

2022 35th SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI 2022)

**Natal, Brazil
24 – 27 October 2022**



**IEEE Catalog Number: CFP22129-POD
ISBN: 978-1-6654-5386-8**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22129-POD
ISBN (Print-On-Demand):	978-1-6654-5386-8
ISBN (Online):	978-1-6654-5385-1
ISSN:	1530-1834

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

SIBGRAPI 2022

Table of Contents

Sponsors	ii
Messages from the Chairs	iii
Organizing Committee	vii
Program Committee	ix
Reviewers	xiv

Full Papers Track

Session 1: Remote Sensing

Non-Linear co-registration in UAVs' images using deep learning	1
<i>Leandro Silva, Jocival D. D. Júnior, João F. Mari, Mauricio Escarpinatti, and André R. Backes</i>	
PTL-AI Furnas Dataset: A Public Dataset for Fault Detection in Power Transmission Lines Using Aerial Images	7
<i>Frederico S. de Oliveira, Marcelo de Carvalho, Pedro H. T. Campos, Anderson S. Soares, Arnaldo C. Junior, and Ana C. Rodrigues</i>	
Neuroevolution-based Classifiers for Deforestation Detection in Tropical Forests	13
<i>Guilherme A. Pimenta, Fernanda Dallaqua, Álvaro L. Fazenda, and Fabio Faria</i>	
A High-Spatial Resolution Dataset and Few-shot Deep Learning Benchmark for Image Classification .	19
<i>Mateus S. Miranda, Lucas F. Alvarenga e Silva, Samuel F. dos Santos, Valdivino A. de Santiago-Júnior, Thales S. Körting, and Jurandy Almeida</i>	
A Study on the Impact of Data Augmentation for Training Convolutional Neural Networks in the Presence of Noisy Labels	25
<i>Emeson J. S. Pereira, Gustavo Carneiro, and Filipe R. Cordeiro</i>	

Session 2: Visualization

Pixel-level Class-Agnostic Object Detection using Texture Quantization	31
<i>Gabriel R. Gonçalves, Carlos A. Caetano, Jessica S. Souza, and William R. Schwartz</i>	
Measuring the influence of painters through artwork visual features	37
<i>Bruna M. Dalmoro, Charles Monteiro, and Soraia R. Musse</i>	
CityHub: A Library for Urban Data Integration	43
<i>Karelia Salinas, Thales O. Gonçalves, Victor Barella, Thales Vieira, and Luis G. Nonato</i>	
Explaining noise effects in CNN: a practical case study on volcano signals	49
<i>João P. Canário, Otávio Ribeiro, and Ricardo Rios</i>	
Identification of the Radical Component from Images of Chinese Characters	55
<i>Yu Tzu Wu, Eric Fujiwara, and Carlos Suzuki</i>	

Session 3: Image and Video Analysis

Learning to Detect Good Keypoints to Match Non-Rigid Objects in RGB Images	61
<i>Welerson A. Melo, Guilherme A. Potje, Felipe C. Chamone, Renato Martins, and Erickson R. Nascimento</i>	

Error Accuracy Estimation of 3D Reconstruction and 3D Camera Pose from RGB-D Data	67
<i>Luis E. Ortiz-Fernandez, Bruno M. F. Silva, and Luiz M. G. Gonçalves</i>	

An action recognition approach with context and multiscale motion awareness	73
<i>Danilo B. Cardoso, Luiza C. B. Campos, and Erickson R. Nascimento</i>	

Improving color homogeneity measure in superpixel segmentation assessment	79
<i>Isabela Borlido, Felipe Belém, Leonardo Melo, Alexandre X. Falcão, and Silvio Guimarães</i>	

A soybean seedlings dataset for soil condition and genotype classification	85
<i>Bruno C. Nascimento, Marcos Ribeiro, Laércio J. Silva, Nayara P. Capobiango, and Michel M. Silva</i>	

Session 4: Biomedical Image Analysis and Segmentation I

Feature extraction with mixture gaussian for stroke classification	91
<i>Williana L. S. Leite, Roger Sarmento, and Carlos Dourado-Júnior</i>	

