Curriculum Vitae

Moacir Ponti (Moacir Antonelli Ponti)

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Code repositories: bitbucket.org/moacirponti and github.com/maponti
Scholar Google: scholar.google.com/citations?hl=en&user=ZxQDyNcAAAAJ

Recent Positions

2010— *Assistant Professor*, ICMC — Institute of Mathematical and Computer Sciences, University of São Paulo, Brazil

2016-2017 *Academic/Research Visitor*, CVSSP — Centre for Vision, Speech and Signal Processing, University of Surrey, UK

Research Areas and Current Interests

Areas: Signal and image processing; computer vision; pattern recognition;

Current research interests: processing signals and images for recognition problems such as *feature extraction*, and *multiple domain representation*; solving inverse problems for *image restoration*; and employing *multiple classifiers and fusion methods* in the said problems. Recent applications include *precision agriculture*, *surveillance* and *assistive technology for aging*.

Education

2004-2008 PhD *Computing Department*, Federal University of São Carlos, Brazil.
with PhD internship (2007–2008) at *IEETA*, Universidade de Aveiro, Portugal.
Major field of study: signal and image processing.

2002-2004 MSc *Computing Department*, Federal University of São Carlos, Brazil.
Major field of study: pattern recognition.

Selected Publication

Journal papers (2013–) (5 highlighted ★)

★ 2018 Bui, T.; Ribeiro, L.; Ponti, M.; Collomosse J.. "Sketching out the Details: Sketch-based Image Retrieval using Convolutional Neural Networks with Multi-stage Regression". *Computers & Graphics*, v.71, 77-87 https://goo.gl/p3TjeQ

★ 2017 Ponti, M.; Kittler, J.; Riva, M.; deCampos, T.; Zor, C. "A decision cognizant Kullback-Leibler divergence". *Pattern Recognition*, 61, 470–478. https://goo.gl/eUPrBl

★ 2017 Ponti, M.; Bet, P.; Oliveira, C.; Castro, P. "Better than counting seconds: Identifying fallers among healthy elderly using fusion of accelerometer features and dual-task Timed Up and Go". *Plos One*, 12, e0175559. https://goo.gl/fLp0KZ

★ 2017 Bui, T.; Ribeiro, L.; Ponti, M.; Collomosse J.. "Compact descriptors for sketch-based image retrieval using a triplet loss convolutional neural network". *Computer Vision and Image Understanding*, v.164, 27–37. https://goo.gl/1Cp7fc

2017 Ponti, M.; Riva, M. "An incremental linear-time learning algorithm for the Optimum-Path Forest

classifier". *Information Processing Letters* (accepted).

2016 Ponti, M.; et al. " Precision Agriculture: Using Low-Cost Systems to Acquire Low-Altitude Images". *IEEE Computer Graphics and Applications*, 36, 14–20. https://goo.gl/d60zub

2016 Ponti, M.; Nazaré, T.; Thumé, G. "Image quantization as a dimensionality reduction procedure in color and texture feature extraction". *Neurocomputing*, 173:2, 385–396.

2015 Ponti, M. et al. 'Image Restoration using Gradient Iteration and Constraints for Band Extrapolation". *IEEE Journal of Selected Topics in Signal Processing.*

2013 Ponti, M., et al., "Three-dimensional noisy image restoration using filtered extrapolation and deconvolution", *Signal, Image and Video Processing.* 7:1, 1–10.

2013 Ponti, M., "Segmentation of low-cost remote sensing images combining vegetation indices and mean-shift", *IEEE Geoscience and Remote Sensing Letters.* 10:1, 67–70.

Conference proceedings full papers (2015–) (3 highlighted ★)

★ 2017 Ponti, M., Ribeiro, L., Nazare, T., Bui, T. and Collomosse, J., "Everything you wanted to know about Deep Learning for Computer Vision but were afraid to ask". In: *30th SIBGRAPI Conference on Graphics, Patterns and Images Tutorials (SIBGRAPI-T)*, 17-41. IEEE. https://goo.gl/VPFwLY.

★ 2017 Ponti, M.; Nazare, T.; Kittler, J., "Optical-Flow Features Empirical Mode Decomposition for Motion Anomaly Detection", In: *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2017)* https://goo.gl/rRCieu.

★ 2017 Nazare, T., da Costa, G., Contato, W. and Ponti, M. "Deep convolutional neural networks and noisy images". In: *Iberoamerican Congress on Pattern Recognition*, 416-424. Springer, LNCS 10657 https://goo.gl/Afg8Ee.

2016 Riva, M.; Ponti, M.; deCampos, T., 'One-class to Multi-class Model Update using the Class-Incremental Optimum-Path Forest Classifier", In: *European Conference on Artificial Intelligence (ECAI 2016).*

2015 Ponti, M.; Picon, C., "Color description of low resolution images using fast bitwise quantization and border-interior classification", In: *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2015).*

2015 Barbieri, T. et al. "Shot-HR: A Video Shot Representation Method Based on Visual Features". In: *ACM SAC 2015*, 2015, Salamanca, Spain. p. 1-8.

Recent Grants (2 highlighted ★)

★ 2017— *(PI)* "Feature learning on sketch based image retrieval and low-altitude remote sensing" funded by FAPESP (Fundação de Amparo a Pesquisa do Estado de São Paulo) grant 16/16111-4

★ 2015— *(Research Associate)*, Center for Mathematics and Statistics Applied to Industry. *Project: "Assessing fall risk in elderly"*. See project website with media coverage: https://goo.gl/dV6YTa

2013-2015 *(PI)* "Optimum-path forest as base classifiers in multiple classifier systems" funded by CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico) grant 482760 /2012-5

2011-2013 *(PI)* "Multiple classifier systems for class imbalanced and large datasets" funded by FAPESP (Fundação de Amparo a Pesquisa do Estado de São Paulo) grant 11/16411-4

Students/Alumni (quantitative)

PhD. degree: 1 concluded (in co-supervision), 4 current students;
MSc. degree: 3 concluded, 2 current student;
Undergraduate research mentorship: 8 concluded, 2 current students.