Ana Letícia Garcez Vicente

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EDUCATION

Carnegie Mellon University — 2024 - Present
Visitor Student and Researcher — Pittsburgh, PA - USA
Machine Learning Department
- Advisor: Prof. Leila Wehbe
- Relevant Coursework: Representation Learning, Convex Optimization

University of São Paulo — 2023 - Present
M.S. in Computer Science and Computational Mathematics - Machine Learning — São Carlos, SP - BR
Institute of Mathematical and Computer Sciences (ICMC)
- GPA: **A (highest grade in all classes)**
- Advisor: Prof. André Carlos Ponce de Leon Ferreira de Carvalho

University of São Paulo — 2018 - 2022
Bachelor of Mechatronics Engineering — São Carlos, SP - BR
- GPA: **9.1**/10 (**Rank 1/52**)

RESEARCH EXPERIENCE

brainML - Carnegie Mellon brAIn — Sept 2024 – Present
Advised by Prof. Leila Wehbe
Carnegie Mellon University
- Developing a multi-modal CLIP-based model to decode speech from fMRI and MEG data, expanding from a two-domain to a three-domain framework

Analytics Lab — Feb 2023 – Sept 2024
Advised by Prof. André Carlos Ponce de Leon Ferreira de Carvalho
University of São Paulo
- Classifying autism-related fMRI signals using Graph Neural Networks and dimensionality reduction by Recurrent Neural Networks. Analyzed embeddings using t-SNE

Integrated Pattern Recognition and Biometrics Lab (iPRoBe) — Nov 2021 – Dec 2022
Advised by Prof. Arun Ross and Prof. Luis Gustavo Nonato
Michigan State University (Remote)
- Developed a Convolutional Variational Autoencoder with a Patch Discriminator to generate spoofed fingerprints, achieving 93% success in generating fingerprints indistinguishable from real ones

Study of Singularities on Deep Neural Networks — March 2021 – Dec 2022
Advised by Prof. Arun Ross and Prof. Raimundo Nonato Araujo dos Santos
University of São Paulo and Michigan State University
- Analyzed adversarial robustness in deep learning by examining decision boundary curvature and applying topological tools in latent space, suggesting that smoother boundaries enhance resistance to adversarial examples

Pure Mathematical Analysis — Aug 2018 – Mar 2020
Advised by Prof. Hildebrando Munhoz Rodrigues
Universidade de São Paulo
- Elaborated and presented proofs of theorems related to measure and operator theory and metric spaces in weekly seminars. Explored Lebesgue integration, linear operators in finite dimensions, perturbation theory, and Singular Value Decomposition

PUBLICATIONS

Explainable LightGBM Approach for Predicting Myocardial Infarction Mortality — 2023
Ana Letícia Garcez Vicente, Roseval Donisete Malaquias Junior, and Roseli A. F. Romero - CSCI'23

Teaching

Graduate Teaching Assitant	University of São Paulo
• Image Processing and Analysis (Prof. Moacir Antonelli Ponti)	2024
• Artificial Neural Networks and Deep Learning (Prof. Moacir Antonelli Ponti)	2023
• Machine Learning Applied to Problems (Prof. André C.P.L.F. Carvalho)	2023

Undergraduate Teaching Assitant	University of São Paulo
• Analytical Geometry (Prof. Raimundo Nonato Araujo dos Santos)	2020
• Linear Algebra (Prof. Márcia Ferderson)	2020
• Introduction to Robotics (Prof. Marcelo Becker)	2019

Industry Experience

Artificial Intelligence Intern	Set 2021 – Dec 2021
Xmobots	São Carlos, SP - BR

- Developed a U-Net-inspired convolutional autoencoder for semantic segmentation of drone images, enabling environmental monitoring in the Amazon. A hydroelectric plant now uses model deployment software to classify deforestation and water bodies.

Awards

• **Research Internship Abroad Scholarship** by FAPESP at Carnegie Mellon University	2024-2025
• **Masters Scholarship** by FAPESP	2023-2025
• **First-Class Honor** by CREA-SP Formação Profissional	2022
• **First Class Honor** by Instituto de Engenharia	2022
• **Scientific Initiation** by FAPESP	2021-2022
• **BRAFITEC** merit Scholarship for double degree program at Centrale Supelec (Cancelled due to COVID)	2020

Talks

IANS (AI, Neuroscience and Healthy) - UFF (Federal Fluminense University)	2024
"Introduction to Convolutional Neural Networks"	
EESC (São Carlos School of Engineering) - USP	2023
"Introduction to Machine Learning"	
Center for Mathematical Morphology - MINES Paris	2022
"Computer vision analysis of the parameters of a beer foam bubble"	
SIICUSP (USP International Symposium on Scientific and Technological Initiation)	2022
"Autoencoder for Fingerprint Reconstruction"	
SIICUSP (USP International Symposium on Scientific and Technological Initiation)	2021
"A study of the decision boundary in the domain (input) of classifier functions"	

Service and Volunteering

Reviewer	2024
• Brazilian Symposium on Computing Applied to Health (SBCAS)	
Board of Examiners: Undergraduate Thesis	2024
• Natthan Camargo, EESC - USP (Mechatronics Engineering)	
Volunteer Tutor: Meninas Programadoras (Programming Girls) USP	2022 - 2023
• Introducing and Teaching programming for young high school girls	
Leadership: Academic Secretariat for Mechatronic Engineering	2020-2021
• Led a team managing finances and academical product oversight	

Schools and Workshops/Courses Attended

Summer School on Biometrics − *IAPR*	2021
Conference on Computer Vision and Pattern Recognition (CVPR)	2021

Technical Skills

Programming Languages: Python, MATLAB, C, Assembly
ML: Pytorch, Geometric Pytorch, Scikit-Learn, Tensorflow
Other Skills: Control Systems, Linux, Git, Graphs, Biometrics, Neuroscience, Robotics
Languages: Portuguese (native), English (advanced), French (intermediate), and Spanish (beginner)