Convolution-Vision Transformer for Automatic Lung Sound Classification	97
<i>José D. C. Neto, João Lucena, Nicksson C. A. de Freitas, and Tiago Vinuto</i>	

Analysis of the statistical significance of 3D texture features in MRI images toward the detection of Tourette's Syndrome	103
<i>Murilo C. Barros, Kauê T. N. Duarte, Wang-Tso Lee, Chia-Jui Hsu, and Marco A. G de Carvalho</i>	

Segmenting White Matter Hyperintensity in Alzheimer's Disease using U-Net CNNs	109
--	-----

<i>Kauê T. N. Duarte, David Gobbi, Abhijot S. Sidhu, Cheryl McCreary, Feryal Saad, Nita Das, Eric Smith, Richard Frayne</i>	
---	--

No boundary left behind in semantic segmentation	115
<i>Jefferson F. da Silva, Bernardo P. M. Silva, and Luciano Oliveira</i>	

Session 5: Pattern Recognition I

Multiclass Oversampling via Optimum-Path Forest for Tree Species Classification from Street-view Perspectives	121
---	-----

<i>Danilo S. Jodas, Leandro A. Passos, Giuliana Del Nero Velasco, Mariana Longo, Aline R. Machado, and João P. Papa</i>	
---	--

How to proper initialize Gaussian Mixture Models with Optimum-Path Forest	127
<i>Guilherme B. Martins and Joao P. Papa</i>	

Quantitative descriptors for a range of visual biologic pigmentation patterns	133
<i>Gabriel H. Moro, Marcelo de G. Malheiros, and Marcelo Walter</i>	

Pap-smear image classification by using a fusion of texture features	139
<i>André R. Backes</i>	

Session 6: Computer Graphics

Counting Particles: a simple and fast surface reconstruction method for particle-based fluids	145
<i>Filomen I. Quispe and Afonso Paiva</i>	

Synthetic Object Recognition Dataset for Industries	150
<i>Chafic Abou Akar, Jimmy Tekli, Daniel Jess, Mario Khouri, Marc Kamradt, and Michael Guthe</i>	

DirectVoxGO++: Fast Neural Radiance Fields for Object Reconstruction	156
<i>Daniel Perazzo, Joao Lima, Luiz Velho, and Veronica Teichrieb</i>	

A texture-driven model for male baldness	162
<i>Dennis G. Balreira, Luiz H. de Figueiredo, Márcio Volkweis, and Marcelo Walter</i>	

Session 7: Pattern Recognition II

Recursive filtering 2D Tikhonov regularization	168
<i>Hermes H. Ferreira and Eduardo S. L. Gastal</i>	

Multiresolution Neural Networks for Imaging	174
---	-----

Hallison O. Paz, Tiago Novello, Vinícius da Silva, Guilherme G. Schardong, Luiz Schirmer, Fabio Chagas, Hélio Lopes, and Luiz Velho

Multi-Scale Patch Partitioning for Image Inpainting Based on Visual Transformers 180
José L. F. Campana, Luís G. Decker, Marcos R. Souza, Helena Maia, and Helio Pedrini

Collaborative Filtering Matches Decision Templates: A Practical Approach to Estimate Predictions . 186
Guilherme B. Martins and Joao P. Papa

Temperature Prediction in Blast Furnaces: A Machine Learning Comparative Study 192
Letícia Navarro, Lucas L. Amorim, Rodrigo F. Berriel, Thiago Paixão, Vinicius Rampinelli, Luiz Wasem, Lucas Quaresma, Claudine Badue, Alberto F. de Souza, and Thiago Oliveira-Santos

Session 8: Biometrics

Residual M-net with Frequency-Domain Loss Function for Latent Fingerprint Enhancement 198
Nailson S. Cunha, Herman M. Gomes, and Leonardo V. Batista

A Benchmark on Masked Face Recognition 204
Pedro B. Vidal, Roger Granada, Gustavo Führ, Vanessa Testoni, and David Menotti

SynLibras: A Disentangled Deep Generative Model for Brazilian Sign Language Synthesis 210
Wellington Silveira, Andrew Allaniz, Marina Hurtado, Bernardo Castello, and Rodrigo de Bem

