Larissa Ferreira Rodrigues Moreira

Assistant Professor | Federal University of Viçosa (UFV) | Institute of Exacts and Technological Sciences
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Education

2020 – 2024
PhD in Computer Science
Federal University of Uberlândia (UFU), Brazil
Advisor: Professor André Ricardo Backes
Coadvisor: Professor Bruno Augusto Nassif Travençolo
Title: Artificial Intelligence as a Service Architecture: an innovative approach for Computer Vision applications
Research Areas: Artificial Intelligence, Computer Vision, Cloud and Edge Computing.

2016 – 2018
MSc in Computer Science
Federal University of Viçosa (UFV), Brazil
Advisor: Professor Murilo Coelho Naldi
Coadvisor: Professor João Fernando Mari
Title: Comparison between convolutional neural networks and preprocessing techniques to classify HEp-2 cells in immunofluorescence images
Research Areas: Computer Vision, Artificial Intelligence, Image Processing.

2012 – 2016
BS in Information Systems
Federal University of Viçosa (UFV), Brazil
Advisor: Professor João Fernando Mari
Title: Segmentation and classification of erythrocytes in microscopy images
Research Areas: Computer Vision, Artificial Intelligence, Image Processing.

Academic Employment

2023 – Current
Federal University of Viçosa (UFV), Brazil
Assistant Professor in the Institute of Exacts and Technological Sciences

2018 – 2020
Temporary Lecturer in the Institute of Exacts and Technological Sciences

Research Interest

Artificial Intelligence, Computer Vision, Image Processing, Cloud Computing, and Intelligent Networks.

Awards and Honors

2023 Best Paper Award for "Classifying pests in crop images using deep learning" in Workshop of Computer Vision (WVC 2023) - Brazilian Computer Society.

2021 1st place - Hackathon Fortinet at Brazilian Symposium on Computer Networks and Distributed Systems (SBRC) - Brazilian Computer Society.

2020	Academic Research Award for "Automatic classification of COVID-19 on X-ray images using deep neural networks" at Federal University of Viçosa.
2019	Academic Research Award for "Study of Convolutional Neural Networks for objects classification in microscopy images" at Federal University of Viçosa.
2018	Best Paper Award for "Cell classification using handcrafted features and bag of visual word" in Workshop of Computer Vision (WVC 2018) - Brazilian Computer Society.
	Honorable Mention for "Classification of HEp-2 cells using Convolutional Neural Networks" at Federal University of Viçosa.
2017	Best Paper Award for "Voluntary Geographic Information as a data source for basic mapping of small municipalities" in Brazilian Society of Cartography, Geodesy, Photogrammetry and Remote Sensing.
2015	2nd place at the Paper Competition - Judicial Police, Associação dos Delegados de Polícia do Estado de São Paulo (ADPESP) and Instituto Brasileiro de Administração do Sistema Judiciário (IBRAJUS).
	Honorable Mention for paper "Uma iniciativa para atrair as estudantes do ensino médio para a Área de Tecnologia da Informação" in Workshop de Informática na Escola - Brazilian Computer Society.
2014	Arthur Bernardes Award for research "Meninas++: an initiative to attract women to the area of computing in the Rio Paranaíba city" at Federal University of Viçosa.
2009	Honorable Mention in Brazilian Mathematical Olympiad of Public Schools (OBMEP).

Professional Affiliations & Activities

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

Reviewer for Journals
- Scientific Reports - Nature.
- Applied Artificial Intelligence - Taylor.
- Engineering Applications of Artificial Intelligence - Elsevier.
- Computers in Biology and Medicine - Elsevier.
- IEEE Latin America Transactions.
- Computational and Mathematical Methods in Medicine - Hindawy.
- Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization - Taylor.
- INFOCOMP Journal of Computer Science.

