

ISAAC CARPIO

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EDUCATION

Universidad San Francisco de Quito,
B.S. Mechanical Engineer
GPA: 3.11

December, 2019

EXPERIENCE

Astramlab, Quito, Ecuador

2025 - Today

- Exploring computational methods, to develop simulations using Python and C++ for plasma applications.
- Understand and use Computational physics frameworks developed by Princeton Plasma Physics Laboratory to test some prototypes of plasma technology.
- Provided 3D scanning and 3D printing services for diverse applications, including automotive spare parts for motorcycles, architectural modeling, and education. This revenue funds the research and development projects.

Meranti Research Laboratory, Perth, Australia

2025 - 2026

- Contributed as data scientist to the analysis and optimization of numerical simulation for isotropic plasma in different electromagnetic field configurations, with applications in propulsion and nuclear fusion confinement. Utilized Python, to analyze the resulting data from C++, and Fortran algorithms to process and analyze simulation data, in different flow regimes.

Sticker Stoke SAS and Ecuador Freedom Bike Rental, Ecuador

2021 - 2024

- Contributed to the conceptual and algorithmic design of real-time rendering software enabling 2D vector graphics visualization over 3D models.
- Created 3D-printable spare parts for motorcycles through reverse engineering.

Researcher, Universidad San Francisco de Quito, Ecuador

2020 - 2021

Department of Biology and Science of Engineering

- Analyzed chemical, mechanical, and thermal characterization data for oxidized cassava starch and polyvinyl alcohol

Undergraduate student, Universidad San Francisco de Quito, Ecuador 2014 - 2020

DLAB, Design Lab

- Designed and 3D-printed solar lanterns for low-income communities.

Department of Mechanical Engineering

- Built an UAV Dron (called Piquero project) and performed CFD simulations to optimize the flight performance of a remotely piloted aircraft system aimed at protecting the Galápagos Islands and preventing illegal fishing. **Capstone Project.**
- Analyzed data factors affecting plug-in electric vehicles' energy consumption, cost, and performance. **Thesis Project.**

PATENTS

Rueda, J., Alvarado, F., Laufer, A., Carpio, I., Rand, C. “Bidimensional vector editor with a real-time three-dimensional interface using a vector image hot reload algorithm” US Patent, Application Number: 63530739. **Patent Pending.**

PROFESSIONAL TRAINING

2025 Computational Physics: Scientific Programming with Python

Professor Börge Göbel, Udemy, Inc., US

Applied numerical methods like Derivatives & integrals, differential equations & eigenvalue problems, interpolation & Monte Carlo methods to advanced problems such as Chaotic systems, heat equation, 3-body problem, spaceship mission, coupled pendulums, magnetism, graphene & quantum physics.

2023 Princeton Plasma Physics Laboratory Graduate Summer School Workshops

Princeton Plasma Physics Laboratory, US

Description: Lectures on the engineering challenges faced in developing fusion energy and the topical areas tackling many of these challenges.

COMMUNITY SERVICE

Ward Station, Wiluna, Western Australia, Australia, 2025 – 2026

- Assisted in vaccinating cattle to support livestock health, contributed to the maintenance of windmills in the Western Australian desert to ensure water access for animals, participated in road recovery efforts to restore transportation and communication routes.

Fundación Casa Somos Cochapamba, Ecuador, 2024 – 2025

- Contributed to the reforestation of Quito with native trees due to wildfires and droughts
- Built educational tools and creative play activities for children that foster learning, imagination, and social skills.

DLAB, Universidad San Francisco de Quito, Ecuador, 2018-2020

- Collected nylon-based fishing nets from Esmeraldas' reefs along Ecuador's northern coast.
- Made solar energy lamps for low-income communities

Isaac Newton High School, Ecuador, 2012 -2014

- Taught about the prevention of substance abuse in low-income communities.