

Curriculum Vitae

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Associate Professor

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Education

- 2010 – 2013 📖 **Ph.D. in Computer Science, Université de Cergy-Pontoise, France**
- 2009 – 2013 📖 **Ph.D. in Computer Science, University of Campinas, Brazil**
Thesis title: *Semi-automatic classification of remote sensing images.*
- 2007 – 2009 📖 **M.Sc. Computer Science, University of Campinas, Brazil.**
- 2003 – 2006 📖 **B.Sc. Computer Science, Universidade Estadual de Mato Grosso do Sul, Brazil.**

Professional Experience

- 2016 – 📖 **Associate Professor.** Department of Computer Science, Universidade Federal de Minas Gerais, Brazil.
- 2013 – 2016 📖 **Assistant Professor.** Department of Computer Science, Universidade Federal de Minas Gerais, Brazil.
- 2013 – 2013 📖 **Postdoctoral Research Assistant.** Institute of Computing, University of Campinas, Brazil.
- 2007 – 2010 📖 **Teaching Assistant.** Institute of Computing, University of Campinas, Brazil.

Current Research Activities

Principal Investigator

- 2020 – 📖 **CAD-COVID-19 - Monitoring and diagnostic aid of COVID-19 Using Chest X-rays and deep learning.** This project aims to develop an approach based on CODAGANs to aid in the diagnosis of COVID-19 through x-ray images. CoDAGANs is an unsupervised method for segmenting medical images. The approach has been able to generalize to images of different imaging equipment, from more modern systems to old equipment. Funding: *Minas Gerais Research Foundation (FAPEMIG).*

Current Research Activities (continued)

2018 –

- **MultiMaps - Deep Learning Representations for Large Scale Geographic Mapping.** This project aims to address the problem of pattern recognition for the creation of thematic maps via supervised learning in large sets of images from small annotated data sets. The research focuses on efforts on three main fronts: (1) new methods for feature learning; (2) knowledge transfer algorithms to explore existing image bases as a starting point for pattern recognition and reduce the need for new samples noted by expert users; (3) new approaches for learning and fusing representations from multiple resolutions in space, time, and the electromagnetic spectrum.
Funding: *Brazilian National Council for Scientific and Technological Development (CNPq).*
- **LittleBigData - Pattern recognition in large image databases using small annotated data sets.** This project proposes the development of new approaches to deal with pattern recognition in applications that require the processing of large sets of images but which have restrictions regarding the number of labeled samples available. The research focus efforts on: (1) the study and development of techniques for transferring knowledge from pre-existing bases as a way to enrich the initial sample set; (2) the study of image indexing algorithms and structures to ensure scalability of the developed approaches; and (3) developing approaches based on active learning to assist expert users in annotating relevant samples.
Funding: *Minas Gerais Research Foundation (FAPEMIG).*

International Cooperation

2019 –

- **Hierarchical Graph-based Analysis of Image, Video and Multimedia Data.** The main goal of this study is to advance in the state-of-the-art on *hierarchy of partitions* taking into account aspects of efficiency, quality, making hierarchical and interactivity, as well as the use of hierarchical information to help in the information extraction and the label propagation. Moreover, we will investigate hierarchical visualization of all, image, video and multimedia, by using contour saliency maps. Finally, we will explore the criteria for hierarchical comparison and for hierarchical combination taking into account their contour saliency maps and learning methods. The results of these studies will be used for solving several applications like human action recognition, pornography detection, image and video region labeling, multimedia label propagation, image and video inpainting, among others. We will build upon existing research and skills at LIGM, IRISA, Grenoble INP, UNICAMP, PUC Minas and UFMG to develop collaborative work exploiting complementarity of these institutions.
Funding: *CAPES-COFECUB Program.*

Teaching Experience

Graduate Level

- Deep Learning Algorithms
- Digital Image Processing
- Visual Pattern Recognition

Undergraduate Level

- Algorithms and Data Structures
- Introduction to Computer Programming
- Introduction to Visual Computing

