

# Katy Felkner

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## EDUCATION

**University of Southern California** | Los Angeles, CA

- Ph.D. in Computer Science | Expected 2026 | Supported by **NSF Graduate Research Fellowship**
- Coursework: Advanced Natural Language Processing, Advanced Algorithms, Crafting a Research Agenda in Computer Science, Representation Learning in NLP, Foundations of AI, Fairness in AI | **GPA: 3.88/4.00**

**University of Oklahoma** | Norman, OK

- B.S. in Computer Science (*summa cum laude*), B.A. in Letters (*summa cum laude*) | May 2020
- Minor: Mathematics | **GPA: 4.00/4.00**

## RESEARCH INTERESTS

fairness and bias in LLMs, LLM bias benchmarks, participatory and community engaged methods, ethical AI, AI for social good

## PUBLICATIONS

- **Virginia K. Felkner**, Jennifer A. Thompson, Jonathan May. *GPT is Not an Annotator: The Necessity of Human Annotation in Fairness Benchmark Construction*. Under Review. 2024.
- **Virginia K. Felkner**, Ho-Chun Herbert Chang, Eugene Jang, Jonathan May. *WinoQueer: A Community-in-the-Loop Benchmark for Anti-LGBTQ+ Bias in Large Language Models*. Association for Computation Linguistics, 2023.
- **Virginia K. Felkner**, Ho-Chun Herbert Chang, Eugene Jang, Jonathan May. *Towards WinoQueer: Developing a Benchmark for Anti-Queer Bias in Large Language Models*. QueerInAI Affinity Group Workshop, NAACL 2022.
- Nicolaas Weideman, **Virginia K. Felkner**, Wei-Cheng Wu, Jonathan May, Christophe Hauser, Luis Garcia. *PERFUME: Programmatic Extraction and Refinement For Usability of Mathematical Expressions*. CheckMATE, ACM CCS 2021.
- **Virginia K. Felkner** and Elisabeth Moore. *Investigating the Efficacy of Unstructured Text Analysis for Node Failure Detection in Syslog*. Second Workshop on Machine Learning for Computing Systems, Supercomputing 2020.
- **Virginia K. Felkner**. A Brief History of QED. *The Honors Undergraduate Research Journal* 16<sup>th</sup> edition. 2017.

## RESEARCH EXPERIENCE

**LLM Fairness and Bias, USC Information Sciences Institute – Graduate Research Assistant** JAN. 2022 – PRESENT

- Design novel, community-sourced benchmark datasets for detecting anti-LGBTQ+ and antisemitic bias in LLMs
- Develop, distribute, and analyze two large-scale community surveys to inform LLM bias benchmarks
- Develop finetuning methods to mitigate anti-LGBTQ+ bias in LLMs
- Work started as a class project for DSCI 531: Fairness in AI and continued under fellowship funding
- Advisor/PI: Jonathan May

**DARPA ReMATH, USC Information Sciences Institute – Graduate Research Assistant** JAN. 2021 – JUN. 2022

- Built and evaluated NMT models for extraction of symbolic math from assembly code and bit-vector expressions
- Developed novel metrics for evaluation of NMT-generated mathematical expressions

**Border Translation Project, USC Information Sciences Institute – Graduate Research Assistant** AUG. 2020 – DEC. 2021

- Built and evaluated neural machine translation systems for extremely low-resource languages
- Developed baseline NMT system for K'iche', a Mayan indigenous language, with intended application of helping NGOs provide legal assistance to immigrants and asylum seekers.

**Los Alamos National Laboratory, Ultrascale Systems Research Center — Research Intern** MAY 2020 – AUGUST 2020

- Collected 750,000 lines of non-secret syslog data using a 20-node virtual compute cluster
- Tested a variety of word embedding and clustering algorithms to extract natural language features from supercomputer syslog
- Showed that these natural language features can be used to improve HPC node failure detection and prediction
- Mentor: Elisabeth Moore

**Digital Latin Library — Undergraduate Research Assistant** JAN. 2017 – MAY 2020

- Wrote Python scripts to parse HTML documents containing Latin texts, generating 125000 lines of SQL output
- Designed scripts to automate XML encoding of Latin prose and poetry, reducing time to encode by a factor of 400
- Only undergraduate student accepted to National Endowment for the Humanities Institute on Advanced Topics in Digital Humanities for Summer 2018 at Tufts University
- Advisor: Samuel Huskey

## PRESENTATIONS

### Invited Talks

- Invited Speaker, John Brooks Slaughter Leadership in Engineering DEI Summit. February 2024.
- Invited Panelist on *Bias in Generative AI*. QueerInAI Workshop at NeurIPS, December 2023.
- Guest Lecturer on *Ethics and Power in NLP*, USC CSCI 662 Advanced NLP, September 2023.
- Invited Speaker, *Anti-Queer Bias in LLMs*. USC ISI Natural Language Seminar, June 2022.
- Guest Lecturer on *Servius: An Object-Oriented Approach*. Sunoikisis Digital Classics, May 2019.

