

Ángel Alexander Cabrera

I am a PhD student in the [Human Computer Interaction Institute \(HCII\)](#) at [Carnegie Mellon University](#), advised by [Adam Perer](#) and [Jason Hong](#).

My research focus is broadly **human-centered AI**, specifically in applying techniques from **HCI** and **visualization** to help people develop machine learning models that are better aligned with human values. I am supported by a [NSF Graduate Research Fellowship](#).

Before CMU, I graduated with a B.S. in Computer Science from [Georgia Tech](#), where I worked with [Polo Chau](#) and [Jamie Morgenstern](#). I also spent a few summers as a software engineering intern at [Google](#) working on Google Maps, Cloud Dataflow, and Android Auto.

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 [@a_a_cabrera](https://twitter.com/a_a_cabrera)

 [GitHub](#)

 [Google Scholar](#)

Education

- | | |
|---------------------------|--|
| August 2019
- Present | PhD in Human-Computer Interaction (HCI)
<i>Carnegie Mellon University</i> |
| August 2015
- May 2019 | B.S. in Computer Science
<i>Georgia Institute of Technology</i>
Concentration in intelligence and modeling/simulation.
Minor in economics. |
| Fall 2017 | <i>Sciences Po - Paris, France</i>
Exchange program with a focus on economics and political science. |

Awards and Fellowships

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| May 2019 | National Science Foundation Graduate Research Fellowship (NSF GRFP)
Three-year graduate fellowship for independent research. Full tuition with an annual stipend of \$34,000. |
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 [Website](#)

- | | |
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| May 2019 | Love Family Foundation Scholarship |
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Co-awarded the \$10,000 scholarship for the undergraduate with the most outstanding scholastic record.

 [Announcement](#)

August 2015
- May 2019

Stamps President's Scholar

Georgia Tech and the Stamps Family Charitable Foundation

Full ride scholarship with \$15,000 in extracurricular funding awarded to 10 students (27,270 applicants).

 [Website](#)

February 3, 2018

The Data Open Datathon

Correlation One and Citadel Securities

Placed third and won \$2,500 for creating a ML system to predict dangerous road areas.

 [Press Release](#)

Industry Experience

May 2018
- August 2018

Google

Software Engineering Intern

Researched and prototyped improvements for automated driver assistance systems and hyperlocal weather prediction for the next generation of Android Auto.

 [WSJ Article](#)

Android Auto

Java

C++

Protocol Buffers

May 2017
- August 2017

Google

Software Engineering Intern

Created an anomaly detection and trend analysis system for Google's data processing pipelines.

Apache Beam/Cloud DataFlow

Java

C++

SQL

May 2016
- August 2016

Google

Engineering Practicum Intern

Built an analytics platform for monitoring and catching erroneous edits to Google Maps.

Go

BigQuery

JavaScript

Research Experience

August 2019
- Present

Carnegie Mellon Human Computer Interaction Institute (HCII)

Graduate Research Assistant

 [CMU Data Interaction Group](#)

January 2018
- May 2019

Polo Club of Data Science

Undergraduate Research Assistant

 [Polo Club](#)

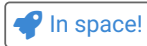
September 2015

PROX-1 Satellite

- May 2017

Flight Software Lead and Researcher

Led a team of engineers in developing the software for a fully undergraduate-led satellite mission.



Refereed Publications

October 2019

FairVis: Visual Analytics for Discovering Intersectional Bias in Machine Learning

Ángel Alexander Cabrera, Will Epperson, Fred Hohman, Minsuk Kahng, Jamie Morgenstern, Duen Horng (Polo) Chau

IEEE Conference on Visual Analytics Science and Technology (VAST). Vancouver, Canada, 2019.



Workshops, Demos, Posters, and Preprints

2020

Regularizing Black-box Models for Improved Interpretability

Gregory Plumb, Maruan Al-Shedivat, Ángel Alexander Cabrera, Adam Perer, Eric Xing, Ameet Talwalkar

Under Review. , 2020.



May 2019

Discovery of Intersectional Bias in Machine Learning Using Automatic Subgroup Generation

Ángel Alexander Cabrera, Minsuk Kahng, Fred Hohman, Jamie Morgenstern, Duen Horng (Polo) Chau

Debugging Machine Learning Models Workshop (Debug ML) at ICLR. New Orleans, Louisiana, USA, 2019.



June 2018

Interactive Classification for Deep Learning Interpretation

Ángel Alexander Cabrera, Fred Hohman, Jason Lin, Duen Horng (Polo) Chau

Demo at IEEE Computer Vision and Pattern Recognition (CVPR). Salt Lake City, Utah, USA, 2018.



Teaching

Fall 2016 *Undergraduate Teaching Assistant*
Spring 2017 Taught a 1 1/2 hour weekly recitation, graded tests and homework, and helped create
Spring 2018 assignments.

Fall 2016 **GT 1000 - First-Year Seminar**
 Team Leader
 Designed a class curriculum for incoming first years and helped lead a weekly seminar class.

Service

Student Volunteer

October 2019 IEEE Visualization Conference (VIS)
January 2019 ACM Fairness, Accountability, and Transparency (FAT*)

Reviewer

2019 IEEE Transactions on Visualization and Computer Graphics (TVCG)
2019 ACM Transactions on Interactive Intelligent Systems (TiiS)

Press

2019 "Visualizing Fairness in Machine Learning" - *Data Stories Podcast*
2019 "Alex Cabrera Wins Love Family Foundation Scholarship" - *GT SCS*
2019 "Georgia Tech Satellite Successfully Launched Into Space" - *Georgia Tech*
2018 "Datathon Challenges Students to Create Solutions to Real-World Problems" - *GT SCS*

Projects

Fall 2018 **ICLR'19 Reproducibility Challenge**
 Generative Adversarial Models for Learning Private and Fair Representations
 Implemented and reproduced an ICLR'19 submission using GANs to decorrelate sensitive data.



Spring 2018 **Georgia Tech Bus System Analysis**
 System that combines Google Maps and graph algorithms to enable navigation for GT buses.



Spring 2014 **CTF Resources**
 Guide and resources for capture the flag (CTF) competitions with over 1,000 stars on GitHub.



Selected Classes

Spring 2019	Applied Research Methods
Fall 2018	Deep Learning
Spring 2018	Data and Visual Analytics
Fall 2017	Money and Banking
Spring 2017	Machine Learning
Spring 2017	Computer Simulation
Spring 2017	Honors Algorithms

Skills

Languages

English - Native Spanish - Native French - Conversational (B1)

Programming Languages

Java Javascript Python C/C++ SQL Go

Technologies

Machine Learning Full Stack Development React Svelte Vega D3 PyTorch
Cloud Dataflow/MapReduce Amazon Mechanical Turk

Last updated April 1, 2020.
