Luiza Lober de Souza Piva

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🔗 Luiza Lober   ⓘD orcid.org/0000-0003-1726-4152
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Education

May 2022 – ongoing	🔖 **Ph.D. in physics, University of São Paulo (USP)** Complex networks dynamics through the use of machine learning, focusing on epidemic modeling and synchronization. Thesis title: *Dynamics of nonlinear systems using machine learning.*
Aug. 2021 – Dec. 2021	**Extension, Complex data mining** State University of Campinas (UNICAMP). Final project: *Team solution to the RSNA-MICCAI Brain tumor radiogenomic classification competition at Kaggle.*
Mar. 2020 – Apr. 2022	**M.Sc. Physics** State University of Campinas (UNICAMP). Dissertation title: *Study of initial conditions using PYTHIA to hydrodynamic simulations.*
Mar. 2016 – Dec. 2019	**B.Sc. Physics** State University of Campinas (UNICAMP). Second undergrad research project: *Study of elliptic flow and simulation techniques in ultrarelativistic heavy-ion collisions* (Funding: FAPESP). 2018-2019. First undergrad research projects: *Development of a light detector to a LT-STM* (Funding: FAPESP). 2017-2018.

Work experience

2021	**Teaching assistant**, State University of Campinas (UNICAMP). *August 2021 - December 2021*: "Física Experimental III" (F 329), class A; *March 2021 - July 2021*: "Física Experimental III" (F 329), class T.
2019	**Undergraduate teaching assistant**, State University of Campinas (UNICAMP). *August 2019 - December 2019*: "Física Geral IV" (F 428), class A.
2018	🔖 **Quanta Jr.**, State University of Campinas (UNICAMP). Junior business with educational and modeling solutions developed by physics undergrads. *December 2018 - April 2019*: Vice president; *August 2018 - December 2018*: Advisor; *March 2018 - August 2018*: Trainee.

Research Publications

Journal Articles

1. L. Lober, K. O. Roster, and F. A. Rodrigues, "Integrating socioeconomic and geographic data to enhance infectious disease prediction in Brazilian cities," *arXiv*, May 2024. 🔗 DOI: 10.48550/arXiv.2405.01422. eprint: 2405.01422.

Conferences and presentations

Poster presentations

1.   L. Lober and F. A. Rodrigues, "Extracting the governing equations of epidemics through sparse regression," in *Conference on Complex Systems*, Oct. 2023.

2.   L. Lober, "Extraindo as equações de sincronização em redes complexas através de regressão esparsa," in *Ada Lovelace Day - Women in science congress*, Nov. 2022.

3.   L. Lober and F. A. Rodrigues, "Applying a sparse regression model in complex networks," in *Applications of Nonlinear Systems to Socio-Economic Complexity, IFT-SAIFR*, Oct. 2022.

4.   L. Lober and D. D. Chinellato, "Initial conditions using pythia for hydrodynamic simulations," in *XLIV Brazilian Meeting on Nuclear Physics*, Nov. 2021.

5.   L. Lober and D. D. Chinellato, "Using pythia as an initial condition generator for hydrodynamics," in *The VIth Initial Stages*, Jan. 2021.

6.   L. Lober and D. D. Chinellato, "Elliptic flow in ultrarelativistic heavy-ion collisions," in *XXVII PIBIC Congress*, Sep. 2019.

7.   L. Lober and D. D. Chinellato, "Elliptic flow in ultrarelativistic heavy-ion collisions," in *XL National Congress of Particle Physics and Fields*, Sep. 2019.

8.   L. Lober and L. Zagonel, "Development of a light detector for a low temperature scanning tunneling microscope (lt-stm)," in *XXVI PIBIC Congress*, Oct. 2018.

Skills

Languages	Strong reading, writing and speaking competencies for English and Portuguese.
Coding	Python, R, C/C++, LaTeX, …
Code packages	Office suite, Jupyter Notebook, Git, SSH, Matplotlib, Scipy, Scikit Learn, TensorFlow and Pandas.
ML knowledge	Sparse regression algorithms, Random Forests and similar regression models, time series forecast, symbolic regression and PINNs, GCNs.
Reviews for	Chaos, Solitons & Fractals, Europhysics Letters.
Misc.	Academic research, presentation, consultation, LaTeX typesetting and publishing.

Miscellaneous Experience

Awards and Achievements

2022   **2nd place to a oral presentation**, Ada Lovelace Day, USP.
The presented work, titled "Extraindo as equações de sincronização em redes complexas através de regressão esparsa", was presented at "Seminário Mulheres na Ciência" that took place in State University of São Paulo (USP São Carlos).

2019   **Honorable mention to poster**, State University of Campinas (UNICAMP).
Project presented at "XXVII Congresso PIBIC" that took place in Universidade Estadual de Campinas (UNICAMP).

Miscellaneous Experience (continued)

Certification

Feb. 2024   ✹   **10th Workshop on Mathematical Solutions applied to the Industry and 1st Innovation Week**, USP.
Developing a supervised model to predict damages on the network of gas pipelines (commissioned by Comgás).
Workload: 32 hours.

References

Available on Request