EdisonFlorez

Data Scientist — Business Analyst — Computational Physicist

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Profile: 8+ years of experience specializing in statistical analysis, predictive modeling, data processing and mining algorithms. My passion lies in extracting insights from data through critical thinking and an understanding of underlying concepts. My background spans biotech startups and the financial industry, creating, developing, testing, and deploying scalable and adaptive data pipelines to translate business into deliverables.

Interests:

Technical Skills:

- Python
- C/C++
- Fortran
- SQL
- MongoDB
- Git
- Docker
- AWS
- PowerBI
- Excel
- Linux
- Bash

General Skills:

- Storytelling
- Leadership
- Project Management
- Data Visualization
- Agile Methodologies
- Data Preparation
- Data Base structure
- Coach/Mentor

Professional Experience

■ Data Scientist
Aug.2021 - Aug 2023

HelicoBio [helico.bio], New Zealand

- Contributed to all phases of the software development lifecycle, development, testing, and deployment of new functionalities using Python and C++.
- Collect and prepare data, extract insights, and create easy-to-understand visuals.
- Create and validate scalable data pipelines to advance plant biology research,
- Collaborate with cross-functional groups to design new functionalities and ensure their seamless deployment.

Achievement: This advancement reduced wet-lab workflows by 20%, significantly enhancing our understanding of protein function in the context of designing new proteins.

■ Freelancer Editor

Apr.2023 - Present Enago [enago.com]
Apr.2018 - Dec.2018 MDPI [mdpi.com]

- Provide Copy Editing services, refining coherence, grammar and scientific terminology.
- Offer Substantive Editing, improving manuscript structure, clarifying ambiguous text, and verifying citation relevance.
- Guide authors in adhering to journal styles, and monitoring writing and editing activities to ensure content clarity.

Achievement: This strategy enhances desk acceptance rates by over 30% in high-impact journals.

■ Lab Assistant and Demonstrator
Aug.2018 - Mar.2020

Massey University [massey.ac.nz], New Zealand

- Provide instruction and guidance to students in workshops, focusing on intricate subjects such as advanced mechanics, thermodynamics, electricity, magnetism, and circuit analysis.
- Design the Standard Operating Procedures (SOP) for the Physics Lab, automating experiments and utilizing tools like Jupyter, Pandas, and Matplotlib for data analysis and report presentation.

Achievement: Improving students' comprehension of technical physical concepts and principles using interactive visuals and automating report generations using Python.

■ **Data Scientist** **Aug.2016 - Mar.2018**
EY [ey.com], Colombia.

- Design tailored solutions through thorough business and technical analyses, primarily within SAP for Analytical Banking and Business Intelligence.
- Develop complex models to address economic challenges and implement them to provide customized solutions.
- Implemented mathematical models to tackle financial inquiries, offering detail-oriented and pragmatic resolutions.
- Create a Python module to read, clean, and encrypt financial information for generating test cases to train new users of a bank's bonds portfolio.

Achievement: This Python module halved the time required for designing and implementing new training sessions.

■ **Graduate Teaching Assistant** **Sept.2015 - Aug.2016**
University of Antioquia [udea.edu.co], Colombia.

- Guide advanced college students through the intricate domain of Quantum Mechanics.
- Ensure that students achieve proficiency in the language of quantum mechanics, comprehend relevant methods, and grasp key concepts.
- Develop a new module, "Computational Quantum Mechanics with Python", which was implemented within the Quantum Chemistry subject.

Achievement: This module was incorporated into the Quantum Chemistry curriculum, thereby enriching students' comprehension of the language of quantum mechanics and its tangible applications in the realm of computational chemistry.

Open-Source Contributions

■ **PTMC:** [github.com/e-florez/PTMC]
An advanced Fortran code that uses the Parallel Tempering Monte Carlo (PTMC) method for an accurate and efficient prediction and analysis of phase transitions in atomic and molecular clusters. **Role:** Data Scientist and Lead Developer.

■ **AMCESS:** [github.com/e-florez/amcess]
Atomic and Molecular Cluster Energy Surface Sampler (AMCESS) is an open-source Python package that automates the exploration of the Potential Energy Surface (PES) for atomic and molecular clusters. **Role:** Lead Data Scientist and Architect.

Publications

1. **Flórez, Edison**; Reuvers, Tom; Schwarz, WH Eugen and Peter Schwerdtfeger."The Stability of the Noble Gas Fluorides from Nonrelativistic and Relativistic Density Functional and Coupled Cluster Studies." Submitted
2. **Flórez, Edison**; Zapata-Escobar, Andy; Ferraro, Franklin; Ibarguen-Becerra, César; Chamorro, Yuly; and Maldonado, Alejandro F. "Coordination of Mercury (II) in Water Promoted over Hydrolysis in Solvated Clusters $[Hg(H_2O)_{1-6}]^{2+}_{(aq)}$: Insights from Relativistic Effects and Free Energy Analysis." The Journal of Physical Chemistry A 127, no. 39 (2023): 8032-8049. **Featured on the front cover** DOI: 10.1021/acs.jpca.3c02927
3. **Flórez, Edison**; Odile R. Smits; Jan-Michael Mewes; Paul Jerabek; and Peter Schwerdtfeger. "From the gas phase to the solid state: The chemical bonding in the superheavy element flerovium." The Journal of Chemical Physics 157, no. 6 (2022): 064304. DOI: 10.1063/5.0097642
4. Chamorro, Yuly; **Flórez, Edison**; Alejandro F. Maldonado; Gustavo A. Aucar; and Albeiro Restrepo. "Microsolvation of heavy halides." International Journal of Quantum Chemistry 121, no. 7 (2021): e26571. DOI: 10.1002/qua.26571
5. **Flórez, Edison**; Helgaker, Trygve; Klopper, Wim; Teale, Andrew; Stopkowicz, Stella; and Pahl, Elke. "Melting Under Extreme Conditions: Ab Initio Monte Carlo Simulations." In APS March Meeting Abstracts, vol. 2019, pp. C17-001. 2019. ui.adsabs.harvard.edu/abs/2019APS..MARC17001F
6. **Flórez, Edison**; Alejandro F. Maldonado; Gustavo A. Aucar; Jorge David; and Albeiro Restrepo. "Microsolvation of methylmercury: structures, energies, bonding and NMR

constants (^{199}Hg, ^{13}C and ^{17}O)." Physical Chemistry Chemical Physics 18, no. 3 (2016): 1537-1550. DOI: 10.1039/c5cp04826e

Academic Background

→ **Ph.D. in Computational Physics,**
Massey University, New Zealand
Jul.2023

→ **M.Sc. in Computational Chemistry,**
University of Antioquia, Colombia
Dec.2014

→ **B.Sc. in Chemistry,**
University of Antioquia, Colombia
Jul.2012

Fellowships and Awards

→ Massey University Doctoral Scholarship

→ Master in Science Honours and research work with meritorious award.

Supervisions

- M.Sc. thesis in Computational Chemistry
  Feb.2020
  Microsolvation of Heavy Halides $[X(H_2O)_{1-6}]^-$ (X = Br, I, At)
  University of Antioquia [udea.edu.co], Colombia.

- B.Sc. Thesis in Computational Chemistry
  Dec.2017
  Relativistic and Electron Correlation Effects on the Calculation of Nuclear Magnetic Resonance Parameters on MX Diatomic Molecules (M=Cu, Ag, Au and X=F, Cl, Br, I)
  University of Antioquia [udea.edu.co], Colombia.

References

Available upon request

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Yours sincerely,

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