


Alberto Ruiz-Biestro





BSc Engineering Physics – [Nano & Microstructures RG](#)

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EDUCATION

- 2020 – 2024** **B.S. Engineering Physics** (*in progress*) Current GPA: 3.86
Monterrey Institute of Technology (ITESM) (Percent Grade: 96.43)
Relevant Courses: Optics (Lab and theory), Classical and Quantum Mechanics, Numerical physics, Statistical Mechanics, Electrodynamics, Solid State Physics.
TOEFL iBT Score: 108 ([contact me](#) for a .PDF copy) CEFR equivalence: C1
- Apr 2023** **Study Abroad**
2nd place in the [ICTP](#) & [Quantinuum](#) Quantum Hackathon in Trieste.
Advisor: Nathan Fitzpatrick  ([Quantinuum](#))
Project: Quantum Krylov Methods for Quantum Chemistry and exact diagonalization.

EXPERIENCE

- 2023 –** **Undergraduate Research Assistant** (ongoing) *ITESM, Physics Department*
Advisors: Flavio F. Contreras 
 - Characterization of molecular order and functional properties of wheat samples in order to determine relative crystallinity-degrees (*ongoing*).
 - Analysis of the Debye Scattering Equation and atomic Pair-Distribution Function (PDF) for structural determination of ferrispinel and Fm-3m symmetries (*ongoing*).
 - Experience handling AFM, XRD, UV-VIS, FTIR, Raman Spectrometers, as well as PVD techniques.
- 2021 – 2022** **Undergraduate Research Experience** *ITESM, Physics Department*
Advisors: Dr. Antonio Ortiz-Ambriz  Dr. Gerardo Fox  Dr. Servando López 
 - Numerical simulation of the *Nonlinear Schrodinger Equation*.
 - Soliton propagation through pseudo-spectral method (split-step Fourier).
 - Developed audio-identification algorithm in order to identify an audio recording from a microphone.
 - Application of FFT and signal-processing methods.
 - Numerical simulation of the travelling-salesman-problem through simulated annealing. Other work includes working with continuous-time Markov processes and the Lenz-Ising model.
 - Experience with *Genetic algorithms* and *Neural Networks* (see my [website](#)).

AWARDS AND ASSOCIATIONS

- [SPIE](#) Student Chapter President (2023)
- Academic Merit Scholarship (ITESM)
- Undergraduate **Quantum Computing Club** co-founder and VP
- [OSA](#) member

SKILLS

- **Technical Skills**: basic C/C++, COMSOL, Git, advanced Julia, \LaTeX , Linux shell, Matlab (GA & NN), and advanced Python.
– **Quantum Software**: TKET (pytket), Qiskit.
- **Language Proficiency**: Spanish (Native), English (C1).
- **Soft Skills**: Creativity, leadership, fast-learner, teamwork, attention to detail.
- Visit my [webpage](#) for more projects.

ACTIVITIES AND INTERESTS

Social Services

Sports

Other activities

Teaching at low income communities in Mexico.

Former state rugby player (long ago).

Enjoy hiking, biking, and the outdoors.

Undergraduate physics course tutor.

SECONDARY EDUCATION

2019 – 2020

CAMBRIDGE INTERNATIONAL [AS & A levels](#)

Physics (grade: A)

Mathematics (A)

Spanish (A)

English (b)

Biology (c)