

# Caleb Ziems

## Curriculum Vitae

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*I use techniques from **NLP** and **Computational Social Science** to study **human behavior** and **communication** on the web. I am especially interested in understanding the **linguistic** and **psychological** processes that underlie effective **prosocial** and **antisocial** behaviors.*

## Education

- 2020–2025 **Georgia Institute of Technology**, *Ph.D. in Computer Science*.  
(anticipated) School of Interactive Computing  
Advisor: Diyi Yang  
Cumulative GPA: 4.0/4.0
- 2016–2020 **Emory University**, *B.S. in Computer Science (highest honors), B.A. in Mathematics*.  
Thesis: *Towards More Robust Methods of Cyberbullying Detection*  
Advisor: Ymir Vigfusson  
Cumulative GPA: 4.0/4.0

## Experience

- August 2020 – Present **Georgia Tech SALT Research Group**, *Graduate Research Assistant*.  
Advisor: Diyi Yang
- Co-lead a project on detecting implicit hate speech in far-right online hate groups (one paper submitted, under review)
  - Led a project on news and media framing of police shooting events within the context of the Black Lives Matter movement (paper submitted, under review)
- March 2020 – May 2020 **Georgia Tech CLAWS Research Group**, *Undergraduate Research Assistant*.  
Advisor: Srijan Kumar
- Curated a new dataset of hate, counter-hate and neutral tweets in the context of COVID-19
  - Conducted statistical, linguistic, and geographic analysis of hate tweets and users who spread hate to reveal characteristic patterns of the origin, evolution, and spread of hate
  - Showed that hateful bots are more active, engaged, and successful than counterhate bots
- June 2019 – August 2019 **USC/ISI MINDS Research Group**, *NSF REU Fellow*.  
Advisor: Fred Morstatter
- Empirically demonstrated shortcomings in baseline NLP approaches to cyberbullying detection
  - Designed and implemented an original annotation framework on a new Twitter dataset
  - Engineered features from social and linguistic signals to improve cyberbullying classifiers
  - Published work at ICWSM 2020
- June 2018 – August 2018 **Stanford InfoLab**, *NSF REU Fellow*.  
Advisor: Srijan Kumar (PI: Jure Leskovec)
- Quantified the effects of “pump and dump” manipulations in cryptocurrency markets
  - Scraped, cleaned, and aggregated chat logs and time series data from currency exchanges
  - Built machine learning classifiers for identifying and predicting pump and dump schemes
  - Presented to an interdisciplinary audience of REU interns and Stanford faculty

August 2017 - **Emory Concept Mining Lab**, *Undergraduate Research Assistant*.

May 2018 Advisor: Phillip Wolff

- Proposed, designed, and implemented an original cognitive science project on future-thinking
- Found a positive correlation between a Twitter user's social network centrality and the ratio of future-oriented tweets in the user's timeline
- Presented at the Spring Undergraduate Research Symposium at Emory University

## Publications and Pre-prints

2020 **Ziems, C.**, He, B., Soni, S., & Kumar, S. (2020). Racism is a Virus: Anti-Asian Hate and Counterhate in Social Media during the COVID-19 Crisis. arXiv preprint arXiv:2005.12423. *In preparation*. [PDF](#).

Included in the curriculum at Stanford University.

2020 **Ziems, C.**, Vigfusson, Y., & Morstatter, F. (2020) Aggressive, Repetitive, Intentional, Visible, and Imbalanced: Refining Representations for Cyberbullying Classification. In Proceedings of the 14th International AAAI Conference on Web and Social Media. Presented at ICWSM 2020 [PDF](#).

Honorable Mention for Best Paper Award.

## Teaching

August 2017 - **Emory Office for Undergraduate Education**, *EPASS Peer Tutor*.

- May 2018
- Worked one-on-one with 10 to 20 different undergraduates each semester
  - Explained Calculus I and II concepts, designed problem sets, and offered individual feedback

## Awards and Honors

March 2021 **NSF Graduate Research Fellowship**.

June 2020 **Honorable Mention for Best Paper**, *ICWSM 2020*.

May 2020 **Summa Cum Laude**, *Emory University Computer Science Department*.

May 2020 **Academic Excellence Award**, *Emory University Computer Science Department*.

November **Phi Beta Kappa**.

2018 Elected as a Junior

August 2017 **Norman C. and Henry J. Miller Dean's Achievement Scholarship**.

\$30,000 scholarship recognizing academic achievement, leadership, and community involvement

## Skills

Languages Python, Java, MATLAB, C, Prolog, Scheme (LISP), Objective-C

Libraries PyTorch, Scikit-learn, Pandas, NLTK, Stanford CoreNLP, NetworkX, Tweepy

Tools HTML/CSS, PostgreSQL, Github,  $\text{\LaTeX}$ , Amazon Mechanical Turk API

Software Bash, Vim, Gephi, Jupyter, Eclipse

## Service

Reviewing ACM CSCW (2021)