## Conference Talks/Posters

- *Roundtable Discussion: Defining and Disrupting Antisemitism: Perspectives from Artificial Intelligence, Sociology, History, Law, and Ethics*. Association for Jewish Studies 2023.
- Poster Presentation, *Anti-Queer Bias in LLMs*. Southern California NLP Symposium, November 2023.
- Poster Presentation, *Anti-Queer Bias in LLMs*. CRA-WP Grad Cohort for Women, April 2023.
- *Automatically Encoding Digital Editions of Latin Texts*, Society for Classical Studies, January 2019
- *Coding And/As Classical Scholarship*, Classical Association of the Midwest and South Conference, April 2018
- *Coding And/As Classical Scholarship*, National Conference on Undergraduate Research, April 2018

## WORK EXPERIENCE

### **Epic Systems Corporation — Software Developer Intern** MAY 2019 – AUG. 2019

- Prototyped a menstrual cycle tracking feature within MyChart for iOS to allow patients to share cycle data with providers
- Designed and implemented server and client-side data structures to save cycle data to the patient's medical record
- Built four complete and interactive user-interface screens and partial prototypes of several others
- Conducted user research, including about 100 internal survey responses and 5 user interviews

## PROFESSIONAL SERVICE

- Reviewer, EMNLP 2023.
- Reviewer, ACL 2023.
- Emergency Reviewer, EMNLP 2022 Theme Track.

## LEADERSHIP

### **Queers in Engineering, Science and Technology (QuEST) — Graduate Representative** SEP. 2020 – MAY 2023

- Recruit graduate students to QuEST and advocate for their needs in the organization
- Develop workshops on graduate school and fellowship applications and mentor undergraduate members during applications
- Serve as Ambassador to Viterbi Graduate Student Association
- 2022 oSTEM Region F Conference organizer: presented graduate application workshop, spoke on Queer in Academia panel, wrote and hosted charity Dungeons & Dragons livestream, raising \$950 for LGBTQ+ community organizations in LA

### **Alpha Sigma Kappa - Women in Technical Studies — President** APR. 2019 – APR. 2020, **Vice Pres.** DEC. 2017 – DEC. 2018

- As VP, planned and executed nine recruitment events per semester, recruiting 32 new members
- As VP, mentored 9 officers on 5 committees, resulting in successful chapter social and new member education programs
- As President, oversaw 6 executive board members and served as chief risk management officer
- As President, led chapter's transition to virtual operations due to COVID-19, rapidly established new initiatives to maintain sisterhood and encourage academic excellence during the pandemic

### **Out in Science, Technology, Engineering, and Math – Secretary** MAR. 2017 – DEC. 2019

- Served on founding executive board of first oSTEM chapter in the state of Oklahoma
- Planned and executed about two medium-scale events per month and manage event promotion and member communication

### **Halliburton Women's Welcome – Lead Mentor** AUG. 2017, **Program Committee Chair** AUG. 2018, AUG. 2019

- Planned and executed a weeklong program for 80+ incoming female students in engineering
- Organized campus resource fair and inclusive professional dress workshop that received 91% positive participant feedback
- As a lead mentor, served as a mentor to a small group of eight incoming women engineering freshmen

## COMMUNITY SERVICE AND OUTREACH

### **Teach for Los Angeles – Math Tutor** AUG. 2020 – MAY 2021

- Meet weekly to provide personalized math tutoring to sixth grade student in low-income school

### **Boren Mentoring Initiative – Mentor** OCT. 2018 – MAY 2019

- Met weekly with a middle school student to work on emotional skills, which teachers observed improving over the year

### **Girl Scout Badge University – Robotics Session Chair** NOV. 2018

- Facilitated a robotics workshop for about 20 high school girls using Lego FIRST robotics kits

### **Girls Learning and Applying Math and Science – Computer Science Session Co-Chair** OCT. 2017, FEB. 2018

- Facilitated a craft activity to teach about 60 middle school girls about the basics of ASCII text encoding

## HONORS AND AWARDS

National Science Foundation Graduate Research Fellowship  
Gallogly College of Engineering Outstanding Senior  
Alpha Sigma Kappa National Outstanding Leader  
Letzeiser Honor List – Silver Medalist  
Regents' Award for Outstanding Juniors  
Rita H. Lottinville Prize (5 outstanding sophomores)  
Ronald Lehr Phi Beta Kappa Undergraduate Research Award  
OU Women in Engineering Outstanding Sophomore

Viterbi Graduate School Fellowship  
Outstanding Senior in Computer Science  
Outstanding Greek Senior  
OU Campus Life Award (40 outstanding upperclassmen)  
President's Award for Outstanding Sophomores  
OU Women in Engineering Impact in Engineering Award  
Tau Beta Pi (National Engineering Honor Society)  
Phi Beta Kappa Honor Society