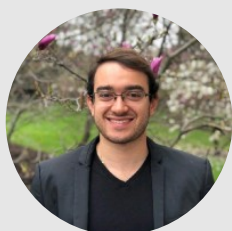


Andres F. Cano Botero

Data Scientist | Researcher



About me

I am a Data Scientist with a research background in quantum chemistry and plasma physics. My passion lies in exploring the synergy between data-driven methodologies and the natural sciences. Having witnessed the impact of AI/ML in computational chemistry, I am convinced that novel, physics-informed algorithms hold immense potential for simulating and extracting insights from our world. I am eager to contribute to this endeavor.

Contact

👤 From Manizales, Colombia

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☎ +1 404-956-0320

📍 Atlanta, GA

🌐 [andresfelipecano](#)

🔄 [andrescano](#)

Languages

🇪🇸 Spanish - Native Language

🇬🇧 English - Professional Knowledge

🇫🇷 French - Conversational Knowledge

🎓 EDUCATION

08/2020-
08/2022



M.S. Mechanical Engineering University of Colorado, Boulder

📍 Boulder, CO

Thesis: *Alkyl End Group Effects on the Thermal Decomposition of Fuel Additives.*

Advisor: Dr. Nicole J. Labbe

My work focused on optimizing and leveraging quantum chemistry methods and kinetic modeling to identify the decomposition products of two potential diesel additives. Studying the unimolecular decomposition of these molecules provides valuable insight into the formation mechanism of soot particles in the exhaust of diesel engines.

GPA: 3.95/4.0

08/2015-
08/2019



B.S. Astrophysics University of Rochester

📍 Rochester, NY

Sigma Pi Sigma (National Physics Honor Society)

Lorenzo de Zavala Scholar, National Hispanic Institute

American Physics Society Member

💼 WORK EXPERIENCE

2022-
present

Data Scientist

📍 Atlanta, GA (Remote)

Dataiku

- Scoped, built and deployed sophisticated production-level AI projects for customers spanning multiple domains including NLP, optimization, computer vision, LLM applications, and time series forecasting.
- Collaborated with R&D and Product teams to develop custom Python-based plugins that enhance Dataiku's functionality.
- Provided technical leadership to non-profit organizations, such as the ALMA observatory, that want to develop data-driven solutions.
- Offered strategic input, coaching, and training to customers across multiple industries (i.e. technology, pharma, banking) that want to implement AI solutions in their work.

2020-
2022

Graduate Researcher

📍 Boulder, CO

Labbe Lab, University of Colorado Boulder

- Leveraged CU supercomputing resources, and legacy software (written in C++ and Python) to build reaction mechanisms that uncover the thermal decomposition of soot-reducing diesel additives.
- Optimized research methods by writing a backward-compatible high-performance computing pipeline that used Python and Unix shell scripts to generate, submit, and run quantum chemistry calculations to the RMACC Summit supercomputing cluster. and saves days to weeks of computational work.

2019-
2020

Data Scientist

📍 Bogota, Colombia

Opera Urban Investment Firm

- Developed a Streamlit App that showed market trends, sales forecasts, and client activity from the company's website. This established direct communication between internal teams and improved client outreach.

2018-
2019

Undergraduate Researcher

📍 Rochester, NY

Extreme State Physics Laboratory (XSPL), University of Rochester

- Built a high voltage transformer to supply $\pm 200\text{KV}$ to the High Amperage Driver for Extreme States (HADES), a 250GW pulsed-power driver used to model matter at high temperatures and pressures.



PUBLICATIONS

Journal Article *in progress* **End Group Effects on the Thermal Decomposition of Oxymethylene Ethers**, AFC Botero, P. Shah, O Aguirre, J Sampathkumar, NJ Labbe, *Aimed for: Fuel*

Journal Article *in progress* **Temperature- and Pressure-Dependent Decomposition of Diethoxymethane and Dipropoxymethane Fuel Radicals.**, AFC Botero, P.Shah, O Aguirre, NJ Labbe, *Aimed for: PCCP*

– Soft Skills and Strengths –

- Curiosity
- Self Confidence
- Self Driven
- Problem Solving
- Team Work
- Constantly Learning
- Good Communication

Professional Skills

- Data Science
- Machine Learning
- Computational Physics/Chemistry
- Astrophysics & Mathematics
- Engineering Design

Other Interests

- Guitar 🎸

• Chess ♟

• Gym 🏋

• Travel 🌍

• Triathlon 🏊

• Cooking 🍳

• Calisthenics 🤸

• Books 📖

💻 INFORMATION TECHNOLOGY SKILLS

Data Science and App Development	Python: <i>Highly Specialized</i> HTML/CSS/JavaScript: <i>Intermediate</i>
Version Control	Git: <i>Intermediate</i>
AI/ML	Sci-kit Learn : <i>Advanced</i> Hugging Face & Langchain : <i>Intermediate</i> PyTorch & Keras : <i>Intermediate</i>
Big Data	Spark : <i>Intermediate</i> SQL : <i>Intermediate</i> Kubernetes & Cloud Deployments : <i>Beginner</i>
Typesetting	ℒ_ᵀX: <i>Intermediate</i>
Chemical Kinetic Modeling and Simulation	Gaussian16 : <i>Advanced</i>