Face Super-resolution Using Stochastic Differential Equations 216
Marcelo dos Santos, Rayson Laroca, Rafael Ribeiro, João Neves, Hugo Proenca, and David Menotti

Faults Classification on Melamine Faced Panel Using Local Binary Pattern 222
Fernando P. G. de Sá, Aura Conci, and Christian Aguilera

Session 9: Pattern Recognition III

Combining Attention Module and Pixel Shuffle for License Plate Super-resolution 228
Valfride Nascimento, Rayson Laroca, Jorge Lambert, William R. Schwartz, and David Menotti

A First Look at Dataset Bias in License Plate Recognition 234
Rayson Laroca, Marcelo Santos, Valter Estevam, Eduardo Luz, and David Menotti

Fine-grained Cars Recognition using Deep Convolutional Neural Networks 240
Franklin Oliveira, Arianne Macena, Otávio Kamel, Wesley Souza, Tiago Vinuto, Nicksson C. A. de Freitas

Brazilian Road Animals (BRA): An Image Dataset of Most Commonly Run Over Animals 246
Gabriel S. Ferrante, Luis H. V. Nakamura, Fernando R. H. Andrade, Rodolfo Meneguette, Geraldo P. Rocha-Filho, and Robson E. de Grande

Learning from pseudo-labels: Self-training Electronic Components Detector for Waste Printed Circuit Boards 252
Agostinho Júnior, Leandro Silva, Bruno Fernandes, George O. Azevedo, and Sergio C. Oliveira

Session 10: Biomedical Image Analysis and Segmentation II

Classification of lymphomas images with polynomial strategy: an application with Ridge regularization 258
Danilo C. Pereira, Leonardo C. Longo, Thaína A. A. Tosta, Alessandro S. Martins, Adriano B. Silva, Paulo R. de Faria, Leandro A. Neves, Marcelo Z. do Nascimento

Assessment of the association of deep features with a polynomial algorithm for automated oral epithelial dysplasia grading 264
Adriano B. Silva, Marcelo Z. do Nascimento, Thaína A. A. Tosta, Alessandro S. Martins, Leandro A. Neves, Paulo R. de Faria, Danilo C. Pereira, Cléber I. Oliveira, Adriano M. Loyola, and Sérgio V. Cardoso

Automated Sperm Head Morphology Classification with Deep Convolutional Neural Networks 270
Joao V. B. Gomide, Daniel H. M. Falci, Marco F. A. Farnezi, Hana C. M. Farnezi, Marco A. C. Soares, and Fernando S. Parreiras

Evaluating Interpretability in Deep Learning using Breast Cancer Histopathological Images 276
Daniel D. Macedo, Jonh W. S. de Lima, Vinicius Santos, Tasso Moraes, Nicksson C. A. de Freitas, Tiago Vinuto, João Lucena, and Fernando M. de Paula-Neto

A Method to Estimate COVID-19 Contamination Risk Based on Social Distancing and Face Mask Detection Using Convolutional Neural Networks	282
<i>Cezar G. Passamani, Victor Neves, Lauro J. Lyrio-Júnior, Thiago Oliveira-Santos, Claudine Badue, and Alberto F. de Souza</i>	

Tutorials Track

Domain Generalization in Medical Image Segmentation via Meta-Learners Tutorials	288
<i>Hugo Oliveira, Roberto M. Cesar-Júnior, Pedro H. T. Gama, and Jefersson A. dos Santos</i>	
Visualization for Machine Learning	294
<i>Peter Xenopoulos, Luis G. Nonato, and Claudio T. Silva</i>	
Visual Computing in 360°: Foundations, Challenges, and Applications Tutorials	302
<i>Thiago L. T. da Silveira and Cláudio R. Jung</i>	
Fundamentals and Challenges of Generative Adversarial Networks for Image-based Applications	308
<i>Vinicius L. T. de Souza, Bruno A. D. Marques, and João P. Gois</i>	
Deep Open-Set Segmentation in Visual Learning	314
<i>Ian M. Nunes, Marcus Poggi, Hugo Oliveira, and Matheus B. Pereira</i>	

Author Index	320
---------------------	------------