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# 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

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

## Awards and Fellowships

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



May 2019 **Love Family Foundation Scholarship**

Co-awarded the \$10,000 scholarship for the undergraduate with the most outstanding scholastic record.



August 2015 **Stamps President's Scholar**

- May 2019 *Georgia Tech and the Stamps Family Charitable Foundation*

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



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.



## Industry Experience

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May 2018 **Google**

- August 2018 *Software Engineering Intern*

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



Android Auto

Java

C++

Protocol Buffers

May 2017 **Google**

- August 2017 *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 **Google**

- August 2016 *Engineering Practicum Intern*

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

Go

BigQuery

JavaScript

## Research Experience

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August 2019  
- Present

### **Carnegie Mellon Human Computer Interaction Institute (HCII)**

*Graduate Research Assistant*



January 2018  
- May 2019

### **Polo Club of Data Science**

*Undergraduate Researcher*



September 2015  
- May 2017

### **PROX-1 Satellite**

*Flight Software Lead and Researcher*

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



## Publications

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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.*



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

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- Fall 2016, Spring 2017, Spring 2018    **Undergraduate Teaching Assistant**  
*CS1332 - Data Structures and Algorithms*  
Taught a 1 1/2 hour weekly recitation, graded tests and homework, and helped create assignments.
- Fall 2016    **Team Leader**  
*GT 1000 - First-Year Seminar*  
Designed a class curriculum for incoming first years and helped lead a weekly seminar class.

## Service

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- 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

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- 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

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- 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.
-  [GitHub](#)
- 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

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- Fall 2018 [CS 4803/7643 - Deep Learning](#)
- Spring 2018 [CX 4242/CSE 6242 - Data and Visual Analytics](#)
- Fall 2017 [BECO 1750A - Money and Banking](#)
- Spring 2017 [CS 4641/7641 - Machine Learning](#)
- Spring 2017 [CX 4230 - Computer Simulation](#)
- Spring 2017 [CS 3511 - Honors Algorithms](#)

## Skills

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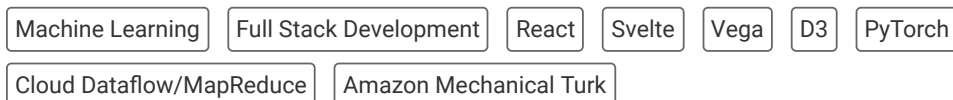
### Languages



### Programming Languages



### Technologies



Last updated March 6, 2020.