

Guilherme Botazzo Rozendo

Personal data

Brazilian
Male
Single
31 year old

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Experience

University of Bologna

Since Sep 2024

Research fellow

Sao Paulo State University

Aug 2021 - Oct 2021

Lecturer

Algorithm design and analysis

I taught the subjects: Algebra review, recurrence relation, asymptotic functions (Big-O notation and others), NP-complete problems and reducibility, sorting algorithms, search algorithms, random algorithms, greedy algorithms, dynamic programming and algorithms for graphs.

Sao Paulo State University

Jun 2020 - Aug 2020

Lecturer

Data Structure I and Data Structure Laboratory I

I taught the subjects: Abstract Data Types; Linear Data Structures: Stacks, Queues, Circular Queues, Linked Lists; Nonlinear Data Structures: Binary Trees, Search Trees, Balanced Trees; Priority Graphs and Queues.

Sao Paulo State University

Nov 2018 - Mar 2019

Lecturer

Data Structure II

I taught the subjects: Primary and secondary storage; memory management; File Systems; File Management; Examples of File Systems; Indexing structures; External sorting methods.

Sao Paulo State University

Jul 2018 - Dec 2018

Graduate Teaching Assistant

Data Structure Laboratory II

I supervised and assisted students in developing practical activities related to the Data Structure II course.

Education

University of Bologna

Jan 2023 - Dez 2023

Visiting Ph.D student in Computer Science

Sao Paulo State University

Since Oct 2020

Ph.D in Computer Science

Advisor: Dr. Leandro Alves Neves

Sao Paulo State University

Oct 2018 - Sep 2020

M.Sc. in Computer Science
Thesis: Sample Entropy Signatures for Lymphoma Histological
Images Classification. Advisor: Dr. Leandro Alves Neves

Sao Paulo State University

Mar 2014 - Dec 2017

B.Sc. in Computer Science
Thesis: Multiscale Entropy and Texture Signatures for Classification
of Lymphoma Histological Images. Advisor: Dr. Leandro Alves Neves

Skills

Programing languages: Python, C/C++, Bash, LaTeX

Frameworks: PyTorch, TensorFlow, Scikit-learn, MATLAB, Godot
Engine, Blender 3D

Languages: Portuguese (Native speaker), English (B2), Italian
(Intermediate. Experience from living in Italy)

Awards

Best Paper Award: "*Detection of Covid Detection of Covid-19 in chest
X 19 in chest X-ray images using percolation features and ray images
using percolation features and Hermite Hermite polynomial
classification*". 26th Iberoamerican Congress on Pattern Recognition
(CIARP 2023), Coimbra, Portugal

"Local Peoples' Choice Winner" and "Global Nominee", NASA Space
Apps Challenge, International Space Apps Challenge (2019)
([https://2019.spaceappschallenge.org/challenges/living-our-world/
bloom-or-not-bloom/teams/zzzgrubi/project](https://2019.spaceappschallenge.org/challenges/living-our-world/bloom-or-not-bloom/teams/zzzgrubi/project))

Publications

Rozendo, G., Lumini, A.; Roberto, G.; Tosta, T.; Zanchetta do
Nascimento, M. and Neves, L. (2024). *X-GAN: Generative
Adversarial Networks Training Guided with Explainable Artificial
Intelligence*. In Proceedings of the 26th International Conference on
Enterprise Information Systems - Volume 1, ISBN
978-989-758-692-7, ISSN 2184-4992, pages 674-681.

Miguel, P.; Lumini, A.; Medalha, G.; Roberto, G.; **Rozendo, G.**;
Cansian, A.; Tosta, T.; Z. do Nascimento, M. and Neves, L. (2024).
*Improving Explainability of the Attention Branch Network with CAM
Fostering Techniques in the Context of Histological Images*. In
Proceedings of the 26th International Conference on Enterprise
Information Systems - Volume 1, ISBN 978-989-758-692-7, ISSN
2184-4992, pages 456-464.

Martinez, J. M. C., Neves, L. A., Longo, L. H. D. C., **Rozendo, G. B.**,
Roberto, G. F., Tosta, T. A. A., ... & do Nascimento, M. Z. (2024).
*Exploring DeepDream and XAI Representations for Classifying
Histological Images*. SN Computer Science, 5(4), 362.

F. Roberto, G., C. Pereira, D., S. Martins, A., AA Tosta, T., Soares, C.,
Lumini, A., **Rozendo, G. B.**, Neves, L. A. & Z. Nascimento, M. (2023,
November). *Detection of Covid-19 in Chest X-Ray Images Using
Percolation Features and Hermite Polynomial Classification*. In
Iberoamerican Congress on Pattern Recognition (pp. 163-177). Cham:
Springer Nature Switzerland.

Rozendo, G. B., Roberto, G. F., do Nascimento, M. Z., Alves Neves, L., & Lumini, A. (2023, November). *Weeds Classification with Deep Learning: An Investigation Using CNN, Vision Transformers, Pyramid Vision Transformers, and Ensemble Strategy*. In Iberoamerican Congress on Pattern Recognition (pp. 229-243). Cham: Springer Nature Switzerland.

Silva, A. B., **Rozendo, G. B.**, Tosta, T. A., Martins, A. S., Loyola, A. M., Cardoso, S. V., ... & do Nascimento, M. Z. (2023, June). *CNN Ensembles for Nuclei Segmentation on Histological Images of OED*. In 2023 IEEE 36th International Symposium on Computer-Based Medical Systems (CBMS) (pp. 601-604). IEEE.

Pereira, D. C., Longo, L. C., Tosta, T. A., Martins, A. S., Silva, A. B., **Rozendo, G. B.**, ... & do Nascimento, M. Z. (2023, June). *Handcrafted features vs deep-learned features: Hermite Polynomial Classification of Liver Images*. In 2023 IEEE 36th International Symposium on Computer-Based Medical Systems (CBMS) (pp. 495-500). IEEE.