Graduate Students Supervision

Main Advisor

- 📖 Hugo Neves de Oliveira, Ph.D. 2020
- 📖 Keiller Nogueira, Ph.D. 2019
- 📖 Gabriel Lucas Machado, M.Sc. 2021
- 📖 Pedro Henrique Targino Gama, M.Sc. 2021
- 📖 Caio Cesar Viana da Silva, M.Sc. 2019
- 📖 João José de Macedo Neto, M.Sc. 2019
- 📖 Matheus Barros Pereira, M.Sc. 2019
- 📖 Eduardo de Araújo Tavares, M.Sc. 2018
- 📖 Rafael Marlon Pereira Costa Baeta Carreira, M.Sc. 2017
- 📖 Tiago Moreira Hübner Cançado Santana, M.Sc. 2017
- 📖 Edemir Ferreira de Andrade Junior, M.Sc. 2016
- 📖 Ramon Figueiredo Pessoa, M.Sc. 2015

Co-Advisor

- 📖 Carlos Antônio Caetano Jr, Ph.D. 2020
- 📖 Virgínia Fernandes Mota, Ph.D. 2018
- 📖 Anselmo Castelo Branco Ferreira, Ph.D. 2016
- 📖 Agnaldo Aparecido Esmael, M.Sc. 2015
- 📖 Keiller Nogueira, M.Sc. 2015
- 📖 John Edgar Vargas Muñoz, M.Sc. 2015

Miscellaneous Experience

Distinctions

- 2016 – ... 📖 **Productivity Scholarship (Level 2)**, Brazilian National Council for Scientific and Technological Development (CNPq).

Awards and Achievements

- 2020 📖 **Best Ph.D. Thesis Award**, “Going Deep into Remote Sensing Spatial Feature Learning”, SIBGRAPI 2020 - 33rd Conference on Graphics, Patterns and Images.
- 2017 📖 **Best Paper Award**, “Activity Recognition based on a Magnitude-Orientation Stream Network”, SIBGRAPI 2017 - 30th Conference on Graphics, Patterns and Images.
- 📖 **Honorable Mention**, Workshop of Undergraduate Works (WUW), “Image Representation Learning by Color Quantization Optimization” by student Erico Pereira, SIBGRAPI 2017 - 30th Conference on Graphics, Patterns and Images.
- 2016 📖 **Honorable Mention**, Workshop of Works in Progress (WiP), “Contextual Description of Superpixels for Aerial Urban Scenes Classification” by MSc student Tiago Moreira, SIBGRAPI 2016 - 29th Conference on Graphics, Patterns and Images.
- 2013 📖 **Best PhD Thesis**, Institute of Computing, University of Campinas, Brazil.
- 📖 **2nd Place Award - PhD Category.**, Workshop of Theses and Dissertations, SIBGRAPI 2013 - 26th Conference on Graphics, Patterns and Images.
- 2009 📖 **Best Master Thesis.**, Institute of Computing, University of Campinas, Brazil.
- 2006 📖 **Undergraduate Outstanding Student Award.** Brazilian Computer Society, Brazil.

Miscellaneous Experience (continued)

Professional Membership

- Member, Institute of Electrical and Electronics Engineers (IEEE).
- Member, Brazilian Computer Society (SBC).

Professional Service

- Member of Technical Program Committee, ICPR - International Conference on Pattern Recognition (2020).
- Member of Technical Program Committee, CBMI - International Conference on Content-Based Multimedia Indexing (2018 - 2020).
- Member of Technical Program Committee, SIBGRAPI – Conference on Graphics, Patterns and Images (2014 - 2020).
- Member of Technical Program Committee, CIARP – Iberoamerican Congress on Pattern Recognition (2016 - 2019).
- Member of Technical Program Committee, MCPR – Mexican Congress on Pattern Recognition (2018 - 2020).
- Lead Guest Editor, "Pattern Recognition and Image Processing for Geoscience and Remote Sensing of the SIBGRAPI 2020 – Conference on Graphics, Patterns and Images" Special Stream of IEEE Geoscience and Remote Sensing Letters (2020) .
- Guest Editor, "Pattern Recognition and Image Processing for Geoscience and Remote Sensing of the SIBGRAPI 2019 – Conference on Graphics, Patterns and Images" Special Stream of IEEE Geoscience and Remote Sensing Letters (2019) .
- Guest Editor, "Pattern Recognition and Image Processing for Geoscience and Remote Sensing of the SIBGRAPI 2017 – Conference on Graphics, Patterns and Images" Special Stream of IEEE Geoscience and Remote Sensing Letters (2017) .
- Reviewer for the following journals: Elsevier Pattern Recognition (2015-current); IEEE Transactions on Image Processing (2013-current); IEEE Transactions on Geoscience and Remote Sensing (2014-current); IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (2011-current); Multimedia Tools and Applications (2017-current); Elsevier Information Sciences (2014-2018); Elsevier Journal of Visual Communication and Image Representation (2013-2015); IEEE Signal Processing Letters (2014-2015); EURASIP Journal on Advances in Signal Processing (2014); and EURASIP Journal on Image and Video Processing (2015).
- Review of research proposals for the following agencies: Brazilian National Council for Scientific and Technological Development – CNPq (2015, 2019); ETH Zurich Research Commission (2020); Netherlands Organisation for Scientific Research (2018); and Belgian Science Policy Office (2015).