Organizing Committee
- Chair XIX Workshop on Computer Vision (WVC), 2024, Rio Paranaíba, Brazil.
- Chair XV Workshop on Information Systems (WSIS), 2024, Rio Paranaíba, Brazil.
- Co-Chair XVI Workshop of Thesis and Dissertations of Faculty of Computing at UFU, 2022, Uberlândia, Brazil

TPC Member for Conferences:
- International Conference on Computer Vision Theory and Applications (VISAPP 2025)
- ENIAC in Brazilian Conference on Intelligent Systems (BRACIS 2020).
- Workshop of Information Systems - Federal University of Viçosa (2017-2024).
- Academic Integration Symposium - Federal University of Viçosa (2018, 2019, 2020, 2024).

Teaching Experience

Federal University of Viçosa, Brazil

Semester 2/2024	Artificial Intelligence (Undergraduate level, 60 hours)
Semester 1/2024	Programming in C (Undergraduate level, 60 hours) Digital Image Processing (Undergraduate level, 60 hours)
Semester 0/2024 (summer)	Pattern Recognition (Undergraduate level, 60 hours)
Semester 2/2023	Artificial Intelligence (Undergraduate level, 60 hours)
Semester 1/2023	Programming in C (Undergraduate level, 60 hours)

Federal University of Viçosa, Brazil (as temporary lecturer)

Semester 1/2020	Programming in C (Undergraduate level, 60 hours)
Semester 0/2020 (summer)	Data Mining (Undergraduate level, 60 hours)
Semester 2/2019	Data Structures and Algorithms (Undergraduate level, 60 hours) Data Processing and Analysis (Undergraduate level, 60 hours)
Semester 1/2019	Programming in C (Undergraduate level, 60 hours) Introduction to Informatics (Undergraduate level, 60 hours)
Semester 0/2019 (summer)	Deep Learning for Computer Vision (Undergraduate level, 60 hours)
Semester 2/2018	Data Processing and Analysis (Undergraduate level, 60 hours) Introduction to Informatics (Undergraduate level, 60 hours)

Contracts, Grants, and Sponsored Research

2025 – current	**PIBIC/FAPEMIG** Larissa F. Rodrigues Moreira (PI) "Aprendizado Federado para auxiliar no Diagnóstico Médico baseado em imagem" (*Federated Learning to support medical image diagnosis*).
2024 – current	**FAPEMIG Grant #APQ00923-24** Rodrigo Moreira (PI), Larissa F. Rodrigues Moreira (Researcher) "Habilitando a Entrega de Serviços Cognitivos em Redes B5G através de Net-AI-APPs" (*Enabling Cognitive Service Delivery in B5G Networks through Net-AI-APPs*).
2023 – 2024	**PIBEN/UFV** Adriana Z. Martinhago (PI), Larissa F. Rodrigues Moreira (Researcher) "Desenvolvimento de atividades de ensino para a disciplina de Programação utilizando os conceitos da Computação Desplugada" (*Development of teaching activities for the Programming course using Unplugged Computing.*).
2022 – 2023	**PIBIC/FAPEMIG** João F. Mari (PI), Larissa F. Rodrigues Moreira (Researcher) "Análise de qualidade de grãos de café por meio de imagens digitais e técnicas e aprendizado profundo" (*Coffee bean quality analysis through digital imaging and deep learning techniques*).

