João Fernando Mari

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Brazil
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EXPERIENCE

Federal University of Viçosa - UFV,
Rio Paranaíba - MG - Brazil — *Adjunct Professor*

SINCE JAN, 2009

Teaching in undergraduate courses in Digital Image Processing and Computer Vision. Working and advising research projects on computer vision applied to biomedical agriculture imaging. Appling classification, segmentation, registration, and image generation methods to microscopy, satellite, and UAV images.

EDUCATION

Federal University of São Carlos - UFSCar,
São Carlos - Brazil — *Ph.D.*

JAN, 2011 - MAR, 2015

“Quantitative Analysis of Rat Dorsal Root Ganglion Neurons Cultured on Microelectrode Arrays Based on Fluorescence Microscopy Image Processing.”

Federal University of São Carlos - UFSCar,
São Carlos - Brazil — *MSc*

MAY, 2005 - JUN, 2007

“Reconstruction of 3D Surfaces from Point Clouds using Self-Organizing Neural Networks.”

RECENT PUBLICATIONS

Generating synthetic multispectral images using neural style transfer: a study with application in channel alignment.
Computers and Electronics in Agriculture, 2023.

Automatic identification of charcoal origin based on deep learning.
Maderas. Ciencia y tecnología, 2021.

Comparing convolutional neural networks and preprocessing techniques for HEp-2 cell classification in immunofluorescence images.
Computers in Biology and Medicine, 2019.

Quantitative Analysis of Rat Dorsal Root Ganglion Neurons Cultured on Microelectrode Arrays Based on Fluorescence Microscopy Image Processing.
International Journal of Neural Systems, 2015.

Evaluation of U-Net Backbones for Cloud Segmentation in Satellite Images.
18th International Joint Conference on Computer Vision, Imaging and Computer Graphics

RESEARCH SKILLS

Image Processing
★★★★★

Computer Vision
★★★★★

Machine Learning
★★★★☆

Deep Learning
★★★★☆

PROGRAMMING SKILLS

Python
★★★★★

NumPy, SciPy, Scikit-image, Scikit-learn, Matplotlib, OpenCV-Python
★★★★★

PyTorch
★★★★☆

Pandas, Seaborn, Kivy
★★★☆☆

Matlab
★★★★☆

C, C++, Java
★★★☆☆

LANGUAGES

English
★★★★★

Portuguese
★★★★★(native speaker)

Theory and Applications. Lisbon - Portugal, 2023. p. 452-458. (*in press*)

A comparative study of convolutional neural networks for classification of pigmented skin lesions.
XVII Workshop de Visão Computacional (WVC). Online Streaming, 2021. p. 171-176.

Non-linear Distortion Recognition in UAVs' Images using Deep Learning.
16th International Conference on Computer Vision Theory and Applications. Online Streaming, 2021. p. 447.

Optimizing data augmentation policies for convolutional neural networks based on classification of sickle cells.
XVI Workshop de Visão Computacional (WVC). Uberlândia - MG - Brazil, 2020. p. 46-51.

Evaluating Convolutional Neural Networks for COVID-19 classification in chest X-ray images.
XVI Workshop de Visão Computacional (WVC). Uberlândia - MG - Brazil, 2020. p. 52-57.

Segmentation of fish chromosomes in microscopy images: A new dataset.
XVI Workshop de Visão Computacional (WVC). Uberlândia - MG - Brazil, 2020. p. 58-63.

Classification of UAVs' distorted images using Convolutional Neural Networks.
XVI Workshop de Visão Computacional (WVC). Uberlândia - MG - Brazil, 2020. p. 98-103.

Maize leaf disease classification using convolutional neural networks and hyperparameter optimization.
XVI Workshop de Visão Computacional (WVC). Uberlândia - MG - Brazil, 2020. p. 104-110.

Cell classification using handcrafted features and bag of visual words.
XIV Workshop de Visão Computacional (WVC). Ilhéus - BA - Brazil, 2018. p. 68-73.

Exploiting Convolutional Neural Networks and Preprocessing Techniques for HEp-2 Cell Classification in Immunofluorescence Images.
30th SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI). Niterói - RJ - Brazil, 2017. p. 170.

Improving the definition of markers for the watershed transform by combining h-maxima transform and convex-hull.
XIII Workshop de Visão Computacional (WVC). Natal - RN - Brazil, 2017. p. 124-129.

A comparison between two approaches to segment overlapped chromosomes in microscopy images.
XIII Workshop de Visão Computacional (WVC). Natal - RN - Brazil, 2017. p. 118-123.

HEp-2 Cell Image Classification Based on Convolutional Neural Networks.
XIII Workshop of Computer Vision (WVC). Natal - RN - Brazil, 2017. p. 13-18.

Morphological analysis and classification of erythrocytes in microscopy images.
XII Workshop de Visão Computacional (WVC´2016). Campo Grande - MS - Brazil, 2016. p. 69-74.

Leukocytes classification in microscopy images for acute lymphoblastic leukemia identification.
XII Workshop de Visão Computacional (WVC´2016). Campo Grande - MS - Brazil, 2016. p. 334-338.

WEBSITE AND SOCIAL MEDIA

Website
joaofmari.github.io

Google Scholar
scholar.google.com.br/citations?user=r3ERlQIAAAAJ

ResearchGate
researchgate.net/profile/Joao-Mari

GitHub
github.com/joaofmari

LinkedIn
linkedin.com/in/joao-fernando-mari

AWARDS

Cell classification using handcrafted features and bag of visual words.
XIV Workshop de Visão Computacional (WVC), 2018.
BEST PAPER AWARD

Improving the definition of markers for the watershed transform by combining h-maxima transform and convex-hull.
XIII Workshop de Visão Computacional (WVC), 2017.
BEST POSTER AWARD

RESEARCH PROJECTS

Analysis of satellite images with applications in precision agriculture.
08-2022 - now

Development and evaluation of an automated system for analyzing and processing soybean seeds.
09-2021 - now

Pre-processing, correction, and registration of agricultural images obtained by unmanned aerial vehicles.
08-2020 - now

Application of computational methods for the analysis of water stress in plantations through thermal imaging
08-2017 - 07-2018

Study of convolutional neural networks for classifying objects in microscopy images.
08-2018 - 07-2022 - **Financial support:** FAPEMIG, Brazil.

HEP-2 Cell Image Classification using convolutional neural networks enhanced by evolutionary algorithms.
08-2016 - 08-2016

Cell segmentation methods in microscopy images based on the watershed transform.
08-2016 - 07-2018

OTHER PROFESSIONAL ACTIVITIES

Journal reviewer

PeerJ

Computers in biology and medicine

Intelligence-Based Medicine

Current Molecular Medicine

Biocybernetics and Biomedical Engineering

MSc co-advisor - Computer Science - UFV — *2018*

“Comparison between convolutional neural networks and pre-processing techniques to classify HEp-2 cells in immunofluorescence images.”

General Chair of WSIS - Workshop of Information Systems — *2017, 2018, 2019, 2021, 2022*

The WSIS is a local workshop held in UFV - Brazil, where undergraduate students present their research, extension, and teaching projects.
wsis.crp.ufv.br (*in Portuguese*).