Research Publications

Journal Articles

- 1 Osco, L. P., Nogueira, K., Ramos, A. P. M., Pinheiro, M. M. F., Furuya, D. E. G., Gonçalves, W. N., de Castro Jorge, L. A., Marcato, J., & **dos Santos, J. A.** (n.d.). Semantic segmentation of citrus-orchard using deep neural networks and multispectral uav-based imagery.
- 2 Machado, G., Ferreira, E., Nogueira, K., Oliveira, H., Brito, M., Gama, P. H. T., & **dos Santos, J. A.** (2021). Airound and cv-brct: Novel multiview datasets for scene classification. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 14, 488–503.

- 3 Pereira, E. M., Torres, R. d. S., & **dos Santos, J. A.** (2021). A genetic algorithm approach for image representation learning through color quantization. *Multimedia Tools and Applications*, 1–36.
- 4 Albarracin, J. F. H., Oliveira, R. S., Hirota, M., **dos Santos, J. A.**, & da Silva Torres, R. (2020). A soft computing approach for selecting and combining spectral bands. *Remote Sensing*, 12(14), 2267.
- 5 Mota, V. F., de Oliveira, H. N., Scalzo, S., Dittz, D., Santos, R. J., **dos Santos, J. A.**, & de Albuquerque Araújo, A. (2020). From video pornography to cancer cells: A tensor framework for spatiotemporal description. *Multimedia Tools and Applications*, 79(19–20), 13919–13949.
- 6 Nogueira, K., Machado, G. L. S., Gama, P. H. T., da Silva, C. C. V., Balaniuk, R., & **dos Santos, J. A.** (2020). Facing erosion identification in railway lines using pixel-wise deep-based approaches. *Remote Sensing*, 12(4), 739.
- 7 Oliveira, H. N., Ferreira, E., & **dos Santos, J. A.** (2020). Truly generalizable radiograph segmentation with conditional domain adaptation. *IEEE Access*, 8, 84037–84062.
- 8 Oliveira, H., Mota, V., Machado, A. M., & **dos Santos, J. A.** (2020). From 3d to 2d: Transferring knowledge for rib segmentation in chest x-rays. *Pattern Recognition Letters*, 140, 10–17.
- 9 Caetano, C., de Melo, V. H. C., Brémond, F., **dos Santos, J. A.**, & Schwartz, W. R. (2019). Magnitude-orientation stream network and depth information applied to activity recognition. *Journal of Visual Communication and Image Representation*, 63, 102596.
- 10 Menini, N., Almeida, A. E., Lamparelli, R. A. C., le Maire, G., **dos Santos, J. A.**, Pedrini, H., Hirota, M., & da Silva Torres, R. (2019). A soft computing framework for image classification based on recurrence plots. *IEEE Geoscience and Remote Sensing Letters*, 16(2), 320–324.
- 11 Nogueira, K., **dos Santos, J. A.**, Menini, N., Silva, T. S. F., Morellato, L. P. C., & da Silva Torres, R. (2019). Spatio-temporal vegetation pixel classification by using convolutional networks. *IEEE Geoscience and Remote Sensing Letters*, 16(10), 1665–1669.
- 12 Nogueira, K., Mura, M. D., Chanussot, J., Schwartz, W. R., & **dos Santos, J. A.** (2019). Dynamic multicontext segmentation of remote sensing images based on convolutional networks. *IEEE Transactions on Geoscience and Remote Sensing*, 57(10), 7503–7520.
- 13 Esmael, A. A., **dos Santos, J. A.**, & da Torres, R. (2018). On the ensemble of multiscale object-based classifiers for aerial images: A comparative study. *Multimedia Tools and Applications*, 1–28.
- 14 Nogueira, K., Fadel, S. G., Dourado, I. C., Werneck, R. d., Muñoz, J. A. V., Penatti, O. A. B., Calumby, R. T., Li, L. T., **dos Santos, J. A.**, & Torres, R. d. (2018). Exploiting convnet diversity for flooding identification. *IEEE Geoscience and Remote Sensing Letters*, 15(9), 1446–1450.
- 15 Alberton, B., da S. Torres, R., Cancian, L. F., Borges, B. D., Almeida, J., Mariano, G. C., **dos Santos, J. A.**, & Morellato, L. P. C. (2017). Introducing digital cameras to monitor plant phenology in the tropics: Applications for conservation. *Perspectives in Ecology and Conservation*, 15(2), 82–90.
- 16 Ferreira, A., Bondi, L., Baroffio, L., Bestagini, P., Huang, J., **dos Santos, J. A.**, Tubaro, S., & Rocha, A. (2017). Data-driven feature characterization techniques for laser printer attribution. *IEEE Transactions on Information Forensics and Security*, 12(8), 1860–1873.
- 17 Nogueira, K., Penatti, O. A. B., & **dos Santos, J. A.** (2017). Towards better exploiting convolutional neural networks for remote sensing scene classification. *Pattern Recognition*, 61, 539–556.
- 18 Ferreira, A., Felipussi, S. C., Alfaro, C., Fonseca, P., Vargas-Munoz, J. E., **dos Santos, J. A.**, & Rocha, A. (2016). Behavior knowledge space-based fusion for copy-move forgery detection. *IEEE Transactions on Image Processing*, 25(10), 4729–4742.
- 19 Almeida, J., **dos Santos, J. A.**, Alberton, B., Morellato, L. P. C., & da S. Torres, R. (2016). Phenological visual rhythms: Compact representations for fine-grained plant species identification. *Pattern Recognition Letters*, 81, 90–100.

