

# Andres F. Cano

Researcher | Data Scientist | Developer



## About me

Combustion engineering graduate researcher with experience in data science, machine learning, python programming, and project management. Currently looking for full-time opportunities in Engineering R&D, Machine Learning Engineering, or Data Science to apply my research and industry experience.

## Contact

Born on 07/28/1996, Age 26

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andresfelipecano

andresfcano

## 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 Diesel Additives*. Advisor: Dr. Nicole J. Labbe  
Focus in computational quantum chemistry for applications in combustion engines.

GPA: 3.95/4.0

08/2015-  
05/2019



**B.S. Astrophysics**  
**University of Rochester**

Rochester, NY

Sigma Pi Sigma, National Physics Society  
Lorenzo de Zavala Scholar, National Hispanic Institute  
American Physics Society

## WORK EXPERIENCE

2020-2022

**Graduate Researcher**

Boulder, CO

Univ. of Colorado Boulder, Labbe Lab

- Wrote a high-performance computing pipeline using Python and Bash scripts to generate, submit, and run quantum chemistry files to the RMACC Summit super computing cluster, saving days to weeks of computational work.
- Integrated the scripts with other Python and C++ software developed at Argonne and Sandia National Laboratories.
- Leveraged super computing resources to study the chemistry of soot-reducing diesel additives for compression-ignition engines.

2019-2020

**Data Scientist**

Bogota, Colombia

Opera Urban Investment Firm

- Created the link between the Marketing and Web Development departments by coding a Python funnel A/B test that extracts and analyzes client data from the company's website to maximize client outreach.
- Designed a Business Intelligence (BI) App for the company which shows market trends, sales, and analysis of competitors using Python Web Scraping and Vue.js.
- Trained a neural network algorithm on the BI App that predicts purchases from customers enrolled in the fidelity program, while dynamically adjusting pricing for the company's website.

2018-2019

**Undergraduate Researcher**

Rochester, NY

Univ. of Rochester, Extreme State Physics Laboratory (XSPL)

- Built High Voltage Transformer to supply  $\pm 200\text{KV}$  to the High Amperage Driver for Extreme States (HADES) that is being built in at XSPL to study plasma physics.
- Coded, designed, and implemented intelligent electric circuit board that powers a remote-control plasma cutter used for precision metal cutting.
- Assisted in the construction of the High Amperage Driver for Extreme States by designing, engineering, and adding mechanical parts and electrical components to HADES.

## PUBLICATIONS

**Journal Article**

2022, *in progress*

**End Group Effects on the Thermal Decomposition of Oxymethylene Ethers**, AF Cano Botero, O Aguirre, J Sampathkumar, NJ Labbe, *Fuel*

**Journal Article**

2022, *in progress*

**Temperature- and Pressure-Dependent Decomposition of Diethoxymethane and Dipropoxymethane Fuel Radicals.**, AF Cano Botero, O Aguirre, NJ Labbe, *PCCP*

Soft Skills and Strengths

Creativity

Curiosity

Flexibility

Self Confidence

Ability to Plan and Organize

Autonomy

Adaptability

Eye for Details

Problem Solving

Team Working

Constantly Learning

Leadership

Good Communication

Managing Information

Diplomacy

Good Listener

Patience

Professional Skills

Computational Physics/Chemistry

Machine Learning

Data Mining

Data Wrangling

Engineering Design

Other Interests

- Guitar🎸

•

Calisthenics🤸

•

Chess♟

•

Gym🏋

•

Travels🌍

•

Running🏃

•

Cooking🍳

•

Books📖
- 💻 INFORMATION TECHNOLOGY SKILLS
- |                                |  |
|--------------------------------|--|
| <b>Data Analysis</b>           | <b>Jupyter Notebook:</b> <i>Highly Specialized</i><br><b>Wolfram Mathematica:</b> <i>Intermediate</i><br><b>R:</b> <i>Intermediate</i> |
| <b>Version Control</b>         | <b>Git:</b> <i>Advanced</i>  |
| <b>Machine Learning</b>        | <b>Sci-kit Learn :</b> <i>Advanced</i><br><b>PyTorch :</b> <i>Intermediate</i>   |
| <b>Office Automation</b>       | <b>MS Office (Excel, Word, PowerPoint):</b> <i>Highly Specialized</i><br><b>LaTeX:</b> <i>Advanced</i>                                 |
| <b>Modeling and Simulation</b> | <b>Gaussian16 :</b> <i>Advanced</i>  |
- </> PROGRAMMING LANGUAGES
- **Python:** Highly Specialised

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**Java:** Intermediate

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**MSSQL/MySQL:** Advanced

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**HTML/CSS:** Intermediate

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**MATLAB:** Intermediate

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**Javascript:** Intermediate

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**C++:** Intermediate