2021 − 2022	**Brazilian Federal Revenue (RFB)** Rodrigo Moreira (PI), Larissa F. Rodrigues Moreira (Researcher) "Project Além do Horizonte: Transforming Smuggled Electronic Equipment into Socially Impactful Technologies in Rio Paranaíba, Brazil".
2020 − 2023	**CPFL and P&D ANEEL (PD-00063-3074/2020)** Vítor Tosetto (PI), Larissa F. Rodrigues Moreira (Researcher) "Inspeção Automatizada de Podas em Redes Urbanas utilizando Deep Learning" (*Automated Inspection of Pruning in Urban Networks using Deep Learning*).
2019 − 2020	**PIBEN/UFV** Rachel C. Duque Reis (PI), Larissa F. Rodrigues Moreira (Researcher) " Uso do Arduino nas Aulas Práticas de Programação e Estrutura de Dados" (*Use of Arduino in Programming and Data Structure Lectures*).
2017 − 2020	**FAPEMIG** João F. Mari (PI), Larissa F. Rodrigues Moreira (Researcher) " Estudo de redes neurais convolucionais para classificação de objetos em imagens de microscopia" (*Study of convolutional neural networks for object classification in microscopy images*).
2014 − 2015	**CNPq** Adriana Z. Martinhago (PI), Larissa F. Rodrigues Moreira (Researcher) "Meninas ++: Uma abordagem para atrair mulheres para a área de computação aplicada ao município de Rio Paranaíba" (*Meninas++: An Approach to Attracting Women to the Field of Computing Applied to the Municipality of Rio Paranaíba*).

Invited Talks and Tutorials

- **Artificial Intelligence: Exploring the Frontier of Research and Innovation.** Invited talk at Federal University of Uberlândia, Brazil, December, 2024.

- **Redefining Boundaries: Women, Technology and Digital Transformation.** Invited talk at Federal University of Viçosa, Brazil, October, 2023.

- **Introduction to Web Development - A Practical Approach. Short course.** Larissa F. Rodrigues Moreira. Federal University of Viçosa, Brazil, November, 2022.

- **Cloud Computing and Artificial Intelligence: Estimating Service Level Agreement Compliance in the Cloud. Short course.** Rodrigo Moreira and Larissa F. Rodrigues Moreira. Federal University of Viçosa, Brazil, October, 2020.

- **Introduction to Machine Learning. Short course.** Larissa F. Rodrigues Moreira. Federal University of Viçosa, Brazil, October, 2019.

- **App Inventor. Short course.** Larissa F. Rodrigues Moreira. Federal University of Viçosa, Brazil, November, 2014.

- **Introduction to HTML and CSS. Short course.** Larissa F. Rodrigues Moreira. Federal University of Viçosa, Brazil, July, 2014.

Publications

2024

1. Barbosa, G., **Rodrigues Moreira, L. F.**, de Sousa, P. M., Moreira, R. & Backes, A. *Optimization and Learning Rate Influence on Breast Cancer Image Classification* in *Proceedings of the 19th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications - Volume 3: VISAPP* (SciTePress, Rome, Italy, 2024), 792–799. doi:10.5220/0012507100003660.

2. Bergmann, M. A. *et al.* An Approach Based on LiDAR and Spherical Images for Automated Vegetation Inspection in Urban Power Distribution Lines. *IEEE Access* **12,** 105119–105130. doi:10.1109/ACCESS.2024.3431466 (2024).

3. De Mesquita, I. M. *et al.* *Enabling Water Management System for Agriculture Using a Low Cost Approach* in *2024 XIV Brazilian Symposium on Computing Systems Engineering (SBESC)* (IEEE, Niterói/RJ, 2024), 1–6. doi:10.1109/SBESC65055.2024.10771923.

4. Monteiro, D., Saar, L., **Rodrigues Moreira, L. F.** & Moreira, R. *On Enhancing Network Throughput using Reinforcement Learning in Sliced Testbeds* in *Anais do XV Workshop de Pesquisa Experimental da Internet do Futuro* (SBC, Niterói/RJ, 2024), 1–7. doi:10.5753/wpeif.2024.2094.

5. Moreira, R., **Rodrigues Moreira, L. F.**, Carvalho, T. & Silva, F. *Resource Allocation Influence on Application Performance in Sliced Testbeds* in *Anais do XV Workshop de Pesquisa Experimental da Internet do Futuro* (SBC, Niterói/RJ, 2024), 8–14. doi:10.5753/wpeif.2024.2095.

6. Moreira, R., **Rodrigues Moreira, L. F.** & de Oliveira Silva, F. Brazilian Selic Rate Forecasting with Deep Neural Networks. *Computational Economics.* doi:10.1007/s10614-024-10597-2 (2024).