- 20 Ferreira, A., **dos Santos, J. A.**, & Rocha, A. (2016). Multi-directional and multi-scale perturbation approaches for blind forensic median filtering detection. *Intelligent Data Analysis*, 20(s1), S17–S36.
- 21 Nogueira, K., Veloso, A. A., & **dos Santos, J. A.** (2016). Pointwise and pairwise clothing annotation: Combining features from social media. *Multimedia Tools and Applications*, 75(7), 4083–4113.
- 22 Almeida, J., **dos Santos, J. A.**, Miranda, W. O., Alberton, B., Morellato, L. P. C., & da Silva Torres, R. (2015). Deriving vegetation indices for phenology analysis using genetic programming. *Ecological Informatics*, 26(3), 61–69.
- 23 dos Santos, L. C. B., Guimarães, S. J. F., & **dos Santos, J. A.** (2015). Efficient unsupervised band selection through spectral rhythms. *IEEE J. Sel. Top. Signal Process.*, 9(6), 1016–1025.
- 24 Ferreira, A., Navarro, L. C., Pinheiro, G., **dos Santos, J. A.**, & Rocha, A. (2015). Laser printer attribution: Exploring new features and beyond. *Forensic science international*, 247, 105–125.
- 25 Almeida, J., **dos Santos, J. A.**, Alberton, B., da S. Torres, R., & Morellato, L. P. C. (2014). Applying machine learning based on multiscale classifiers to detect remote phenology patterns in cerrado savanna trees. *Ecological Informatics*, 23, 49–61.
- 26 **dos Santos, J. A.**, Penatti, O. A. B., Gosselin, P., Falcão, A. X., Philipp-Foliguet, S., & da Silva Torres, R. (2014a). Efficient and effective hierarchical feature propagation. *IEEE J. Sel. Top. Appl. Earth Obs. Remote. Sens.*, 7(12), 4632–4643.
- 27 Faria, F. A., **dos Santos, J. A.**, Rocha, A., & da Silva Torres, R. (2014). A framework for selection and fusion of pattern classifiers in multimedia recognition. *Pattern Recognition Letters*, 39, 52–64.
- 28 Faria, F. A., Pedronette, D. C. G., **dos Santos, J. A.**, Rocha, A., & da Silva Torres, R. (2014). Rank aggregation for pattern classifier selection in remote sensing images. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 7(4), 1103–1115.
- 29 Nakamura, R. Y. M., Fonseca, L. M. G., **dos Santos, J. A.**, da Silva Torres, R., Yang, X., & Papa, J. P. (2014). Nature-inspired framework for hyperspectral band selection. *IEEE Transactions on Geoscience and Remote Sensing*, 52(4), 2126–2137.
- 30 **dos Santos, J. A.**, Gosselin, P., Philipp-Foliguet, S., Torres, R., & Falcão, A. X. (2013). Interactive multiscale classification of high-resolution remote sensing images. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.
- 31 da Silva, A. T., **dos Santos, J. A.**, Falcão, A. X., Torres, R. d. S., & Magalhães, L. P. (2012). Incorporating multiple distance spaces in optimum-path forest classification to improve feedback-based learning. *Computer Vision and Image Understanding*, 116(4), 510–523.
- 32 **dos Santos, J. A.**, Gosselin, P., Philipp-Foliguet, S., Torres, R., & Falcão, A. X. (2012). Multiscale classification of remote sensing images. *IEEE Transactions on Geoscience and Remote Sensing*, 50(10), 3764–3775.
- 33 **dos Santos, J. A.**, Ferreira, C. D., da S. Torres, R., Gonçalves, M. A., & Lamparelli, R. A. C. (2011). A relevance feedback method based on genetic programming for classification of remote sensing images. *Information Sciences*, 181(13), 2671–2684.
- 34 Ferreira, C., **dos Santos, J. A.**, Torres, R. d. S., Gonçalves, M. A., Rezende, R. C., & Fan, W. (2011). Relevance feedback based on genetic programming for image retrieval. *Pattern Recognition Letters*, 32(1), 27–37.

