assessment,” February 2019, Ph.D. Dissertation (Computer Science) - University of Brasília.

5. Max E. Vizcarra Melgar, "Design of Data Validation Solutions using High Density 2D Colored Codes AMD a (2,2) XOR-based Color Interference Visual Cryptography Scheme," March 2018, Ph.D. Dissertation (Electrical Engineering) - University of Brasília.
6. Pedro Garcia Freitas, "Using Texture Measures for Visual Quality Assessment," September 2017, Ph.D. Dissertation (Computer Science) - University of Brasília.
7. Alexandre Fieno da Silva, "No-reference Video Quality Assessment Model Based on Artifact Metrics for Digital Transmission Applications," March 2017, Ph.D. Dissertation (Computer Science) - University of Brasília.

## **M.Sc. Graduates**

1. João Marcello Schubnell Abreu de Rezende Lima. "Estimating Image Aesthetic Value using a Content-Based Convolutional Neural Network Architecture." 2019, M.Sc. Thesis (Electrical Engineering) - University of Brasília.
2. Dario Daniel Ribeiro Moraes, "A Hybrid No-Reference Video Quality Metric for Digital Transmission Applications," 2017, M.Sc. Thesis (Electrical Engineering) - University of Brasília.
3. Welington Yorihiko Lima Akamine, "On the performance of Video Quality Assessment Methods for Different Spatial and Temporal Resolutions", 2017, M.Sc. Thesis (Electrical Engineering) - University of Brasília.
4. Helard Becerra Martinez, "Design of a Quality Metric for Audio-Visual Signals," 2014, Dissertação (Mestrado em Informática) - University of Brasília.
5. Tainá Borges Andrade, "No-Reference Image Quality Metrics Métricas that Incorporate Visual Attention Models," 2014, M.Sc. Thesis (Electrical Engineering) - University of Brasília.
6. Jonathan Alis Lima, "Per-pixel mirror-based measuring: A new method for high-speed video acquisition," 2014, M.Sc. Thesis (Computer Science) - University of Brasília.
7. Ronaldo Rigoni, "Detection of Spatial and Temporal Tampering Attacks using a QIM Watermarking Methodology," 2013, M.Sc. Thesis (Computer Science) - University of Brasília.
8. Pedro Garcia Freitas, "A Parallel Framework for Super-Resolution Algorithms," 2013, M.Sc. Thesis (Computer Science) - University of Brasília.
9. Carlos Danilo Miranda Regis, "Spatial Transcoding of Digital Videos in Mobile Applications," 2009, M.Sc. Thesis (Electrical Engineering) - Universidade Federal de Campina Grande.

## **Undergraduate Students**

1. Raffael Luna Cardoso (Electrical Engineering), "Blind Video Quality Estimation Using Optical Flow Features," 2018.
2. Andre Henrique Macedo da Costa (Electrical Engineering), "Using Deep Convolutional Neural Networks to Identify Tatoon Artists," 2018.
3. Fernanda Garcia Vilela (Electrical Engineering), "A Machine Learning Typographic System for Blind People," 2017.
4. Brunno de Albuquerque Castro (Electrical Engineering), "Using Watermarking to Detect Tampering in Audio-Visual Signals," 2016.
5. Marcel Magalhães (Computer Engineering), "Using Visual Attention to Analyze User Behavior in Social Networks," 2015.
6. Welington Yorihiko Lima Akamine (Computer Engineering), "Using Bottom-Up Visual Attention Models to Estimate Visual Quality," 2014.
7. Rodrigo Cerqueira Gonzalez Pena (Electrical Engineering), "Design of Video Quality Metrics with Top-Down Visual Attention Features," 2014.
8. Matheus Lima da Rocha Pitta, "Using Watermarking and Halftoning for Error Concealment," 2012.

## Courses Taught

1. University of Brasília (semesters)
  - Digital Systems: 2013.1, 2013.2, 2014.1, 2014.2, 2015.2, 2016.1, 2016.2, 2017.1, 2017.2, 2018.1.
  - Digital Systems Laboratory: 2019.2, 2020.1
  - Image Processing: 2014.1, 2014.2, 2015.1, 2016.1., 2018.1, 2019.2, 2020.1
  - Digital Processors Architecture – Laboratory: 2012.2
  - Signal and Systems: 2012.1, 2011.2, 2020.2, 2021.1,
  - Multimedia Signal Processing: 2011.1, 2012.1
  - Data Transmission: 2009.2, 2010.1, 2010.2.
  - Digital Processors Architecture: 2009.2
2. Federal University of São Paulo (semesters)
  - Basic Computer Programming: 2008.1
  - Computers and Society: 2008.1
  - Computer Architecture and Organization I: 2008.2
  - Computer Architecture and Organization II: 2009.1
3. Federal University of Campina Grande (semesters)
  - Digital Signal Processing: 2006.2, 2007.1
4. University of California Santa Barbara (as Teaching Assistant)
  - Stochastic Processes – Teaching Assistant
  - Physics 2B e 2C – Reader

