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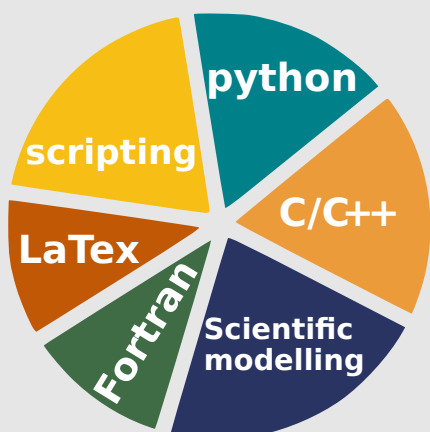
Key Skills

Technical Skills

- **OS Preference**

GNU/Linux
Windows
MacOS

- **Programming**

EdisonFlorez
Computational Chemist

Profile: I want to understand chemistry at its most fundamental level by using computers. Quantum Chemistry is used in a variety of ways to analyze and explain interesting problems of science. In what I do, not only do you learn about chemistry, biology or physics, but you also learn how to use a computer and how to write programs to build models and simulations of real-world processes and systems. The primary goal of my work has been to obtain fundamental insights that are otherwise difficult to obtain by other means.

About me: I enjoy a good challenge, big or small, and I firmly believe that given enough time and resources, one achieves any purpose. One of my skills is to hold a long-term focus while executing each step of my plans. I am intuitive and imaginative, open-minded and very resourceful to learn new skills quickly. Aside from science, in my spare time, I am a wine and beer enthusiast, and I am committed to painting, drawing and cycling, not all at the same time. Also, I am a serious/amateur reader (if that is something).

Current Position

- **Ph.D. Candidate**   Since May.2017

  Supervisor: Distinguished Prof. Peter Schwerdtfeger

  New Zealand Institute for Advanced Study
  Massey University (Albany Campus)
  Auckland, New Zealand

  Research: It spans topics in Computational Physics and Chemistry, with an emphasis on computational modeling. In particular, I am interested in the ab initio description of ground state properties of atoms in high magnetic fields and relativistic effects of atomic and molecular systems. Additionally, in the description of phase transitions like melting in nanoclusters and extended systems under strong magnetic fields and understanding the emergence of their bulk properties. I have expertise in the fields of importance-sampling Monte Carlo, optimization technics, molecular dynamics methods, and electronic structure calculations.

Professional Experience

- **Demonstrator:** Since Aug.2017
  Massey University(*massey.ac.nz*), Auckland, New Zealand

  Physics: *Teaching and counseling students in workshops with a particular focus on advanced mechanics, thermodynamics, fluids, magnetic fields and electromagnetism, AC circuits.*

- **Lesson Planner and Teacher:** Since Feb.2018
  A&E International(*naeaedu.com*), Auckland, New Zealand

  STEAM: *produce teaching contents for STEAM courses, which correspond to the New Zealand Curriculum. Preparation of course materials for a new class, creation of course material for teaching at school and online. Guide and counseling students to understand and implement appropriate STEAM projects and workshops.*

- **Consultant:** Aug.2016 - Mar.2017
  ifb Andina (*ifb-group.com*), Colombia.

  SAP-Implementation and Bank-Analyzer AFI: *develop complex models, thinking in a cross-system way and analyzing economic problems within the development of a customized IT-solution. Also, the development and implementation of mathematical models that relate to economic questions and the attention to detail as well as pragmatic solutions, which help banks and insurance companies to be proactive in the market.*

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

  Quantum Chemistry: *Introduce advanced college students to study of the Quantum Chemistry, getting them to dominate the quantum language, the relevant methods and the concepts, as well as its interpretation and application in systems of chemical interest.*

  Chemistry II: *Guide college students through the concepts, methods and theories used in chemistry to represent and describe the structure and the bond of the matter and how it constitutes substances.*

Academic Background

- **Master of Science in Chemistry** Jan.2013 - Dec.2014
  Computational Chemistry, University of Antioquia, Colombia
  Supervisor: Prof. Albeiro Restrepo.

- **Bachelor of Science in Chemistry** Jan.2006 - Jul.2012
  Computational Chemistry, University of Antioquia, Colombia
  Supervisor: Prof. Albeiro Restrepo.

Fellowships and Awards

- **Ph.D. Computational Physics:** Massey University Doctoral Scholarship for full-time study 2017-2020
- **M.Sc. Computational Chemistry:** Honours and research work with meritorious award.
- **B.Sc. Chemistry:** Honours.

Supervision of Theses

- **Co-supervisor M.Sc. thesis, computational chemistry::**   Sicnce Feb.2018
  "Microsolvation of Heavy Halides$[X(H2O)_n]^-$ (X = Br, I, At; n = 1 − 6)".
  University of Antioquia, Colombia

- **Co-supervisor B.Sc. thesis, computational chemistry:**   Nov.2015 - Nov.2017
  "Relativistic and Electron Correlation Effects on the Calculation of NMR Parameters in M–X Diatomic Molecules (M=Cu, Ag, Au; X=F, Cl, Br, I)".
  University of Antioquia, Colombia

Peer–reviewed Publications

- **Edison Florez**, Alejandro Maldonado, Gustavo Aucar, Jorge David y Albeiro Restrepo. *"Microsolvation of Methylmercury: Structures, Energies, Bonding and NMR Constants (^{199}Hg, ^{13}C and ^{17}O)"*. *Phys. Chem. Chem. Phys.* **2016**, 18, 1537-1550. DOI: 10.1039/c5cp04826e

- Yuly Chamorro, **Edison Florez**, Alejandro Maldonado, Gustavo Aucar, and Albeiro Restrepo. *"Microsolvation of heavy halides. Int J Quantum Chem"*. **2020**; e26571. DOI: 10.1002/qua.26571

- **Edison Florez**, Trygve Helgaker, Wim Klopper, Peter Schwerdtfeger, Andrew Teale, Stella Stopkowicz, Elke Pahl. *"Melting of Neon in High Magnetic Fields"*. In preparation
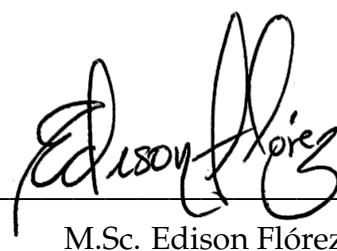
Reviewer Activities

- **INGE CUC:** *Printed ISSN: 0122-6517 and Electronic ISSN: 2382-4700*. Journal of the Faculty of Engineering of the Universidad de la Costa, Barranquilla, Colombia.

Auckland, New Zealand
May 12, 2023

Your sincerely,

M.Sc. Edison Flórez