

# SANTIAGO CORTÉS-GÓMEZ

Pittsburgh, Pennsylvania

✉ [scortesg@cs.cmu.edu](mailto:scortesg@cs.cmu.edu)    [Santiago Cortes-Gomez](https://github.com/secg95)    [github.com/secg95](https://github.com/secg95)

## Publications

---

- Santiago Cortes-Gomez, Mateo Dulce, Bryan Wilder. Inference under constrained distribution shifts. submitted. 2023.
- Ben Chugg, Santiago Cortes-Gomez, Bryan Wilder, Aaditya Ramdas. Auditing Fairness by Betting. submitted. 2023.
- Santiago Cortes-Gomez, Yullis Quintero. Unsupervised learning for economic risk evaluation in the context of Covid-19 pandemic. Advances in Neural and Information Processing Systems, machine learning for the developing world workshop. NeurIPS-20. 2020. (selected for contributed talk)
- Nicolas Paez, Juan F. Ceron, Santiago Cortes-Gomez, et al. Alternative Strategies for the Estimation of a Disease's Basic Reproduction Number: A Model-Agnostic Study. Bulletin of Mathematical Biology. 2021

## Education

---

### Carnegie Mellon University

*Ph.D. Machine Learning, Advised by Bryan Wilder*

**July 2022 - Present**

*Pittsburgh, Pennsylvania*

### Universidad de los Andes

*M.S. Mathematics, GPA 4.6/5.0, salutatorian*

**July 2018**

*Bogotá, Colombia*

### Universidad de los Andes

*B.S. Mathematics, GPA 4.48/5.0, salutatorian*

**March 2017**

*Bogotá, Colombia*

## Research and teaching experience

---

### Graduate Research Assistant | Carnegie Mellon University

**July 2022 - Present**

- Working with Dr. Bryan Wilder on develop AI applications for equitable, data-driven decision making on high-stakes applications that arise in both the public and private sectors.
- Developed an application of stochastic optimization to correct selection bias present in any data set.
- Collaborated on the proposal of a novel form of auditing the outputs of machine learning models using methods from any time valid inference.
- Two publications submitted to Neurips 2023

### Adjunct Faculty | Universidad EAFIT

**January 2020 - June 2021**

- Lecturer for the Mining Massive Datasets course for the M.S. in data science.

### Research Engineer | Universidad EAFIT/Factored

**October 2020 - December 2020**

- Led a team that developed an early warning tool for forecasting economic impact derived from the lock-downs executed during the COVID-19 outbreak.
- The final model was deployed as part of Medellin's COVID-19 monitoring platform and used as an information source for decision makers in the public and private sectors.
- Publication accepted at Neurips ML4D workshop and selected for contributed talk.

### Consultant | Colombian National Institute of Health

**June 2020 - December 2020**

- Implemented a novel state-space model to compute the Covid-19 pandemic basic reproduction number in Colombia.
- Deployed models on behalf of the Colombian National Institute of Health. Publication accepted at Bulletin of Mathematical Biology.

### Research Assistant | Universidad de los Andes, Arizona State University

**June 2015 - July 2015**

- Developed a model for the foraging behaviour of Ateles beelzebub monkey in Tiputini reserve in the Ecuadorian Amazon. Worked with collaborators at Arizona State University.

### Graduate Teaching Assistant | Universidad de los Andes

**January 2015 - June 2018**

- Graduate teaching assistant for the following courses: Linear algebra, Integral Calculus, Differential equations.

## Industry Experience

---

### Factored AI

April 2021 – June 2022

*Senior Machine Learning Engineer*

*Medellín, Colombia*

- Developed a meta-learning solution (as part of a team led by ex-Google engineers) that improved performance and reduced training time of computer vision models used in manufacturing and Insurance companies. Interviewed candidates for open engineering positions in the company.

### Factored AI

October 2019 – March 2021

*Machine learning engineer*

*Medellín, Colombia*

- Founding engineer selected by some of Dr. Andrew Ng's students. Doctor Andrew Ng's AI fund provided the initial investment for Factored.ai.
- Built an NLP CRM solution for a fin-tech start-up. The solution included the use of, by that time novel, transformer architecture.
- Led a team that developed an early warning tool for forecasting economic impact derived from the lock-downs executed during the COVID-19 outbreak. The final model was deployed as part of Medellin's COVID-19 monitoring platform and used as an information source for decision makers in the public and private sectors. This work led to a publication at the ML4D workshop at Neurips.

### Lacuna Fellowship

May 2019 – September 2019

*Fellow*

*Medellín, Colombia*

- Artificial Intelligence and Machine Learning fellowship sponsored by Andrew Ng's AI fund.
- Improved my skills in dynamic programming, graph theory, machine and deep learning.
- Recreated and served(deployed) the models or algorithms described in the most recent computer science papers.

### Barbara & Frick (*acquired by Accenture Colombia*)

July 2018 – April 2019

*Data scientist*

*Bogotá, Colombia*

- Led the team that built the analytics department in a large Colombian CPG company.
- Conducted the development of pipelines that gather, curate and serve the data used for performing analytics on every Marketing initiative within the company.
- Presented bi-monthly results to senior executives, the developed solution managed to cut marketing costs while improving the reach of every marketing campaign in the company.

### Universidad de los Andes

May 2019 – August 2019

*Students representative*

*Bogotá, Colombia*

- Students representative for the Mathematics department.

## Skills

---

- |          |                 |                          |                         |
|----------|-----------------|--------------------------|-------------------------|
| • R      | • Deep learning | • Public clouds: AWS and | • Agile software dev    |
| • Python | • Statistics    | GCP                      | • Software architecture |

## Talks

---

- 20 minute talk XXI congreso colombiano de matemáticas, June 2017
- 20 minute talk for a paper accepted to ML4D workshop on Neurips 2020

## Volunteer work

---

### ML training

October 2021

*Volunteer teacher*

*Factored/DataScienceFem*

- Taught the basics of machine learning and deep learning to women looking to do a career shift into data related roles.

### Factored AI Sessions

January 2020 – June 2020

*Volunteer teacher*

*Factored*

- Taught the basics of machine learning and deep learning to high schools seniors from public schools in Medellín, Colombia.

### Progresia Fenicia

January 2015 – June 2015

*Volunteer teacher*

*Universidad de los Andes*

- Helped highschool seniors from under-privileged backgrounds study for their exams to access higher education.