CAROLINE MAZINI RODRIGUES

PhD student in Computer Science

15/08/1995 – 28 years old
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SYNOPSIS

Caroline is a Ph.D. student of ESIEE Paris and EPITA (expected graduation on the 2^{nd} semester of 2024) and a member of the laboratories LIGM [1] and LRE [2]. She works with the explainability of Deep Neural Networks. She obtained her master's degree in 2020 at the Institute of Computing (IC) at the University of Campinas (UNICAMP). She had a scholarship from the São Paulo Research Foundation (FAPESP) working with Complex Data Analysis for Events Detection in a forensic computing context. She has a bachelor's degree in Computer Science from the Universidade Estadual Paulista Júlio de Mesquita Filho, UNESP (2017), participating in a 6-month exchange program at the University of Glasgow (Scotland – UK). Throughout her academic and research trajectory, Caroline worked with computer vision, deep learning, content-based image retrieval, and explainability of neural networks. She has collaborated with researchers from various countries and gained valuable experience as a teaching assistant in undergraduate and master's courses in Brazil and France.

EDUCATION

PhD in Computer Science
ESIEE Paris (Université Gustave Eiffel)
2020 –

Advisor: Dr. Laurent Najman | Co-Advisor: Dr. Nicolas Boutry

Master in Computer Science
University of Campinas (UNICAMP)
2018 – jun/2020

Advisor: Dr. Zanoni Dias | Co-Advisor: Dr. Anderson de Rezende Rocha

Bachelor in Computer Science
University of Glasgow (Exchange Program)
jan/2016 – jun/2016

Bachelor in Computer Science
Universidade Estadual Paulista Júlio de Mesquita Filho (UNESP)
2013 – 2017

INTEREST

Some areas of interest include explainable AI, image processing, semi-supervised and unsupervised learning, multimodal learning, generative AI, manifold learning, information retrieval, and content-based image retrieval. Additionally, there is an interest in applications of data analysis and AI for societal welfare, addressing concerns such as fairness and AI interpretability.

SKILLS

Machine Learning
Supervised, Unsupervised, Semi-supervised, Feature Engineering, Explicability, Interpretability, Deep Learning

Data Mining
Image Analysis, Pattern Recognition

Information Retrieval
Content-Based Image Retrieval, Re-ranking, Ranking Aggregation, Contextual Rankings

PROGRAMMING SKILLS

Python	●●●●●
Pytorch	●●●●●
Keras	●●●●○
C	●●●●○
Tensorflow	●●●●○
Java	●●○○○

SCHOLARSHIPS

São Paulo Research Foundation (FAPESP)
Master
2018 – feb/2020

National Council for Scientific and Technological Development (CNPq)
Bachelor
2013 – 2017

LANGUAGES

Portuguese	●●●●●
English	●●●●○
French	●●●●○
Spanish	●●○○○

[1] https://siteigm.univ-mlv.fr/
[2] https://www.lre.epita.fr/

AWARDS

- Best presentation award – Journée des doctorants MSTIC (2021)
- Academic Merit, Faculdade de Ciência e Tecnologia – UNESP (2017)
- Honorable Mention by presenting the work: Neper Number Origin Based on its Derivative – Universidade Federal de Uberlândia (2015)
- Honorable Mention, ACM – Brazilian Programming Olympics (2014)

PUBLICATIONS

Complete Journal Articles

- RODRIGUES, CAROLINE MAZINI; BOUTRY, NICOLAS; NAJMAN, LAURENT. Unsupervised discovery of Interpretable Visual Concepts. Information Sciences, 2024.
- RODRIGUES, CAROLINE MAZINI; BOUTRY, NICOLAS; NAJMAN, LAURENT. Transforming gradient-based techniques into interpretable methods. Arxiv, 2024.
- RODRIGUES, C. M.; SORIANO-VARGAS, A.; BAHRAM, L.; ROCHA, A.; DIAS, Z.. Manifold Learning for Real-World Event Understanding. IEEE Transactions on Information Forensics and Security. 2021.
- PADILHA, R.; RODRIGUES, C. M.; ANDALO, F. A.; BERTOCCO, G.; DIAS, Z.; ROCHA, A. . Forensic Event Analysis: From Seemingly Unrelated Data to Understanding. IEEE SECURITY & PRIVACY. 2020.

