

Education

Sep 2025 — Present
Toronto, ON

University of Toronto · PhD in Computer Science

Advised by Prof. Eitan Grinspun

Topics: Geometry Processing, Numerical Simulation, Machine Learning.

Jun 2018 — Nov 2023
João Pessoa, Brazil

Federal University of Paraíba (UFPB) · BSc in Computer Engineering

GPA 8.8 / 10

Thesis: Medical Image Synthesis using Latent Diffusion Models.

Publications

PhD Work

[P1] Variational Green's Functions for Volumetric PDEs

João Teixeira, Eitan Grinspun, Otman Benckroun

Preprint, *arXiv:2602.12349 [cs.GR]*, 2026

Undergraduate Work

[9] Improving Textural Realism in Breast Phantom Images

Luana de M. Omena, Guilherme M. de Oliveira, Thaís G. do Rêgo, Yuri de A. M. Barbosa, João P. V. Teixeira, Telmo M. Silva Filho, Bruno Barufaldi

Medical Physics 53(5): e70501, 2026

[8] Comparative Evaluation of Ray-Tracing and Monte Carlo Virtual Clinical Trials Pipelines for Lesion Detection in Digital Breast Tomosynthesis

Chloe J. Choi, Bruno Barufaldi, João P. V. Teixeira, Raymond J. Acciavatti, Andrew D. A. Maidment

Virtual Imaging Trials in Medicine, 2024

[7] Representation of Complex Mammary Parenchyma Texture in Tomosynthesis Using Simplex Noise Simulations

Bruno Barufaldi, Chloe J. Choi, João P. V. Teixeira, Magnus Dustler, Raphael B. Englander, Thaís G. do Rego, Yuri Malheiros, Telmo Filho, Belayat Hossain, Juhun Lee, Andrew D. A. Maidment

SPIE Medical Imaging, 2024

[6] Multiclass Segmentation of Breast Tissue and Suspicious Findings: A Simulation-Based Study for the Development of Self-Steering Tomosynthesis

Bruno Barufaldi, Yann Nobrega, Giulia Carvalhal, João P. V. Teixeira, Thaís G. do Rego, Yuri Malheiros, Telmo Filho, Raymond J. Acciavatti, Andrew D. A. Maidment

Tomography 9(3): 1120–1132, 2023

[5] Interactive Breast Lesion Designer for Virtual Trials Based on Perlin Noise

Magnus Dustler, Hanna Tomic, Anna Bjerken, Anders Tingberg, Pontus Timberg, Sophia Zackrisson, Arthur Chaves Costa, João P. V. Teixeira, Bruno Barufaldi, Predrag R. Bakic

Live Demonstrations Workshop, SPIE Medical Imaging, 2023 · **Best Live Demo**

[4] Spatial Dependency of Lesion Detectability in Digital Breast Tomosynthesis

Chloe J. Choi, Bruno Barufaldi, João P. V. Teixeira, Raymond J. Acciavatti, Andrew D. A. Maidment

16th International Workshop on Breast Imaging (IWBI), 2022

[3] Multiclass Segmentation of Suspicious Findings in Simulated Breast Tomosynthesis Images Using a U-Net

Yann Nobrega, Giulia Carvalhal, João P. V. Teixeira, Barbara Camargo, Thaís G. do Rego, Yuri Malheiros, Telmo Filho, Trevor Vent, Raymond J. Acciavatti, Andrew D. A. Maidment, Bruno Barufaldi

- [2] **Novel Perlin-Based Phantoms Using 3D Models of Compressed Breast Shapes and Fractal Noise**
João P. V. Teixeira, Telmo Filho, Thais G. do Rego, Yuri Malheiros, Magnus Dustler, Predrag R. Bakic, Trevor Vent, Raymond J. Acciavatti, Srilalan Krishnamoorthy, Suleman Surti, Andrew D. A. Maidment, Bruno Barufaldi
SPIE Medical Imaging, 2022
- [1] **Iris-CV: Classifying Iris Flowers Is Not as Easy as You Thought**
Itamar Filho, **João P. V. Teixeira**, João W. L. Lins, Felipe Sousa, Ana Sousa, Manuel F. Junior, Thaís Ramos, Cecília Silva, Thais G. do Rego, Yuri Malheiros, Telmo Filho
Brazilian Conference on Intelligent Systems (BRACIS), 2021

■ Research

Sep 2025 — Present
Toronto, ON

Dynamic Graphics Project, University of Toronto

Doctoral Researcher

Research in differentiable geometry and numerical simulation for inverse problems in visual computing and computational design.

