Caio F. Deberaldini Netto

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EDUCATION

Johns Hopkins University (Baltimore, MD)   Aug 2023 - Aug 2028*
Ph.D. in Machine Learning   *Expected graduation date
Applied Math and Statistics Department
Supervisor: Luana Ruiz

University of São Paulo (São Paulo, SP, Brazil)   Jun 2021 - Jun 2023
M.Sc. in Electrical & Computer Engineering
Programa de Bolsas Itaú (PBI) Fellowship
Supervisor: Fabio Cozman

University of São Paulo (São Paulo, SP, Brazil)   Feb 2016 - Dec 2020
B.Sc. in Mechatronics Engineering
Programa de Bolsas Itaú (PBI) Scholarship

FELLOWSHIPS, AWARDS, AND HONORS

LOGML Summer School (London Geometry and Machine Learning Summer School)   2025
Selected to attend and work on a project at the intersection of geometry and machine learning in one of the most prestigious venues for geometric deep learning community

Acheson J. Duncan Fund Grant   2025
The Acheson J. Duncan Fund for the Advancement of Research in Statistics is a grant that supports research projects in statistics and probability from selected participants ($3.450,00)

KHIPU Selection   2023
Selected participant as one of the talented LatinX young researchers to attend the Latin American Meeting In Artificial Intelligence – KHIPU'23 (27% acceptance rate)

Programa de Bolsas Itaú (PBI) Fellowship   2021 - 2022
Joint fellowship program between the Polytechnic School of the University of São Paulo and *Itaú-Unibanco* for top graduate students in AI-related research ($7.000,00)

Programa de Bolsas Itaú (PBI) Scholarship   2019 - 2020
Joint scholarship program between the Polytechnic School of the University of São Paulo and *Itaú-Unibanco* for top undergrad students in AI-related research ($5.000,00)

KDMiLe Paper Award   2020
Awarded the 2nd best paper at the Symposium On Knowledge Discovery, Mining, and Learning (KDMiLe)

Hackaton USP Award   2019
Awarded the 2nd place in the hackathon developed by the entrepreneurship group of the University of São Paulo

PUBLICATIONS

Graph Semi-Supervised Learning for Point Classification on Data Manifolds
<u>C. Netto</u>, Z. Wang, and L. Ruiz
(Under review)

Improved Image Classification with Manifold Neural Networks
<u>C. Netto</u>, Z. Wang, and L. Ruiz
IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2025.
(*Oral*)

Early Detection of Extreme Storm Tide Events Using Multimodal Data Processing
M. Barros, <u>C. Netto</u> *et al.*
38th AAAI Conference on Artificial Intelligence, AI for Social Impact Track (AISI), 2024.

A Physics-Informed Neural Operator for the Simulation of Surface Waves
M. Mathias, <u>C. Netto</u> *et al.*
Journal of Offshore Mechanics & Arctic Engineering, 2023.

Modeling Oceanic Variables With Graph-Guided Networks for Irregularly Sampled Multivariate Time Series
<u>C. Netto</u> *et al.*
International Conference on Ocean, Offshore & Arctic Engineering, 2023. (*Oral*)

Modeling Oceanic Variables with Dynamic Graph Neural Networks
<u>C. Netto</u> *et al.*
AI: Modeling Ocean and Climate Change Workshop @ International Joint Conference on Artificial Intelligence (IJCAI-ECAI), 2022. (*Oral*)

Prediction of Environmental Conditions for Maritime Navigation using a Network of Sensors: A Practical Application of Graph Neural Networks
<u>C. Netto</u> *et al.*
Symposium On Knowledge Discovery, Mining, and Learning (KDMiLe), 2020. (*Oral*)

TEACHING EXPERIENCE	**EN.553.744: Data Science Methods for Large Scale Graphs**

EN.553.744: Data Science Methods for Large Scale Graphs
Johns Hopkins University   Spring 2025
Head Teaching Assistant, Lecturer: Prof. Luana Ruiz