Conference Proceedings

- DOH, M.; RODRIGUES, C. M.; BOUTRY, N.; NAJMAN, L.; MANCAS, M.; BERSINI, H. Bridging Human Concepts and Computer Vision for Explainable Face Verification. HAL, 2024.
- RODRIGUES, C. M.; BOUTRY, N.; NAJMAN, L. . Gradients Intégrés Renforcés. Explain'AI Conférence Francophone sur l'extraction et la gestion des connaissances (EGC). 2023.
- RODRIGUES, C. M.; PEREIRA, L. ; ROCHA, A. R. ; DIAS, Z. . Image Semantic Representation for Event Understanding. 2019 IEEE International Workshop on Information Forensics and Security (WIFS). 2019.
- RODRIGUES, C. M.; PITERI, M. A.; ARTERO, A. O.; ELER, D. M.; SILVA, F. A.; PEREIRA, D. R. . Facial Recognition in Digital Images using Local Binary Pattern Methods. XIII Workshop de Visão Computacional (WVC). 2017. v. 1.
- OLIVEIRA, H.; RODRIGUES, C. M.; PITERI, M. A. . Detecção de Arestas em Imagens Digitais. Congresso Nacional de Matemática Aplicada e Computacional (CNMAC). 2014.

Abstracts

- RODRIGUES, C. M.; PITERI, M. A. ; ARTERO, A. O. . Método LBP para o Reconhecimento Facial em Imagens Digitais. XXVIII Congresso de Iniciação Científica da UNESP. 2016.
- RODRIGUES, C. M.; OLIVEIRA, C. N. ; FARINELLI, L. ; ALMEIDA, M. S. . Origem do número de Neper com base em sua derivada. III Colóquio de Matemática da Região Sudeste. Matemática e Estatística em Foco, 2015. v. 3.
- RODRIGUES, C. M.; OLIVEIRA, C. N. ; ARAUJO, A. S. . A construção de um quasi-corpo como motivação ao estudo do q-cálculo. III Colóquio de Matemática da Região Sudeste. Matemática e Estatística em Foco, 2015. v. 3.
- RODRIGUES, C. M.; PITERI, M. A. ; ARTERO, A. O. . Reconhecimento Facial em Imagens Digitais. XXVII Congresso de Iniciação Científica da UNESP. 2015.

EXPERIENCE

- Temporary *teaching and research associate* (ATER), undergraduate and master's courses at Université Gustave Eiffel – Python/C programming, Image processing and Databases – 2023/2024
- *Teaching Assistant*, undergraduate and master's courses at School of Engineering and Computer Science EPITA – Python for Databases, Signal Mathematics, Algorithms Complexity, Rational Languages Theory – 2021/2023
- *Data Scientist* (neuralmind.ai) – 2020
- *Teaching Assistant*, extension course at University of Campinas UNICAMP – Complex data mining regarding information retrieval, supervised and unsupervised learning – 2019/2020
- *Teaching Assistant*, undergraduate course at University of Campinas UNICAMP – Algorithms and computer programming – 2019

EVENT PARTICIPATION

- Presentation "Gradients Intégrés Renforcés" – Explain'AI Conférence Francophone sur l'extraction et la gestion des connaissances (EGC). 2023. (Workshop).
- Oxford Machine Learning Summer School (OxML). 2022. (Summer school).
- Presentation "Visual xAI techniques" in l'École Jeune chercheu/r/se/s en Informatique Mathématique. 2022. (Summer school).
- Presentation "Visual xAI techniques" – Journée des doctorants MSTIC. 2022. (Meeting).
- Presentation "With great predictions come great responsibility: why is explainability important for Deep Learning?" – Journée des doctorants MSTIC. 2021. (Meeting).
- Latin American Meeting In Artificial Intelligence (KHIPU). Complex Data Relevance Analysis for Event Detection. 2019. (Meeting).