

Ph.D. candidate in Biocomputational Sciences at the Italian Institute of Technology (IIT) with a background in physics and chemistry. My areas of interest include teaching, data science, machine learning, object-oriented programming, molecular dynamics, drug discovery, and nanomaterials. My values are based on the scientific method, critical thinking, and teaching. I am an analytical and compassionate person prompt to hear different perspectives on the same problem, to consolidate them into the most informed, and reasonable judgment possible.

Work History

2017-11 – **Ph.D. Fellow/Research Collaborator**

Current *Italian Institute of Technology (IIT). Genoa, Italy*

- Published five articles (plus five in preparation) in peer-reviewed journals on innovative research
- Gave 19 presentations throughout my stay to my supervisor and collaborators with achieved results and project advances
- Developed skills at proposing research questions, designing experiments, programming, and data analysis
- Combined critical thinking, problem-solving, and creativity to attend specific research questions

2019-07 – **Guest Researcher**

2019-12 *Hylleraas Centre for Quantum Molecular Sciences. Oslo, Norway*

- Scientist at the Hylleraas Centre for Quantum Molecular Sciences directed by Prof. Trygve Helgaker
- Collaborated with the research group of Prof. Michele Cascella in the study of charged colloids aggregation
- Developed skills in data processing and analysis with Python

2016-01 – **Part-Time Professor**

2016-06 *University of Los Andes. Bogotá, Colombia*

- Successfully devised and delivered training in analytical chemistry and laboratory practices for a diverse group of undergraduates. Feedback from the students gave me a teaching grade of 3.72/4.00
- Graded over 50 assignments per week including lab reports, workshops, quizzes, and exams

2013-08 – **Teaching Assistant**

2016-12 *University of Los Andes. Bogotá, Colombia*

- Instructed weekly 2-hour lectures to 10-50 students on general, theoretical, computational, and physical chemistry topics
- Created a safe learning environment for students while promoting an ethical classroom code-of-conduct

2013-07 – **Accompaniment Program Tutor**

2013-12 *University of Los Andes. Bogotá, Colombia*

- Tutored five freshmen students in science-related subjects (chemistry, physics, mathematics, and biology) monitoring their progress, issues, and concerns related to university life

Sebastian Franco Ulloa

Ph.D. Candidate
Committed problem
solver

Contact

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ulloa](https://www.linkedin.com/in/sebastian-franco-ulloa)

Personal Website

www.sebastianfu.com

Languages

Spanish

English

Italian

Norwegian

Education

- 2018-09 –

Certificates of Accomplishment: Data Science
- 2020-08

DataCamp, Inc. Online

- A 245-hour course covering supervised and unsupervised learning with scikit-learn Python’s toolkit, and SQL database querying
 - Developed skills in data processing, data visualization, linear/logistic models, SVM, CART, XGBoost, NLP, and deep learning
- 2020-05 –

Leading Digital Transformation
- 2020-06

Massachusetts Institute of Technology (MIT) – Professional Education

- A 6-week online course on the implementation of artificial intelligence, blockchain, cloud computing, the internet of things, and cybersecurity in organizations and companies
- 2012-01 –

BSc. Physics
- 2017-06

University of Los Andes. Bogotá, Colombia

- Thesis title: “Simulations of a Weakly Self-Interacting Fluid Utilizing Lattice Boltzmann Methods.” Graded 5.00/5.00
- 2011-08 –

BSc. Chemistry
- 2016-12

University of Los Andes. Bogotá, Colombia

- Thesis title: “Application of Molecular Mechanics for the Discovery of Novel Microbial IIA Topoisomerases Inhibitors.” Graded 5.00/5.00
- 2016-07 –

Summer School “Modern Physics at All Scales”
- 2016-06

University of Leiden. Leiden, The Netherlands

- Summer program aimed at bachelor students to learn about multiple research branches and applied physics by leading experts

Volunteering

- 2019-12 –

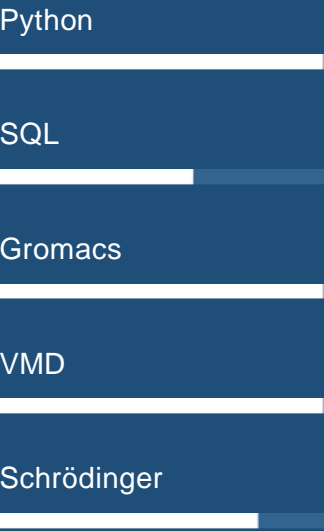
Reviewer at the Journal of Chemical Theory and Computation (American Chemical Society press, impact factor 5.313). Hand-picked by an associate editor to comment on manuscripts submitted for publication
- Current
- 2014-10 –

Elected member of the board of directors at the student’s representative council. Campaigned and earned a position as the student’s representative at the Institutional Committee of Student Affairs, University of Los Andes. Bogotá, Colombia. This committee is the last instance available for students in academic and disciplinary processes. Read c.a. 10 profiles per week and voted on the outcome of the cases
- 2015-09
- 2013-10 –

