Valeria E. Quero

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EDUCATION

Brown University — **Providence, RI**
B.S. Applied Mathematics - Computer Science, B.A. Economics — *August 2023 — Present*

- **Grade**: 4.0 GPA
- **Relevant Coursework***:* Advanced Algorithms in Bioinformatics (Graduate), Deep Learning, Algorithms and Data Structures, ODEs, Linear Algebra with Theory, Fundamentals of Computer Systems, OOP Programming, Engineering Statics and Dynamics, Principles of Economics, Intermediate Macroeconomics, Intermediate Microeconomics, Statistical Inference I
- **Clubs & Organizations:** Women in Computer Science (Mentorship Chair), Women in Business (Community Initiatives Volunteer), Fiction for Kids (Media Chair), Quant Trading at Brown (Member)

Vicente Emilio Sojo Conservatory — **Lara, Venezuela**
Diploma in Violin Performance and Music Theory — *Sept 2010 — Jun 2019*

- **Grade***:* 19 / 20 GPA

EXPERIENCE

Brown University (Economics), Teaching Assistant — **Providence, RI** | Aug 2025 — Present

- Imparting weekly office hours, grading problem sets, and facilitating **quantitative reasoning and macroeconomic modeling** for 50+ students; reinforcing knowledge of GDP dynamics, fiscal and monetary policy

Brown University (Engineering), Research Assistant — **Providence, RI** | June 2025 — Aug 2025

- Developed a novel 2D tumor growth and metabolic adaptation model via eco-evolutionary **PDEs** in MATLAB under pH and hypoxia based on experimentally-observed mechanics. *Manuscript in preparation for publication*
- Scaled ensemble simulations on Brown's OSCAR **hypercomputing cluster** to explore 10^3+ parameter combinations and quantify uncertainty in predicted colonization patterns

Brown University (Physics), Research Assistant — **Providence, RI** | Aug 2024 — Dec 2024

- Generated and processed more than a million trijet events at using Pythia (Hard QCD & Soft QCD); applied anti-kt clustering with FastJet to reconstruct physics objects under realistic selection cuts.
- Designed optimal manifold distances to quantify event observables and built a **Python ML framework** to isolate CP-odd SMEFT operator signals to tune metric choices for maximal sensitivity.

Ceviches by Divino, *Lead Hostess* — **Providence, RI** | May 2023 — Aug 2023

- Delivered exceptional customer service in a fast-paced upscale dining environment, managing guest relations and ensuring a welcoming front-of-house experience
- Singlehandedly coordinated 200+ reservations during peak times, balancing table flow, server assignments, and real-time guest needs to maintain high service standards

PROJECTS

AI Valuation Engine – PepsiCo Inc.: (Python, XGBoost, NumPy, yfinance)

- Built a 5-year DCF valuation model of PepsiCo using **ML-forecasted revenues and financial ratios** derived from 10-K filings and yfinance
- Trained an **XGBoost regression model** on 15 years of quarterly data, achieving $R^2 = 0.93$ and MAE of $260M in revenue forecasting
- Simulated 10,000 **Monte Carlo scenarios** across key drivers (growth, margin, WACC), yielding a ~90% confidence interval of $145–$212/share and a 68% probability of undervaluation

CellSegNet for Stem Cell Segmentation: (Python, NumPy, Tensorflow)

- Implemented a U-Net CNN to segment pancreatic and mouse stem cells from microscopy images using binary masks and custom augmentations
- Engineered a combined Tversky + weighted BCE loss to address class imbalance, improving segmentation accuracy on sparse cellular structures (98.6% Dice coefficient on pancreatic cells and 98.4% binary accuracy on GFP-GOWT1 cells)

SKILLS

Programming and Tools: C/C++, Rust, Java, **Python**, SQL, Wolfram, HPC clusters, shell scripting, Docker, Git, LaTeX
ML & Data Analysis: TensorFlow, Keras, PyTorch, **Scikit-learn**, **Pandas**, NumPy, Matplotlib, Seaborn

ADDITIONAL INFORMATION

Awards: Venezuelan National Math Olympiads Finalist (2015-2019); Statal Gold Medalist (3x); AP Scholar with Distinction
Languages: Spanish (native), German (B1)
Interests: Russian literature, Classical Violin, Latin American Politics, Theology (Christianism existentialism)
Affiliations: Venezuelan Mathematical Association, Rewriting the Code
Programs: GS Insight Series