Conference Proceedings

- 1 da Silva, C. C., Nogueira, K., Oliveira, H. N., & **dos Santos, J. A.** (2020). Towards open-set semantic segmentation of aerial images, In *2020 IEEE Latin American GRSS & ISPRS Remote Sensing Conference (LAGIRS)*. IEEE.

- 2 Ferreira, E., Brito, M., Balaniuk, R., Alvim, M. S., & **dos Santos, J. A.** (2020). Brazildam: A benchmark dataset for tailings dam detection, In *2020 IEEE Latin American GRSS ISPRS Remote Sensing Conference (LAGIRS)*.
- 3 Pereira, M. B., & **dos Santos, J. A.** (2020). An end-to-end framework for low-resolution remote sensing semantic segmentation, In *2020 IEEE Latin American GRSS ISPRS Remote Sensing Conference (LAGIRS)*.
- 4 Caetano, C., Sena, J., Brémond, F., **dos Santos, J. A.**, & Schwartz, W. R. (2019). Skelemotion: A new representation of skeleton joint sequences based on motion information for 3d action recognition, In *2019 16th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS)*. IEEE.
- 5 Nogueira, K., Cesar, C., Gama, P. H., Machado, G. L., & **dos Santos, J. A.** (2019). A tool for bridge detection in major infrastructure works using satellite images, In *2019 XV Workshop de Visão Computacional (WVC)*. IEEE.
- 6 Pereira, M. B., & **dos Santos, J. A.** (2019). How effective is super-resolution to improve dense labelling of coarse resolution imagery?, In *2019 32nd Sibgrapi Conference on Graphics, Patterns and Images (Sibgrapi)*. IEEE.
- 7 Tavares, E. A., Torres, R. d. S., & **dos Santos, J. A.** (2019). Evaluating deep contextual description of superpixels for detection in aerial images, In *Igarss 2019-2019 IEEE International Geoscience and Remote Sensing Symposium*. IEEE.
- 8 Caetano, C., **dos Santos, J. A.**, & Schwartz, W. R. (2018). Statistical measures from co-occurrence of codewords for action recognition, In *International Conference on Computer Vision Theory and Applications*.
- 9 de Oliveira, H. N., de Avelar, C. S., Machado, A. M. C., de Albuquerque Araujo, A., & **dos Santos, J. A.** (2018). Exploring deep-based approaches for semantic segmentation of mammographic images, In *Iberoamerican Congress on Pattern Recognition*. Springer, Cham.
- 10 Ferreira, E., Oliveira, H., Alvim, M. S., & **dos Santos, J. A.** (2018). A comparative study on unsupervised domain adaptation for coffee crop mapping, In *Iberoamerican Congress on Pattern Recognition*. Springer, Cham.
- 11 Macedo, J., Costa, F., & **dos Santos, J. A.** (2018). A benchmark methodology for child pornography detection, In *2018 31st Sibgrapi Conference on Graphics, Patterns and Images (Sibgrapi)*. IEEE.
- 12 Oliveira, H., & **dos Santos, J. A.** (2018). Deep transfer learning for segmentation of anatomical structures in chest radiographs, In *2018 31st Sibgrapi Conference on Graphics, Patterns and Images (Sibgrapi)*. IEEE.
- 13 Santana, T. M. H. C., Torres, R. d., & **dos Santos, J. A.** (2018). Superpixel context description based on visual words co-occurrence matrix [Accepted], In *IEEE International Geoscience & Remote Sensing Symposium*. Accepted.
- 14 Vargas-Muñoz, J. E., Marcos, D., Lobry, S., **dos Santos, J. A.**, Falcão, A. X., & Tuia, D. (2018). Correcting misaligned rural building annotations in open street map using convolutional neural networks evidence [Accepted], In *IEEE International Geoscience & Remote Sensing Symposium*. Accepted.
- 15 Albarracín, J. F. H., Ferreira, E., **dos Santos, J. A.**, & Torres, R. (2017). Fusion of genetic-programming-based indices in hyperspectral image classification tasks, In *IEEE International Geoscience & Remote Sensing Symposium*.
- 16 Baeta, R., Nogueira, K., Menotti, D., & **dos Santos, J. A.** (2017). Learning deep features on multiple scales for coffee crop recognition, In *Conference on Graphics, Patterns and Images (Sibgrapi)*.
- 17 Caetano, C., de Melo, V. H. C., **dos Santos, J. A.**, & Schwartz, W. R. (2017). Activity recognition based on a magnitude-orientation stream network, In *Conference on Graphics, Patterns and Images (Sibgrapi)*.
- 18 Nogueira, K., **dos Santos, J. A.**, Cancian, L., Borges, B. D., Silva, T. S. F., Morellato, L. P., & Torres, R. d. (2017). Semantic segmentation of vegetation images acquired by unmanned aerial vehicles using an ensemble of convnets, In *IEEE International Geoscience & Remote Sensing Symposium*.

