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Jonathan Lima

Objectives

Computer science PhD focused in biomedical image processing. Looking for a entry level opportunity in research and development, signal processing engineering, data science, gaming development, postdoc or education. Particularly interested in work on applications in biomedical imaging, audio-visual signal processing, computer vision or natural sciences.

Education

Jun 2018–Jan 2019 **University of Texas at El Paso (UTEP)**,
Electrical and Computer Engineering Department,
PhD Interchange period.

2014–2019 **University of Brasilia (UnB)**,
Computer science department, Computer Science PhD.
Title: Digital filtering methods in compressed sensing for magnetic resonance imaging reconstruction

2012–2014 **University of Brasilia (UnB)**,
Computer science department, Computer Science Master's.
Title (translated): Per-pixel mirror-based measuring: A new method for high-speed video acquisition

2008–2011 **University of Brasilia (UnB)**,
Computer science department, Computer Science Bachelor.
Title (translated): Application of the constant-Q Transform with fixed window length in the mutiple pitch recognition in audio signals.

Experience

June 2011–Jan 2014 **Software Developer**, ITAE, CDT - UnB.
Developer of Batalha ITAE, a educational game for entrepreneurship learning.
- Develop, maintain and document the game software, using C/C++, SVN and Qt.
- Laboratory maintenance, monitoring of the games sessions.
- Audio sequences editing for the animations.
- Full time during June 2011 – January 2012, part time during Feburary 2012 – January 2014.

Various **Faculty teaching assitant**, University of Brasilia.
Part time faculty teaching assistant many times during undergrad and grad courses, in different disciplines.
- Mar 2008 – Jun 2009, Differential equations.
- Aug 2010 – Nov 2010, Mathematical physics.
- Mar 2011 – Jun 2011, Audio synthesis.
- Aug 2011 – Nov 2011, Complex calculus.
- Mar 2013 – Jun 2013, Multimedia signal processing.
- Aug 2014 – Nov 2014, Image processing.

Feb 2008–Jul 2008 **High school teaching assitant**, ALUB, Taguatinga, DF.
Part time maths and physics teaching assistant.

Journal Publications

2020 **Isotropic and anisotropic filtering norm-minimization: A generalization of the TV and TGV minimizations using NESTA**, Lima, J.A.S., da Silva, F.B., von Borries, R., Miosso, C.J., Farias, M.C.Q., Signal Processing: Image Communication.
- Developed the method and the computational implementation in MATLAB.
- Performed the experiments and wrote the paper.

2017 **Per-Pixel Mirror-Based Method for High-Speed Video Acquisition**, *Lima, J.A.S., Miosso, C.J., Farias, M.C.Q*, JOURNAL OF VISUAL COMMUNICATION AND IMAGE REPRESENTATION , v. 1, p. 1, 2017, http://www.sciencedirect.com/science/article/pii/S1047320317301050.
- Developed the method and the computational implementation in MATLAB.
- Performed the experiments and wrote the paper.

Conference Papers

2018 **Evaluation of Different Types of Filters in Magnetic Resonance Imaging Using Compressive Sensing with Pre-Filtering**, Lima, J.A.S., von Borries, R., Miosso, C.J., Farias, M.C.Q., 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2018, Honolulu.
- Developed the method and the computational implementation in MATLAB.
- Performed the experiments and wrote the paper.
- Attended to the conference and presented the work.

2017 **Avaliação de filtros de decomposição wavelet para reconstrução de imagens de Ressonância Magnética com Base em Compressive Sensing com Pré-Filtragem**, Lima, J.A.S., Miosso, C.J., Farias, M.C.Q., Congresso Brasileiro de Eletromiografia e Cinesiologia (COBEC) e o Simpósio de Engenharia Biomédica (SEB) COBECSEB, 2018, Uberlândia..
- Developed the method and the computational implementation in MATLAB.
- Performed the experiments and wrote the paper.
- Attended to the conference and presented the work.

2015 **REA-WSN: Intercluster routing algorithm for energy optimization in wireless sensor networks**, Lima, Paula; Lima, Jonathan; Solis, Priscila, 2015 7th IEEE LatinAmerican Conference on Communications (LATINCOM), 2015, Arequipa.
- Part of computational implementation.

2014 **Per-Pixel Mirror-Based Acquisition Method for Video Compressive Sensing**, Lima, J.A.S., Miosso, C.J., Farias, M.C.Q., Proc. of EUSIPCO 2014, 2014, Lisbon, Portugal.
- Developed the method and the computational implementation in MATLAB.
- Performed the experiments and wrote the paper.
- Attended to the conference and presented the work.

2012 **Transformada Q constante de comprimento de janela fixo**, Lima, J.A.S., Farias, M.C.Q., Brandao, M.C.P., Congresso de Engenharia de Áudio da AES-Brasil, 2012, São Paulo.
- Developed the method and the computational implementation in MATLAB.
- Performed the experiments and wrote the paper.
- Attended to the conference and presented the work.

Skills

Languages	Matlab (7 years experience), C/C++(2 years experience), Python, C#, Java
Utilities	OpenCV, Pytorch, SVN, Git, Qt, Unity, LaTeX, Tikz
Communication	Portuguese, English

Relevant Courses

Classroom	Linear Algebra, Signal and Image Processing, Stochastic Processes, Computer Vision, Gaming Development
Extra curricular	Python, Machine Learning, Deep Learning, OpenCV, Arduino

References

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Associate Professor,
Electrical Engeneering Department, UnB,
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Cristiano Miosso,
Assistant Professor,
Biomedical Engineering Graduate Program, UnB
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