

# Lucas Schmidt Ferreira de Araujo

📍 Location    ✉ lucasschmidt338@gmail.com    ☎ 536 456 388

🌐 lucas-schmidt-ferreira-de-araujo-87226a223

🔗 lucasschmidt98py

## Summary

---

Nuclear Engineer with M.S. in Applied Mathematics at Wroclaw University of Science and Technology. Experienced in software development, quantitative research, and numerical methods for fluid dynamics. Proficient in Python, C++, and parallel computing. Passionate about applying mathematical modeling to solve complex engineering problems.

## Education

---

- M.S. Wroclaw University of Science and Technology**, Applied Mathematics – Feb 2024 – July 2025  
Wroclaw, Poland
- Awardade by the NAWA scholarship program
  - GPA: 4.75/5.00
- B.S. Federal University of Rio de Janeiro**, Nuclear Engineering – Rio de Janeiro, Brazil Mar 2017 – Dec 2023

## Experience

---

- Software Developer Intern**, National Agency of Oil and Gas – Rio de Janeiro, Brazil Sept 2022 – Aug 2023
- Implementation of Riemann solvers for conservation equations (isothermal models).
  - Spectral methods for fluid dynamics.
  - Identification of two-phase flow patterns in oil and gas pipelines.
  - Transient gas-liquid flow modeling in pipelines.
  - Implementation of numerical methods in C++ using parallel computing.
- Quantitative Research Intern**, Bank of Communications – Rio de Janeiro, Brazil Mar 2021 – Sept 2022
- Modeling of observable variables at brazilian energy market
  - Mathematical modeling of binary variables
  - Creation of scheduled routines in Python and R for data updating and models feeding

## Publications

---

- The neutron one-point branching process simulation** Apr 2024  
de Araujo, **Lucas S.F.**, ROBERTY, **Nilson Costa**  
<https://doi.org/10.1016/j.nucengdes.2024.112937> (Nuclear Engineering and Design)
- Doppler Broadening of Neutron Cross-Sections Using Kaniadakis Entropy.** Oct 2022  
de Abreu, W. V., Maciel, J. M., Martinez, A. S., Gonçalves, A. D. C., de Araujo, Lucas S.F.  
<https://doi.org/10.3390/e24101437> (Entropy)
- SIR model parameters estimation with COVID-19 data** Apr 2021  
ROBERTY, **Nilson C.**, de Araujo, **Lucas S.F.**  
[10.9734/JAMCS/2021/v36i330349](https://doi.org/10.9734/JAMCS/2021/v36i330349) (Journal of Advances in Mathematics and Computer Science)

## Events

---

<b>CFD in Wroclaw – Wroclaw University, Poland</b>	June 2025
<b>FISA-EURADWASTE European Nuclear Energy Forum – Warsaw, Poland</b>	May 2025
<b>ICMC Summer Meeting on Differential Equations – São Paulo, Brazil</b>	Jan 2023
<b>Nuclear Engineering Week – Rio de Janeiro, Brazil</b>	Sept 2019

## Awards

---

**NAWA Scholarship Program**

**Section Best Work for SIR modeling for COVID-19 outbreak**

**Finalist at World Nuclear University Olympiad in Vienna**

**Honors at SIAC for the work Simplified Models for Casimir Forces (Academic Integration Week at UFRJ)**

## Programming

---

### Python

- Experience with data analysis packages: Pandas.
- Experience with scientific packages: NumPy, SciPy and Scikit-Learn.
- Experience with plotting libraries: Matplotlib, Seaborn and Plotly
- Experience with CPU parallel computing: Numba

### C++

- Experience with implementation of algorithms for fluid dynamics and particle dynamics simulations: ROOT.
- Experience with linear algebra packages: BLAS and LAPACK.
- Experience with parallel computing: OpenMP.

### R

- Experience in statistical modeling and data visualization.

### Julia

- Experience with numerical methods and scientific computing: FixedPoint.jl, DifferentialEquations.jl, and LinearAlgebra.jl.
- Experience with high quality plotting libraries: Plots.jl and Makie.jl
- Experience with CPU parallel computing: Threads.jl
- Familiar with GPU computing: CUDA.jl

## Research Assisting

---

<b>Techniques on Nuclear Magnetic Resonance – Rio de Janeiro, Brazil</b>	2021
• Founding: Brazilian National Council for Scientific and Technological Development (CNPq)	
<b>The Neutron Branching Process and Simulation in C++ – Rio de Janeiro, Brazil</b>	2021
<b>SIR modeling for COVID-19 outbreak – Rio de Janeiro, Brazil</b>	2020
<b>Why are Casimir Forces so Often Finite? – Rio de Janeiro, Brazil</b>	2020
• Founding: Brazilian National Council for Scientific and Technological Development (CNPq)	
<b>Simplified Models for Casimir Forces – Rio de Janeiro, Brazil</b>	2019
• Founding: Brazilian National Council for Scientific and Technological Development (CNPq)	
<b>Thermodynamic Entropy and Statistical Entropy – Rio de Janeiro, Brazil</b>	2018

## Languages

---

**English:** Fluent - IELTS: C1

**French:** Intermediate

**Polish:** Basic

**Portuguese:** Native