- Prepared the course's homework, graded students' activities, and gave office hours

EN.553.639: Time Series Analysis
Johns Hopkins University   Spring 2024
Teaching Assistant, Lecturer: Prof. Luana Ruiz

- Graded students' homework and exams, and gave office hours

EN.553.636: Introduction to Data Science
Johns Hopkins University   Fall 2023
Teaching Assistant, Lecturer: Prof. Tamás Budavári

- Prepared the course's homework and exams, graded students' activities, and gave TA sections and office hours
- Delivered a guest lecture on the theory of Logistic Regression and Support Vector Machine models. Over 250 students attended the course

PROFESSIONAL SERVICE

Conference Reviewer
IEEE Signal Processing Letters (SPL)	2025
International Joint Conference on Neural Networks (IJCNN)	2025
IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)	2024
IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)	2023

Group Meetings
Jr MINDS Seminar (*Co-organizer*)	2025

PROFESSIONAL EXPERIENCES

Numerical Offshore Tank (TPN), *University of São Paulo*   Apr 2023 - Aug 2023
Research Engineer

- Worked on spatiotemporal problems in the ocean domain. Developed learning algorithms for forecasting oceanic variables and investigated how to couple physical (domain) knowledge with relational learning. The research focused on studying the limitations of graph neural network models in real physical problems and how to couple physical knowledge into these architectures
- Coadvised two undergraduate students with their first research project. They used the model's architecture, the data, and the training pipeline I built, helping to extend the preliminary results obtained. The findings of this research project were published in an international conference

***Itaú-Unibanco* (São Paulo, SP, Brazil)** Feb 2021 - May 2021
Data Scientist

- Worked as a Data Scientist at *Itaú-Unibanco*, the biggest bank in Latin America, in their academic summer program. The developed project consisted on the implementation of a system for predicting and monitoring real estate trends in the city of São Paulo. Different kinds of time series data were used, such as socioeconomic, census and transactional data

***Big Data* (São Paulo, SP, Brazil)** Jul 2019 - Jan 2020
Data Scientist Intern

- Worked as a Data Scientist Intern at *Big Data*, one of the first and biggest companies in Brazil working with Big Data and Machine Learning consultancy to businesses. Participated and collaborated with the pricing and microtargeting systems. These systems were used as a service for external clients to specify their product's prices and assortment dynamically with the help of data-driven tools

Turing USP, *University of São Paulo* Apr 2019 - Feb 2021
Leader of Computer Vision Research Team, Advisor: Fabio Gagliardi Cozman

- Developed a private company system that encoded photos of customers' faces into a unique vector representation through recent face hashing methods. Impressive results were obtained using Deep Learning models, such as CNN-based autoencoders
- Organized and taught a workshop on using Deep Learning methods in computer vision, applied to the task of defect detection in fruits. The workshop was a partnership with MVISIA, a leading company in the Brazilian market in computer vision solutions for industrial process control. The workshop was held in two days and had +50 participants from the university community
- Contributed to the research group's Medium page, writing about Machine Learning and Deep Learning for the broader community. Posts reached thousands of reactions and readings in the group's Medium webpage

***Colégio Objetivo* (Mogi das Cruzes, SP, Brazil)** Apr 2016 - Aug 2017
Teaching Assistant

- Worked as TA to high school and preparatory course students, teaching math, physics, and chemistry. Also prepared them for competitive universities entrance exams

VOLUNTEER   ***Matemática em Movimento* - NGO (São Paulo, SP, Brazil)** Dec 2016 - Aug 2017
Teaching and Education Volunteer

- Taught math to low-income students. Also helped in the development of the material used by the students. Moreover, I developed practical math activities to integrate theory and practice to enhance the students' mathematical perspective. Those activities involved the students in economics, social and historical contexts

SKILLS   **Python, PyTorch, PyG, C/C++, LaTeX** Proficient
JAX, TensorFlow, HTML, CSS, JavaScript Intermediate
English (Fluent), Portuguese (Native), French (Basic)