

Abstract

Currently pursuing a PhD degree in Computer Science with a focus on 3D reconstruction using Gaussian Splatting. I hold a Master's degree in computer vision focused on the classification of human skin tones, and a strong bachelor's degree in Pure Mathematics.

Studies

PhD Researcher

06/2025 - current[State University of Sao Paulo \(USP\)](#)

Emphasis in Gaussian Splatting, 3D and 4D reconstruction, specifically with a geometrically consistent reconstruction and implicit neural time flows.

Master's degree in Computer Science and Computational Mathematics

03/2023 - 06/2025[State University of Sao Paulo \(USP\)](#)

Emphasis in computer vision: skin tone classification of human faces in the wild using classic and deep learning approaches.

Bachelor's degree in Mathematics

2018 - 2023[State University of Londrina \(UEL\)](#)

Final Project: Covid-19 Prediction using compartmental models with optimization on real data.

Experience

3DGS researcher

11/2024 - current[USP and IMPA](#)

Conducting research on 3DGS. We did a morphing of 3DGS representations. And we also devised a tutorial of 3DGS to showcase its power to the Brazilian CV community. Now focused on 4D and geometrically accurate reconstructions.

Senior Computer Vision Engineer

03/2025 - 10/2025[Wikki/Wiise Brazil](#)

Applied state of the art computer vision models (DINO) to microscopy slides of rocks to identify, segment, and count fossils that help dating the bedrocks.

GUI developer for a tree inventory business

11/2023 - 01/2025[CFWood](#)

Using Python with the libraries Pandas, PySide6, SciPy, and others, I created a simple GUI that calculates some features about tree inventories. For that, sklearn was used to clear outliers and calculate metrics.

Education Tutoring Program (Programa de Educação Tutorial)

04/2019 - 10/2022[Department of Mathematics State University of Londrina](#)

In this program I've learned a lot of skills for over three years, such as project management with participation in over 40 unique projects. Also have developed abilities like team management, such as creating a new internal communication structure. Also as a software developer i have created LaTeX writing models used in writing three books and created two websites one for the group and other for an Event using HTML, CSS, JS. And one of the most important features that I learned was the process of writing a math book with over 300 pages with a team of 12 people.

Covid-19 Researcher

2020 - 01/2024[Department of Mathematics State University of Londrina](#)

As my mathematics bachelor's thesis. I researched the pandemic of Covid-19 for over two years by utilizing predictive mathematical models with optimization using Big Data analytics. For that i use the programming language Python with the common data science libraries such as NumPy, SciPy, Pandas, Scikit and Gurobi & others. Also, published a paper in 2021 and one to be published in 2025.

In this project, I collaborated with professors to bridge university-level mathematics education with basic education, enhancing math learning through real-world problem-solving activities.

Publications

Journals:

- Bizzi, A., Grynberg, M., **Matias, V.**, Perazzo, D., Lima, J. P., Velho, L., and Novello, T. (2025). **Flowing: Implicit neural flows for structure-preserving morphing.** NeurIPS
<https://arxiv.org/abs/2510.09537>
- **Matias, V. P.**, Perazzo, D., Silva, V., Raposo, A., Velho, L., Paiva, A., Novello, T. 2025. **From Volume Rendering to 3D Gaussian Splatting: Theory and Applications.** Main Track Tutorials of the XXXVIII Conference on Graphics, Patterns and Images (SIBGRAPI).
<https://arxiv.org/abs/2510.18101>
- **Matias, V. P.**, Batista, J. B. 2024. **Enhancing Fairness in Machine Learning: Skin Tone Classification Using the Monk Skin Tone Scale.** Extended Annals of the XXXVII Conference on Graphics, Patterns and Images (SIBGRAPI).
DOI: [10.5753/sibgrapi.est.2024.31648](https://doi.org/10.5753/sibgrapi.est.2024.31648), PDF: https://sol.sbc.org.br/index.php/sibgrapi_estendido/article/view/31648
- Cirilo, E. R., Natti, P. L., de Godoi, P. H. V., Lerma, A., **Matias, V. P.**, & Romeiro, N. M. L. (2021). **COVID-19 in Londrina-pr: SEIR model with parameter optimization.** SEMINA. CIÊNCIAS EXATAS E TECNOLÓGICAS
DOI: <https://doi.org/10.5433/1679-0375.2021v42n1Suplp45>

Book/Chapters:

- **MATIAS, V. P.**; Et al*. . Matemática: um livro feito por alunos para alunos. 1. ed. Londrina: Pet Matemática UEL, 2022. v. 1. 342p .

* denotes equal contribution.

Check my scholar for more info <https://scholar.google.com/citations?user=OWAq7C8AAAAJ&hl=en&oi=ao>.

Awards and Fellowships

PhD CAPES Foundation Fellowship Stippend

11/2025 - current

Master's Capes Foundation Fellowship Stippend

2023-2025

Ministry of Education: Educational Tutoring Program (PET) Fellowship Stippend

2019-2022

Covid-19 spreading prediction on the Parana state.

2021

Honorable Mention: 6º Congresso Paranaense de Saúde Pública/Coletiva

Teaching activities

LaTeX for beginners week course

2021 & 2022

Department of Mathematics State University of Londrina

Teaching Assistant for Ordinary Differential Equations and Basic Mathematics

2019 & 2020

Department of Mathematics State University of Londrina

Teaching Assistant for Laboratory of Advanced Algorithm (1 and 2)

2024/1 & 2024/2

Computer Science ICMC - USP - Universidade de São Paulo

Teaching assistant for 3D Reconstruction

2025/2

IMPA - Instituto de Matematica Pura e Aplicada

Event organization: XXXIV UEL Mathematics Week Conference 2022; Basic Maths Week 2021; XIV JOPARPET 2020; 10ª Feira Das Profissões: Conhecendo A Uel. 2022

Website development: XXXIV UEL Mathematics Week Conference 2022; GIVA Labs

Programming Skills

Python: Pandas, Plotly, Sklearn, Pytorch, OpenCV, Pyside6 (Qt), and others

Miscellaneous: \LaTeX , Gnuplot, HTML, CSS, Fortran, C#, SQL, JavaScript


Languages


Português: Native

English: highly-profficient

Français: 2 semesters


Contact

 +55 043 9 9168 1898

 vitorpmh@gmail.com

 github.com/vitorpmh

 LinkedIn

 Curriculum Lattes

 Scholar