## Committees

### Ph.D. Committees

1. Yu Fan, “Quality assessment of stereoscopic 3D content based on binocular perception,” 2019, Norwegian University of Science and Technology (NTNU), Norway.
2. Michel Melo da Silva, “Semantic Hyperlapse: A Recorder-Aware and Multi-Importance Approach for First Person Videos,” 2017, Universidade Federal de Minas Gerais.
3. Rafael Galvão Mesquita, “Reconhecimento de Instâncias Guiado por Algoritmos de Atenção Visual,” 2017, Universidade Federal de Pernambuco.
4. Camilo Sanchez Ferreira, “Restauração de Imagens Subaquáticas Usando Algoritmos de Enxames e Métricas Específicas,” 2016, Universidade de Brasília.
5. Emerson Lopes Machado, “Redução de custo computacional em classificações baseadas em transformadas aprendidas,” 2015, University of Brasília.
6. Gerardo Antonio Idrobo Pizo, “Projeto de um Descritor para o Alinhamento de Imagens de Profundidade de Superfícies com Aplicação em Visão Robótica,” 2014, Universidade de Brasília.
7. Vinicius de Carvalho Rispoli, “Simulações computacionais do escoamento cardiovascular guiadas por ressonância magnética,” 2014, University of Brasília.
8. Fabio R. Piva, “Abordando fatores humanos no projeto de soluções criptográficas: dois estudos de caso em validação de itens e autenticação,” 2014, Universidade Estadual de Campinas.
9. Carlos Danilo Miranda Regis, “Metricas de Avaliação Objetiva para Vídeos com Duas e Três Dimensões,” 2013, Universidade Federal de Campina Grande.
10. Marcio Lucas Graciano Junior, “Metodologia para medidas objetivas de qualidade de vídeo em sistemas de difusão de conteúdos audiovisuais,” 2013, University of Brasília.
11. Tiago Alves da Fonseca, “Codificação de Vídeo Escalonável em Complexidade e em Energia,” 2012, University of Brasília.



## M.Sc. Committees

1. André Luis Souto Ferreira, “On Predictive RAHT for Dynamic Point Cloud Compression”, May 2021, Electrical Engineering, University of Brasília.
2. Yilliet Garcia Garcia, “Método para Reconstrução de Imagens de Tomografia por Emissão de Positrons com Base em Compressive Sensing e Informação a Priori”, 2021, Biomedical Engineering Program, University of Brasília.
3. André Luiz Dutra Costa, “Reversão anaglífica - um novo método baseado em cálculo de correspondências robusto a diferenças radiométricas.”, ICMC-USP, August 2021.
4. Tomás Malheiros Borges, “Fractional Super-Resolution of Voxelized Point Clouds,” January 2021, Electrical Engineering, University of Brasília.
5. Oscar Eduardo Anacona Mosquera, “Implementação de Algoritmo Richardson-Lucy em Arquiteturas Reconfiguráveis Aplicado ao Problema de Borrimento de Imagens,” 2015 - University of Brasília.
6. Eduardo Romani, “Avaliação de Qualidade de Vídeo Utilizando Modelo de Atenção Visual Baseado em Saliência,” 2015, Universidade Tecnológica Federal do Paraná.
7. Rodrigo Mulinari, “Esquemas Adaptativos para Distribuição de Vídeo na Internet” 2009, University of Brasília.
8. Gilson Jerônimo da Silva Júnior, “Banco de Filtros e Wavelets sobre Corpos Finitos,” 2008, Universidade Federal de Pernambuco.
9. Roberto Nery da Fonseca, “Algoritmos para avaliação da qualidade de vídeo em sistemas de televisão digital,” 2008, Universidade de São Paulo.
10. Jean Felipe Fonseca de Oliveira, “Modelo de Simulação da Transmissão de Vídeo Digital para o Canal Móvel do Sistema Brasileiro de Televisão Digital,” 2007, Universidade Federal de Campina Grande.

## References

- Prof. **Sanjit K. Mitra**  
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