7. Oliveira, J. M. *et al.* *Anomaly Detection Employing a 5G Core Data Analytics Framework* in *2024 IEEE 13th International Conference on Cloud Networking (CloudNet) (IEEE CloudNet 2024)* (Rio de Janeiro, Brazil, Nov. 2024), 8.61.

8. **Rodrigues Moreira, L. F.**, Moreira, R., de Oliveira Silva, F. & Backes, A. R. *Towards Cognitive Service Delivery on B5G through AIaaS Architecture* in *Anais do IV Workshop de Redes 6G* (SBC, Niterói/RJ, 2024), 1–8. doi:10.5753/w6g.2024.3304.

9. **Rodrigues Moreira, L. F.**, Soares, L. & Martinhago, A. *Inspiring Women in Technology: Educational Pathways and Impact* in *Anais do XVIII Women in Information Technology* (SBC, Brasília/DF, 2024), 325–330. doi:10.5753/wit.2024.1910.

10. **Rodrigues Moreira, L. F.** *et al.* *Enabling Intelligence on edge through an Artificial Intelligence as a Service Architecture* in *2024 IEEE 13th International Conference on Cloud Networking (CloudNet) (IEEE CloudNet 2024)* (Rio de Janeiro, Brazil, Nov. 2024), 7.47.

11. **Rodrigues Moreira, L. F.** *et al.* *Maximizing the Power of Cognitive Services with an AI-as-a-Service Architecture for Seamless Delivery* in *2024 IEEE 13th International Conference on Cloud Networking (CloudNet) (IEEE CloudNet 2024)* (Rio de Janeiro, Brazil, Nov. 2024), 7.94.

2023

12. Cardoso, V., **Rodrigues Moreira, L. F.**, Moreira, R. & Mari, J. F. *Improving Sickle Cell Disease Classification: A Fusion of Conventional Classifiers, Segmented Images, and Convolutional Neural Networks* in *Anais do XX Encontro Nacional de Inteligência Artificial e Computacional* (SBC, Belo Horizonte/MG, 2023).

13. Moreira, R., **Rodrigues Moreira, L. F.** & de Oliveira Silva, F. An intelligent network monitoring approach for online classification of Darknet traffic. *Computers and Electrical Engineering* **110,** 108852 (2023).

15. Pereira Neto, R., Sousa, P., **Rodrigues Moreira, L. F.**, God, P. & Mari, J. *Enhancing green coffee quality assessment through deep learning* in *Anais do XVIII Workshop de Visão Computacional* (SBC, São Bernardo do Campo/SP, 2023), 84–89. doi:10.5753/wvc.2023.27537.

16. **Rodrigues Moreira, L. F.**, Moreira, R., Travençolo, B. A. N. & Backes, A. R. An Artificial Intelligence-as-a-Service Architecture for deep learning model embodiment on low-cost devices: A case study of COVID-19 diagnosis. *Applied Soft Computing* **134,** 110014. doi:https://doi.org/10.1016/j.asoc.2023.110014 (2023).

2022

17. Antico, T., **Rodrigues Moreira, L. F.** & Moreira, R. *Evaluating the Potential of Federated Learning for Maize Leaf Disease Prediction* in *Anais do XIX Encontro Nacional de Inteligência Artificial e Computacional* (SBC, Campinas/SP, 2022), 282–293. doi:10.5753/eniac.2022.227293.

18. Moreira, R., da Cunha, H. G. V. O., **Rodrigues Moreira, L. F.** & Silva, F. d. O. *VINEVI: A Virtualized Network Vision Architecture for Smart Monitoring of Heterogeneous Applications and Infrastructures* in *Advanced Information Networking and Applications* (eds Barolli, L., Hussain, F. & Enokido, T.) (Springer International Publishing, Cham, 2022), 529–541.