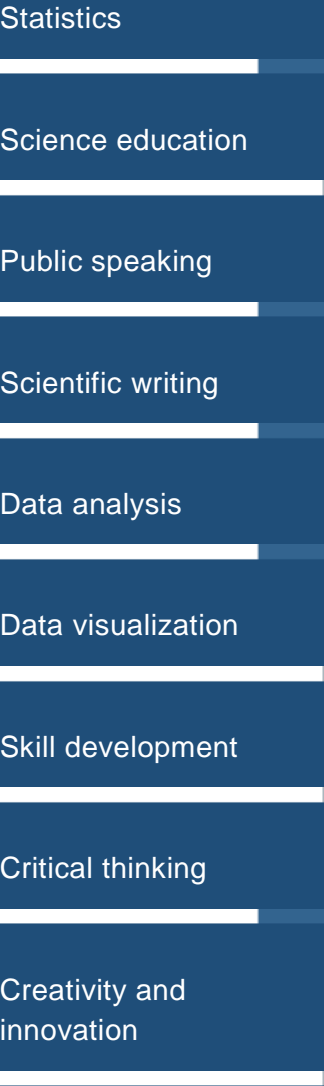
Student representative of the Chemistry Department, University of Los Andes. Bogotá, Colombia. Elected by peers from the entire department
- 2015-09
- 2012-08 –

Teacher and fundraiser at SOSAndes – Students Offering Support. Bogotá, Colombia. Raised c.a. 300€ giving physics classes to build shelters for people from the lowest-income regions of Colombia
- 2013-07

Software



Skills



Special achievements (2)

- 2020-05 Full scholarship from "Becas Santander" equivalent to \$2,300 to enroll in the "MIT - Leading Digital Transformation" certified course from the Massachusetts Institute of Technology (MIT).
- Winner of the research grant no. HP10CR7KHL from the Italian SuperComputing Resource Allocation-Class C (ISCRA-C). Earned 25,000
- 2020-03 core hours from the SuperComputing Applications and Innovation center.

Publications (7)

- i. **Franco-Ulloa, S.**, Tatulli, G., Løland-Bore, S., Moglianetti, M., Pompa, P. P., Cascella, M., De Vivo, M. Dispersion state phase diagram of citrate-coated metallic nanoparticles in saline solutions. **2020**. *In Press*
https://chemrxiv.org/articles/Dispersion_State_Phase_Diagram_of_Citrate-Coated_Metallic_Nanoparticles_in_Saline_Solutions/12174693/1
- ii. Arencibia, J. M., Brindani, N., **Franco-Ulloa, S.**, Negro, M., Kuriappan, J. A., Ottonello, G., Bertozzi, S. M., Summa, M., Giroto, S., Bertorelli, S., Armirotti, A., De Vivo, M. Design, synthesis, dynamic docking, biochemical characterization, and in vivo pharmacokinetics studies of novel topoisomerase II poisons with promising antiproliferative activity. **2020**. *J. Med. Chem.* 63 (7): 3508-3521
- iii. Mestizo, P. D., Narváez, D. M., Pinzón-Ulloa, J. A., Torres Di Bello, D., **Franco-Ulloa, S.**, Macías, M. A., Groot, H., Miscione, G. P., Suescun, L., Hurtado, J. J. Novel Complexes with ONNO Tetradentate Coumarin Schiff-Base Donor Ligands: X-ray Structures, DFT Calculations, Molecular Dynamics and Potential Anticarcinogenic Activity. **2020**. *Dalton Trans.* Submitted
- iv. (Cover article) **Franco-Ulloa, S.**, Riccardi, L., Rimembrana, F., Pini, M., & De Vivo, M. NanoModeler: A Webserver for Molecular Simulations and Engineering of Nanoparticles. **2019**. *J. Chem. Theory Comput.* 15 (3): 2022-2032
- v. Torres, J. F., Macías, M. A., **Franco-Ulloa, S.**, Miscione, G. P., Cobo, J., Hurtado, J. J. Cu(II) and Zn(II) Complexes with Dinitrobenzoates and Pyrazolyl Ligands: Structural and Thermal Stability Influence of N–H Moiety. **2019**. *Crystal Growth and Design.* 19 (6): 3348-3357
- vi. **Franco-Ulloa, S.**, La Sala, J., Miscione, G. P., & De Vivo, M. Novel Bacterial Topoisomerase Inhibitors Exploit Asp83 and the Intrinsic Flexibility of the DNA Gyrase Binding Site. **2018**. *Int. J. Mol. Sci.* 19 (2): 453
- vii. **Franco-Ulloa, S.**, Ramos-Guzmán, C. A., Miscione, G. P. The evolution of drug design and the role of computational methods: Playing to be God. **2016**. *Hipótesis.* 21: 40-49

Presentations (5)

- 2019-06 *Properties and Functionalities of Nanometer and Sub-Nanometer Sized Quantum Objects* Gordon's Research Conference. Les Diablerets, Switzerland
- 2019-05 *Challenges in modeling and simulations of nanoparticles in complex environments* CECAM workshop. Genova, Italy
- 2016-11 *42nd Theoretical Chemists of Latin Expression Congress*. Montevideo, Uruguay
- 2016-11 *2nd Colombian Congress of Biochemistry and Molecular Biology*. Medellin, Colombia
- 2016-09 *6th National Congress of Theoretical and Computational Chemists*. Bogotá, Colombia

Poster Presentations (5)

- 2019-07 *New Perspectives of Nanostructured Devices and High-Resolution Characterization Techniques* Gordon's Research Seminar. Les Diablerets, Switzerland
- 2019-06 *Nucleic acid immunity: from cellular mechanisms to new technologies* SIBBM seminar. Bologna, Italy
- 2018-09 *Translational and Health Informatics: Implications for Drug Discovery* EuroQSAR symposium. Thessaloniki, Greece
- 2018-03 *Multiscale modelling in electrophysiology: from atoms to organs* CECAM workshop. Lugano, Switzerland
- 2017-08 *1st Protein Structure, Function, and Drug Discovery School*. Bogotá, Colombia