- 19 Nogueira, K., Fadel, S. G., Dourado, I. C., Werneck, R. O., Muñoz, J. A. V., Penatti, O. A. B., Calumby, R. T., Li, L., **dos Santos, J. A.**, & da S. Torres, R. (2017). Data-driven flood detection using neural networks, In *Mediaeval*.
- 20 Santana, T. M. H. C., Nogueira, K., Machado, A. M. C., & **dos Santos, J. A.** (2017). Deep contextual description of superpixels for aerial urban scenes classification, In *Ieee international geoscience & remote sensing symposium*.
- 21 Santos, A. B., Araújo, A. A., **dos Santos, J. A.**, Schwartz, W. R., & Menotti, D. (2017). Combination techniques for hyperspectral image interpretation, In *Ieee international geoscience & remote sensing symposium*.
- 22 Vargas-Muñoz, J. E., Tuia, D., dos **dos Santos, J. A.**, & Falcão, A. X. (2017). Post classification smoothing in sub-decimeter resolution images with semi-supervised label propagation, In *Ieee international geoscience & remote sensing symposium*.
- 23 Oliveira, H. N., **dos Santos, J. A.**, Melo, M. C., Rígo, T. G., & Batista, L. V. (2016). Information theory-based detection of noisy bit planes in medical images, In *Conference on graphics, patterns and images (sibgrapi)*.
- 24 Albarracín, J. F. H., **dos Santos, J. A.**, & d. S. Torres, R. (2016). Learning to combine spectral indices with genetic programming, In *Conference on graphics, patterns and images (sibgrapi)*.
- 25 Caetano, C., **dos Santos, J. A.**, & Schwartz, W. R. (2016). Optical flow co-occurrence matrices: A novel spatiotemporal feature descriptor, In *International conference on pattern recognition*.
- 26 Ferreira, E., Araújo, A. A., & **dos Santos, J. A.** (2016). A boosting-based approach for remote sensing multimodal image classification, In *Conference on graphics, patterns and images (sibgrapi)*.
- 27 Muñoz, J. A. V., Li, L. T., Dourado, I. C., Nogueira, K., Fadel, S. G., Penatti, O. A. B., Almeida, J., Pereira, L. A. M., Calumby, R. T., **dos Santos, J. A.**, & da S. Torres, R. (2016). Recod@ placing task of mediaeval 2016: A ranking fusion approach for geographic-location prediction of multimedia objects, In *Mediaeval*.
- 28 Nogueira, K., Dalla Mura, M., Chanussot, J., Schwartz, W. R., & **dos Santos, J. A.** (2016). Learning to semantically segment high-resolution remote sensing images, In *International conference on pattern recognition*.
- 29 Nogueira, K., **dos Santos, J. A.**, Fornazari, T., Silva, T. S. F., Morellato, L. P., & Torres, R. (2016). Towards vegetation species discrimination by using data-driven descriptors, In *Pattern recognition in remote sensing (prrs), 2016 9th iapr workshop on*.