19. Moreira, R., **Rodrigues Moreira, L. F.**, Munhoz, P. L. A., Lopes, E. A. & Ruas, R. A. A. AgroLens: A low-cost and green-friendly Smart Farm Architecture to support real-time leaf disease diagnostics. *Internet of Things* **19,** 100570. doi:https://doi.org/10.1016/j.iot.2022.100570 (2022).

20. **Rodrigues, L. F.**, Backes, A. R., Travençolo, B. A. N. & de Oliveira, G. M. B. Optimizing a Deep Residual Neural Network with Genetic Algorithm for Acute Lymphoblastic Leukemia Classification. *Journal of Digital Imaging* **35,** 623–637. doi:10.1007/s10278-022-00600-3 (2022).

2021

21. Moreira, R., **Rodrigues, L. F.**, Rosa, P. F., Aguiar, R. L. & Silva, F. d. O. *Enhancing dynamism in management and network slice establishment through deep learning* in *2021 International Conference on Information Networking (ICOIN)* (2021), 321–326. doi:10.1109/ICOIN50884.2021.9333872.

22. Rodrigues de Oliveira Neto, R. *et al.* Automatic identification of charcoal origin based on deep learning. en. *Maderas. Ciencia y Tecnologia* **23.** doi:10.4067/s0718-221x2021000100465 (2021).

23. Silva, N., Moreira, R., **Rodrigues, L. F.** & e Silva, R. M. *A Low-cost IoT Architecture to support Urban Mobility for Visually Impaired People* in *Anais do XII Workshop de Pesquisa Experimental da Internet do Futuro* (SBC, Uberlândia, 2021), 1–6. doi:10.5753/wpeif.2021.17193.

2020

24. Da Rocha, E. L., **Rodrigues, L. F.** & Mari, J. F. *Maize leaf disease classification using convolutional neural networks and hyperparameter optimization* in *Anais do XVI Workshop de Visão Computacional* (SBC, Evento Online, 2020), 104–110. doi:10.5753/wvc.2020.13489.

25. Da Silva, M., **Rodrigues, L. F.** & Mari, J. F. *Optimizing data augmentation policies for convolutional neural networks based on classification of sickle cells* in *Anais do XVI Workshop de Visão Computacional* (SBC, Evento Online, 2020), 46–51. doi:10.5753/wvc.2020.13479.

26. Faria, L. C. d., **Rodrigues, L. F.** & Mari, J. F. *Cell classification using handcrafted features and bag of visual words* in *Anais do XIV Workshop de Visão Computacional* (Ilhéus, BA, Brasil, 2020).

27. Moreira, R., **Rodrigues, L. F.**, Rosa, P. & Silva, F. *Improving the network traffic classification using the Packet Vision approach* in *Anais do XVI Workshop de Visão Computacional* (SBC, Evento Online, 2020), 146–151. doi:10.5753/wvc.2020.13496.

28. Moreira, R., **Rodrigues, L. F.**, Rosa, P. F., Aguiar, R. L. & Silva, F. d. O. *Packet Vision: a convolutional neural network approach for network traffic classification* in *2020 33rd SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI)* (2020), 256–263. doi:10.1109/SIBGRAPI51738.2020.00042.

29. Reis, R., **Rodrigues, L. F.**, Reis, C. & Moreira, R. *Fronteira entre o uso da Eletrônica baseada em Hardware Livre e Robótica no Contexto Educacional* in *Anais do XXXI Simpósio Brasileiro de Informática na Educação* (SBC, Online, 2020), 1833–1842. doi:10.5753/cbie.sbie.2020.1833.

30. **Rodrigues, L. F.**, Naldi, M. C. & Mari, J. F. Comparing convolutional neural networks and preprocessing techniques for HEp-2 cell classification in immunofluorescence images. *Computers in Biology and Medicine* **116,** 103542. doi:10.1016/j.compbiomed.2019.103542 (2020).

