Edison**Florez**, PhD

Lead Python Dev — Senior Data Scientist — Scientific Software Architect

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Profile: Computational Lead and Ph.D. scientist bridging the gap between math, physics and enterprise software. I specialize in architecting scalable, cloud-native platforms that integrate AI and first-principles modeling to solve complex biological challenges.

With a unique background spanning biotech R&D, finance, and sales, I translate ambitious scientific visions into commercially viable, high-performance technologies—currently focused on engineering digital twins to drive innovation in AgriTech.

Interests:

"Chemistry by training, Physics by nature, speaking the language of Silicon."

Technical Skills:

- Python
- SQL
- Linux
- Bash
- Git
- Docker
- AWS
- CI/CD
- HPC
- ML/DL
- GenAI/LLMs
- Cheminformatics

General Skills:

- Roadmap Strategy
- Agile Methodologies
- Mentoring/Leadership
- Storytelling
- Stakeholder Management
- Data Visualization
- Data Engineering
- Automated Reporting.

Professional Experience

■ Computational Lead May.2024 - Present

Metrovate [metrovate.com], New Zealand

- **Platform Architecture:** Architecting a multi-cloud, microservices-based computational platform for *de novo* peptide design. Orchestrating complex workflows (Target Prep, Docking, MD) using Nextflow, **Python**, and containerized environments (**Docker**).
- **Scientific Integration:** Integrating high-performance bioinformatics tools (e.g., **Boltz**, **RFDiffusion**, **DiffDock**, **GROMACS**, **QM/MM**, etc.) into a cohesive API-driven ecosystem to generate and screen bioactive protein "digital twins" for agricultural use.
- **Strategic Leadership:** Bridging the gap between biological discovery and software engineering, defining the technical roadmap, and overseeing the deployment of scalable AI/ML pipelines.

Achievement: Designed and deployed the company's flagship "Digital Twin Pipeline", reducing candidate design and discovery time from months to days by automating structural prediction and affinity scoring.

■ Sales Executive (Data Strategy Focus)

Sep.2023 - Jun.2025

Cordis [cordishotels.com], New Zealand

- **Process Automation:** Engineered automated **ETL pipelines** using **Python** to scrape, clean, and consolidate fragmented sales data, reducing manual reporting time by 35%.
- **Business Intelligence:** Developed interactive dashboards and queried CRM/PMS databases to identify high-value corporate segments, enabling data-driven targeting strategies.
- **Account Management:** Managed a portfolio of key corporate accounts, utilizing data insights to optimize revenue streams and improve client retention.

Achievement: Surpassed monthly sales goals and contributed to an **8% revenue increase** in the corporate segment by implementing a Python-backed lead scoring system.

■ Data Scientist Aug.2021 - Aug.2023

HelicoBio [helico.bio], New Zealand

- **Full-Stack Science:** Orchestrated the full

software development lifecycle (SDLC) for plant biology research tools, optimizing performance using **Python** and **C++**.

- **Pipeline Engineering:** Built and validated scalable data pipelines to analyze genomic data and protein function, directly supporting wet-lab experimental design.
- **Cross-Functional Collaboration:** Translated complex biological requirements into technical specifications, ensuring seamless deployment of new analysis functionalities.

Achievement: Enhanced the protein screening workflow, reducing wet-lab validation cycles by **20%** and accelerating the identification of viable candidates.

■ Scientific Editor (Freelance)

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

- Provide high-level substantive editing for scientific manuscripts, refining technical clarity, structure, and adherence to high-impact journal standards.

Achievement: Consistently improved manuscript quality, contributing to a desk acceptance rate increase of **30%** for client authors.

■ Lab Assistant and Demonstrator

Aug.2018 - Mar.2020
Massey University [massey.ac.nz],
New Zealand

- Developed Standard Operating Procedures (SOPs) for the Physics Lab and automated data analysis/reporting using **Jupyter Notebooks**, **Pandas**, and **Matplotlib**.

■ Data Scientist **Aug.2016 - Mar.2018**

EY (Ernst & Young) [ey.com], Colombia.

- **Financial Modelling:** Designed and implemented complex mathematical models for banking clients (SAP environment) to optimize bond portfolios and address economic challenges.
- **Security & Automation:** Developed a **Python** module to parse, clean, and encrypt sensitive financial datasets, generating automated test cases for user training.

Achievement: The automated Python module **halved (50% reduction)** the time required to design and deploy new training sessions for banking staff.

Publications

1. Zapata-Escobar, Andy D., Franklin Ferraro, **Flórez, Edison**, and Alejandro F. Maldonado. "Coordination of lead (ii) in solvated clusters with water $[Pb(H_2O)_{1-8}]^{2+}$: insights from relativistic effects, energy analysis, molecular orbitals, and electron density." Physical Chemistry Chemical Physics (2025). DOI: DOI:10.1039/d5cp03806e
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

References

Available upon request

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Yours sincerely,

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