- 30 Santana, T. M. H. C., Machado, A. M. C., Araújo, A. A., & **dos Santos, J. A.** (2016). Star: A contextual description of superpixels for remote sensing image classification, In *Iberoamerican congress on pattern recognition*.
- 31 Nogueira, K., Miranda, W. O., & **dos Santos, J. A.** (2015). Improving spatial feature representation from aerial scenes by using convolutional networks, In *Conference on graphics, patterns and images (sibgrapi)*, Salvador, Brazil.
- 32 Penatti, O. A. B., Nogueira, K., & **dos Santos, J. A.** (2015). Do deep features generalize from everyday objects to remote sensing and aerial scenes domains?, In *Conference on computer vision and pattern recognition workshop*.
- 33 Ferreira Jr, E., Araujo, A. A., & **dos Santos, J. A.** (2015). A multiclass approach for land-cover mapping by using multiple data sensors, In *Iberoamerican congress on pattern recognition*, Montevideo, Uruguay.
- 34 Nogueira, K., Schwartz, W., & **dos Santos, J. A.** (2015). Coffee crop recognition using multi-scale convolutional neural networks, In *Iberoamerican congress on pattern recognition*, Montevideo, Uruguay.

- 35 Pessoa, R., Schwartz, W., & **dos Santos, J. A.** (2015). A study on low-cost representations for image feature extraction on mobile devices, In *Iberoamerican congress on pattern recognition*, Montevideo, Uruguay.
- 36 Dos Santos, L. C. B., Almeida, J., **dos Santos, J. A.**, Guimarães, S. J. F., Araújo, A. D. A., Alberton, B., Morellato, L. P. C., & da Silva Torres, R. (2014). Phenological event detection by visual rhythms dissimilarity analysis, In *2014 IEEE 10th international conference on e-science*.
- 37 dos Santos, L. C. B., Guimarães, S. J. F., de Albuquerque Araújo, A., & **dos Santos, J. A.** (2014b). Unsupervised hyperspectral band selection based on spectral rhythm analysis, In *2014 27th sibgrapi conference on graphics, patterns and images*. IEEE.
- 38 Moreira, M., **dos Santos, J. A.**, & Veloso, A. (2014). Learning to rank similar apparel styles with economically-efficient rule-based active learning, In *Proceedings of international conference on multimedia retrieval*.
- 39 Vargas, J. E., Saito, P. T., Falcao, A. X., De Rezende, P. J., & **dos Santos, J. A.** (2014). Superpixel-based interactive classification of very high resolution images, In *2014 27th sibgrapi conference on graphics, patterns and images*. IEEE.
- 40 Almeida, J., **dos Santos, J. A.**, Alberton, B. C., Morellato, L. P. C., & Torres, R. d. S. (2013). Visual rhythm-based time series analysis for phenology studies, In *2013 IEEE international conference on image processing*. IEEE.
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