Summer 2023
Remote

Summer Geometry Initiative, MIT

SGI Fellow

- Investigated noise in the gradients of implicit neural representations. Mentored by Prof. Peter Yichen Chen.
- Studied methods for stochastic surface reconstruction from oriented point clouds. Mentored by Prof. Silvia Sellán and Ana Dodik.
- Developed a pipeline for ex-vivo brain mesh reconstruction from in-vivo meshes. Mentored by Dr. Karthik Gopinath.

Jun 2021 — Oct 2023
Remote

X-ray Physics Lab, Penn & ARIA Lab, UFPB

Undergraduate Researcher

Developed methods to generate realistic breast anatomy for virtual clinical trials. Mentored by Prof. Bruno Barufaldi.

■ Industry

Jan 2024 — Sep 2025
Vancouver, BC

Microsoft, Azure Kubernetes Service (AKS)

Software Engineer

Developed an automated data-driven service that orchestrates Azure Kubernetes Service (AKS) infrastructure. Designed and Implemented an AI service that predicts capacity usage and plans resource allocation, which ensures reliable and efficient performance of AKS across large-scale cloud environments.

Oct 2021 — May 2022
Remote

Amazon, Fulfillment by Amazon (FBA)

Software Engineering Intern

Created data pipelines and monitoring dashboards for the Tax Services team of Amazon Brazil.

Apr 2020 — Sep 2021
João Pessoa, Brazil

ARIA Lab, UFPB

Data Engineering Intern

Upgraded the data infrastructure of the Department of Finance of the State of Paraíba and developed a tool that uses artificial intelligence to detect tax fraud.

Mar 2021 — Sep 2021
Remote

Aplicativos de Bolso

Data Science Intern

Designed and implemented a recommender system that assists Law Students in studying for the Brazilian Bar Examination.

Nov 2020 — Apr 2021
Remote

Atoptima & UFPB

Combinatorial Optimization Developer

Contributed to the development of an Open-source Vehicle Routing Problem Solver, in Julia Language, which outputs the optimal set of routes for a given fleet of vehicles to visit a given group of customers

Sep 2019 — Dec 2019
João Pessoa, Brazil

LAVID, UFPB

Software Engineering Intern

Distributed Collaborative Video Surveillance System for the Federal University of Paraíba. Built an Event-Driven Logging for the distributed system using Apache Kafka and explored methods to detect anomalous events in videos

■ Teaching

Fall 2026

CSC2539 — Physics-Informed Neural Representations for Visual Computing

Teaching Assistant, University of Toronto

Instructor: Prof. Aviad Levis.

Fall 2026, Winter 2026

CSC301 — Introduction to Software Engineering

Teaching Assistant, University of Toronto

Instructor: Prof. David Jorjani.

Fall 2025

CSC417 / CSC2549 — Physics-based Animation

Teaching Assistant, University of Toronto

Instructor: Prof. David I. W. Levin.

■ Mentoring

Nov 2023 — Present

ARIA Lab, UFPB

2020 — 2022

Technology and Artificial Intelligence League (TAIL)

■ Talks

2025

Variational Green's Functions

GraphQUON 2025, Toronto, ON

■ Awards

Sep 2022 - Present

Líder Estudiar - Estudiar Foundation - NGO

The most competitive scholarship in Brazil. 0.04% acceptance rate. Extended their support for my graduate studies.

2022

Top Scorer

16th International Workshop on Breast Imaging (IWBI)

Multiclass Segmentation of Suspicious Findings in Simulated Breast Tomosynthesis Images Using a U-Net

2023

Best Live Demo

Live Demonstrations Workshop, SPIE Medical Imaging

Interactive Breast Lesion Designer for Virtual Trials Based on Perlin Noise

■ Service & Outreach

Nov 2025

Organizer, GraphQUON 2025

Annual graphics research gathering for students across Quebec and Ontario, hosted by the Dynamic Graphics Project, University of Toronto.

Aug 2020 — Dec 2025

Ex-President, Co-founder and Advisor, Technology and Artificial Intelligence League (TAIL)

Non-profit student organization for AI and data analysis at UFPB. Grew to 130+ members from 500+ applicants, ran 25+ projects, and placed 50+ students in internships; 60+ members remain active today.

■ Skills

Programming

Python, C/C++, Go, Rust, Julia, MATLAB, Java, JavaScript, SQL

Languages

English (fluent), Portuguese (native), Spanish (basic)