Miguel, P. L., Cansian, A. M., **Rozendo, G. B.**, Medalha, G. C., do Nascimento, M. Z., & Neves, L. A. (2023, January). *An Investigation of Deep-Learned Features for Classifying Radiographic Images of COVID-19*. In International Conference on Enterprise Information Systems, ICEIS-Proceedings (pp. 675-682).

Neves, L. A., Martinez, J. M. C., Longo, L. H. D. C., Roberto, G. F., Tosta, T. A. A., Faria, P. R. D., ... & **Rozendo, G. B.** (2023). *Classification of H&E images via CNN models with XAI approaches, deepdream representations and multiple classifiers*. In Proceedings.

Roberto, G. F., Neves, L. A., da Costa Longo, L. H., **Rozendo, G. B.**, Tosta, T. A. A., de Faria, P. R., ... & do Nascimento, M. Z. (2022). *Percolation Features: An approach for evaluating fractal properties in colour images*. Software Impacts, 14, 100387.

Rozendo, G. B., do Nascimento, M. Z., Roberto, G. F., de Faria, P. R., Silva, A. B., Tosta, T. A. A., & Neves, L. A. (2022). *Sample Entropy Signatures: a new way to interpret SampEn values*. Software Impacts.

Dos Santos, L. F. S., **Rozendo, G. B.**, do Nascimento, M. Z., Tosta, T. A. A., Longo, L. H. C. & Neves, L. A. (2022, June). *Multidimensional shannon entropy (HM) as an approach to classify H&E colorectal images*. In 2022 IEEE International Conference on Systems, Signals and Image Processing (IWSSIP). IEEE.

Jaqueline Junko Tenguam, **Guilherme Botazzo Rozendo**, Guilherme Freire Roberto, Marcelo Zanchetta do Nascimento, Alessandro S. Martins, Leandro Alves Neves (2022) *Multidimensional and Multiscale Higuchi Dimension (mmDH)* [Source Code]. <https://doi.org/10.24433/CO.1638115.v1>

Rozendo, G. B., do Nascimento, M. Z., Roberto, G. F., de Faria, P. R., Silva, A. B., Tosta, T. A. A., & Neves, L. A. (2022). *Classification of non-Hodgkin lymphomas based on sample entropy signatures*. Expert Systems with Applications, 117238.

Guilherme Botazzo Rozendo, Marcelo Zanchetta do Nascimento, Guilherme Freire Roberto, Paulo Rogério de Faria, Adriano Barbosa Silva, Thaína Aparecida Azevedo Tosta, Leandro Alves Neves (2022) *Classification of Non-Hodgkin Lymphomas Based on Sample Entropy Signatures* [Source Code]. <https://doi.org/10.24433/CO.3053768.v1>

Tenguam, J. J., **Rozendo, G. B.**, Roberto, G. F., do Nascimento, M. Z., Martins, A. S., & Neves, L. A. (2020, December). *Multidimensional and multiscale Higuchi dimension for the analysis of colorectal histological images*. In 2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM) (pp. 2833-2839). IEEE.

Candelerio, D., Roberto, G. F., do Nascimento, M. Z., **Rozendo, G. B.**, & Neves, L. A. (2020, December). *Selection of CNN, Haralick, and Fractal Features Based on Evolutionary Algorithms for Classification of Histological Images*. In 2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM) (pp. 2709-2716). IEEE.

Dos Santos, L. F. S., Neves, L. A., **Rozendo, G. B.**, Ribeiro, M. G., do Nascimento, M. Z., & Tosta, T. A. A. (2018). *Multidimensional and fuzzy sample entropy (SampEnMF) for quantifying H&E histological images of colorectal cancer*. Computers in biology and medicine, 103, 148-160.

Talks

"X-GAN: Generative Adversarial Networks Training Guided with Explainable Artificial Intelligence.", 2024 26th International Conference on Enterprise Information Systems, Angers, France

"Weeds Classification with Deep Learning: An Investigation Using CNN, Vision Transformers, Pyramid Vision Transformers, and Ensemble Strategy.", 2023 Iberoamerican Congress on Pattern Recognition, Coimbra, Portugal

"CNN Ensembles for Nuclei Segmentation on Histological Images of OED", 2023 IEEE 36th International Symposium on Computer-Based Medical Systems (CBMS), L'Aquila, Italy

"Handcrafted features vs deep-learned features: Hermite Polynomial Classification of Liver Images", 2023 IEEE 36th International Symposium on Computer-Based Medical Systems (CBMS), L'Aquila, Italy

"An Investigation of Deep-Learned Features for Classifying Radiographic Images of COVID-19", 25th International Conference on Enterprise Information Systems (ICEIS), Prague, Czech Republic

"Classification of H&E Images via CNN Models with XAI Approaches, DeepDream Representations and Multiple Classifiers", 25th International Conference on Enterprise Information Systems (ICEIS), Prague, Czech Republic

"Multidimensional and multiscale Higuchi dimension for the analysis of colorectal histological images", International Conference on Bioinformatics and Biomedicine (BIBM), Seoul, South Korea (2020).

"Selection of CNN, Haralick, and Fractal Features Based on Evolutionary Algorithms for Classification of Histological Images", International Conference on Bioinformatics and Biomedicine (BIBM), Seoul, South Korea (2020).

"BloomTool: prediction of algae bloom in your hands", NASA Space Apps Challenge, Sao Jose do Rio Preto, Brazil (2019).

"Multiscale Entropy and Texture Signatures for Breast Infrared Images Classification", UNESP Scientific Initiation Congress, Sao Jose do Rio Preto, Brazil (2017).