

ELVIS ALEXANDER AGÜERO VERA

PhD Student in Engineering, MSc. in Applied Mathematics, B.S. Engineering Physics

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SCIENTIFIC WORK

1. *Impact of a rigid sphere onto an elastic membrane. Proceedings of the Royal Society A.* <https://doi.org/10.1098/rspa.2022.0340>

WORK EXPERIENCE

PhD Student in Engineering

Harris Lab @ Brown University

Step 2024 - Ongoing

Providence, Rhode Island

- Conducted fluid dynamics experiments on deformable droplet impacts on solid surfaces.
- Developed MATLAB simulations to validate experimental results, building on previously published research on impact phenomena.

Summer Intern

CERN

Jun -Aug 2024

Geneva, Switzerland

- Worked in the department of software for experimental physics at CERN (EP-SFT), where we used Julia to leverage open-source, large-scale workflows to enable postprocessing to run at scale.

Academic Consultant

NGO OMAPA

Dec 2016 - Aug 2024

Asunción, Paraguay

- Authored over 200 math problems for national and international competitions.
- Trainer and curriculum developer for the "Young Talents Program," preparing top students for international math and science competitions.
- OMAPA is a non-profit NGO which promotes scientific education for high school students through competitions all around Paraguay. Its mathematical olympiad is taken by more than fifty thousand high school students from all over Paraguay.

Academic Project Manager

Piensa Paraguay

Dec 2020 - Aug 2024

Ciudad del Este, Paraguay

- Developed a comprehensive math curriculum and a database of 1,000+ problems categorizing by difficulty, area, and level.

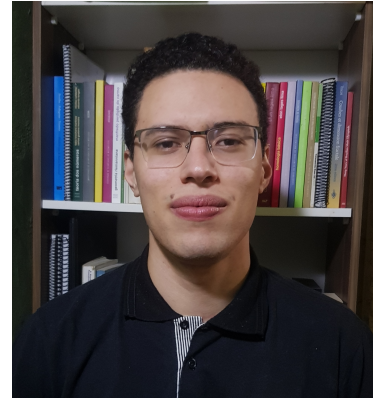
Data Analyst Consultant

NGO ReAcción

2020-2021

Ciudad del Este, Paraguay

- Analyzed thousands of public contracts using Python and Apps Script to compare government expenditure on education pre-and post-COVID-19. Published findings in articles, promoting open data standards in Paraguay: reaccion.org.py/publicaciones/#investigaciones



EDUCATION

M.Sc., Applied Maths

Instituto Nacional de Matematica Pura e Aplicada

2017 - Mar 2019

Rio de Janeiro, Brazil

- GPA: 3.6
- Academic advisor: Andre Nachbin

B.Sc., Engineering Physics

Universidade Federal de Integração Latinoamericana

2020 - 2024

Foz de Iguaçu, Brazil

GPA: 3.8

SKILLS AND PRODUCTIVITY

Python, Matlab, Julia, Scilab
Scientific computing, OOP, multi-purpose scripting (see my github for more info)

C++, Java, JS, Google Apps Script
Basic flow control and OOP

SQL, MongoDB, Access, Excel, Google Sheets
Basic data storage management

Git, Github
Professional Version control

LaTeX, Office packages
For typesetting high quality documents

TALKS AND TEACHING

- (2023) Contributed talk at the Brazil-China Joint Mathematical Meeting
- (2021) Teaching assistant for Numerical Calculus at UNILA.
- (2021) Speaker at the Paraguayan Mathematical Congress.
- (2021) Speaker at the series of talks "Hugo Checo, creando redes". **Best speaker award.**
- (2019) Teaching assistant of Functional analysis in the summer school at IMPA.

VOLUNTEER WORK AND OUTREACH

Math Olympiads Organizer, Jury member, Problem Author, Team Leader (2017 - 2024)

- Part of the Paraguayan delegation as professor in various International Olympiads, such as the Cyberspace Mathematical Competition (2020), IberoAmerican Olympiad (2021), and most recently at the International Mathematical Olympiad (2022), which was held in Oslo, Norway.
- Part of the jury committee at the XXXII Cono Sur Olympiad (2021), organized by Paraguay. Graded problems of all countries, and created problems for the contest.

Teaching, Board member: Mathura (2019 - 2022)

- Board member of Mathura, an NGO which gives extracurricular education to high school students in their pursuit for scholarships to attend undergraduate programs. Previously, part of the teaching staff of Mathura.

Junior Data Analyst: AIGA (2017 - 2021)

- AIGA, as part of ReAcción, emphasizes its work on Open Government Enhancement Strategies. Gave seminars to the public to raise awareness on the importance of open data, and created a script to automate the process of contract data analysis.

AWARDS AND DISTINCTIONS

International Math Olympiad (IMO)

Bronze Medal

📅 Jul 2016

📍 Hong Kong, Hong Kong

Bronze Medal

📅 Jul 2015

📍 Chiang Mai, Thailand

🏆 **IberoAmerican Math Olympiad**
Bronze Medal (2016) and Honoric Mention (2015)

🏆 **Cono Sur Olympiad**
Bronze Medal (2015) and Honoric Mention (2014)

🏆 **Paraguayan Math Olympiad**
Three gold medals and four silver medals (2010 – 2016)

🏆 **Prize "Domingo Martínez de Irala"**
Order of Merit Medal, Asunción, 2017

🏆 **Distinguished Citizen of Ciudad del Este Medal**
2016

LANGUAGES

Spanish	CEFR C2
English	CEFR C1
French	CEFR A1
Guarani	Profficient
Portuguese	Profficient

FURTHER ACTIVITIES

- My account is percentile 0.5% in Project Euler, a problem-solving programming site.
- Attended three academic years of piano courses at "Conservatorio Mangoré"
- Course "Introduction to Philosophy", completed in 2020, via "Coursera"
- Course "Algorithms, Part 1", completed in 2020, via "Coursera"
- Course "Mastering Programming with MATLAB", completed in 2020, via "Coursera"

REFERENCES

Prof. André Nachbin

✓ M.Sc. Advisor at IMPA

@ nachbin@impa.br

Eng. Osmar Quiñónez

✓ Piensa CEO

@ osmar@piensa.la

Eng. Sofía Pozzo

✓ Director of AIGA, board member of ReAcción

@ sofia@reaccion.org.py

Joel Prieto

✓ Board member of OMAPA

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