31. Rodrigues, L., **Rodrigues, L. F.**, da Silva, D. & Mari, J. F. *Evaluating Convolutional Neural Networks for COVID-19 classification in chest X-ray images* in *Anais do XVI Workshop de Visão Computacional* (SBC, Evento Online, 2020), 52–57. doi:10.5753/wvc.2020.13480.

2019

32. Alves, I. L. R., Silva, W. H., Vinhal Nunes, G., **Rodrigues, L. F.** & Godoi, P. N. A. Aplicação web para apoiar as atividades extensionistas da Escola de Música "O Som do Cerrado". *Revista UFG* **19.** doi:10.5216/revufg.v19.60606 (2019).

33. Reis, R., **Rodrigues, L. F.**, Munhoz, P., Lyra, K. & Isotani, S. *Robótica Educacional como Método Principal de Ensino em Práticas de Programação* in *Anais do XXV Workshop de Informática na Escola* (SBC, Brasília, 2019), 1229–1233. doi:10.5753/cbie.wie.2019.1229.

2018

34. Silva, P. L. *et al.* Bases Cartográficas para Municípios de Pequeno Porte geradas por Informação Geográfica Voluntária. *Revista Brasileira de Cartografia* **70,** 1664–1685. doi:10.14393/rbcv70n5-44572 (2018).

2017

35. Loti, L. B. *et al. Informação geográfica voluntária como fonte de dados para cartografia básica de municípios de pequeno porte.* in *XXVII Congresso Brasileiro de Cartografia* (Rio de Janeiro, RJ, Brasil, 2017).

36. **Rodrigues, L. F.**, Naldi, M. C. & Mari, J. F. *Exploiting Convolutional Neural Networks and Preprocessing Techniques for HEp-2 Cell Classification in Immunofluorescence Images* in *2017 30th SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI)* (2017), 170–177. doi:10.1109/SIBGRAPI.2017.29.

37. **Rodrigues, L. F.**, Naldi, M. C. & Mari, J. F. *HEp-2 Cell Image Classification Based on Convolutional Neural Networks* in *2017 Workshop of Computer Vision (WVC)* (2017), 13–18. doi:10.1109/WVC.2017.00010.

2016   38.   **Rodrigues, L. F.**, Naldi, M. C. & Mari, J. F. *Morphological analysis and classification of erythrocytes in microscopy images* in *Workshop of Computer Vision (WVC)* (Campo Grande, Brazil, 2016).

     39.   **Rodrigues, L. F.**, Silva, J. H., Gondim, P. H. C. C. & Mari, J. F. *Leukocytes classification in microscopy images for acute lymphoblastic leukemia identification* in *Workshop of Computer Vision (WVC)* (Campo Grande, Brazil, 2016).

2015   40.   Nunes, M., **Rodrigues, L. F.**, Martinhago, A., Soares, L. & Reis, R. *Uma iniciativa para atrair as estudantes do ensino médio para a Área de Tecnologia da Informação* in *Anais do XXI Workshop de Informática na Escola* (SBC, Maceió, 2015), 425–434. doi:10.5753/cbie.wie.2015.425.

     41.   Nunes, M. M., **Rodrigues, L. F.**, Martinhago, A. Z., Soares, L. S. & Reis, R. C. D. Meninas++: uma iniciativa para fomentar a participação feminina na área de computação. *Tecnologias, Sociedade e Conhecimento* **3,** 58–78. doi:10.20396/tsc.v3i1.14475 (2015).

Students Supervision

Current MSc Student
- Gleidson V. G. Barbosa (Since 2024, Co-advising with André Backes, Federal University of Uberlândia, Brazil)

Current Undergraduate Students
- João Vítor Souto de Lima
- Luiz Felipe de Castro Vilas Boas
- Diogo Pedroso Pereira
- Anthony Enzo Gomes Ribeiro
- Victor Gonçalves Vieira

Undergraduate Students
- Erik Lucas da Rocha (2020)
- Danilo Ferreira da Silva (2019)