

Eugenia Rho

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Virginia Tech Department of Computer Science, 2200 Kraft Dr SW, Blacksburg, VA 24060

Research Interests

Language and Artificial Intelligence (AI), Human-Centered Data Science, Interpretable Machine Learning (ML), Explainable AI, Human-Computer Interaction (HCI), Natural Language Processing (NLP)

I use interpretable machine learning, statistics, and experimental design on large datasets to understand the challenges and opportunities around human-to-human and human-to-machine linguistic interactions in various social contexts.

Education

- 2015 – 2021 **University of California, Irvine**, Irvine, CA
Ph.D. in Informatics
Thesis: Design of Online Environments and the Quality of Democratic Discourse At-Scale
Committee: Melissa Mazmanian (chair), Judy Olson, Kai Zheng
- 2007 – 2011 **Columbia University (Columbia College)**, New York, NY
BA in Political Science, Honors Candidate, Dean's List

Experience

- 2021 – present **Virginia Tech, Department of Computer Science**, Blacksburg, VA
Assistant Professor of Computer Science
- Director of SAIL (Society + AI and Language) research lab
- Selected Projects:
- **Human perceptions of machine-generated language:** Visualizing semantic opportunities and limitations of transformer-generated counter responses against implicit online aggressions through an interactive UI playground for users to learn and craft responses through machine-generated texts [pilot work: P10]
 - **Intertextuality in linguistic interactions:** Understanding lexical priming and longitudinal causal relations across linguistic trends [P8, P9]
- 2020 – 2021 **Stanford University, Department of Computer Science**, Palo Alto, CA
NLP Postdoctoral Researcher,
- Project lead on a team of psychologists, linguists, computer science PhD students, and law enforcement members to drive actionable research by building interpretable deep learning language models that can help understand the role of police officer speech in escalated traffic stops of Black drivers [P11]
 - Ran NLP experiments to predict interactional outcomes based on conversations captured in thousands of police body camera footages
 - Designed and conducted participant studies with Black men to compare language model results with human perceptions of escalated vs. non-escalated outcomes
- 2017 **Meta** (Facebook), Menlo Park, CA
Quantitative UX Research Intern
- Influenced product strategies by delivering actionable insights based on modeling behavioral clusters through log analysis of user data using SQL and R

- Designed and conducted surveys (N=1M), focus groups, and interviews to identify trust and security issues across foreign users while live streaming
- 2016 **NORC at the University of Chicago**, Chicago, IL
PhD Data Scientist Intern
- Created internal metrics to segment users and predict engagement behavior
 - SQL analyses, database merging, and search-parsing unstructured log data
- 2016 **University of California, Irvine**, Irvine CA
Graduate Research Assistant
- Structural equation modeling of people's perceptions of privacy and adoption attitudes towards voice-based assistant systems in autonomous cars
 - Designed and conducted a survey (N=847) on people's perceptions of design norms and data practices in voice assistant software in autonomous cars
 - Interviewed industry professionals' perceptions on embedding privacy design into voice assistant software in semi-autonomous cars
- 2013 – 2015 **PricewaterhouseCoopers**, Seoul, South Korea
Associate Consultant
- Managed collaboration across internal and external stakeholders to create machine learning (ML) pipelines for Samsung's subsidiaries
 - Presented insights to C-level partners on Samsung's ML growth plans, assessment of current practices, and ethical risks in ML applications in business contexts
 - Published a company-wide guideline for Samsung's ML growth strategy
- 2011 – 2012 **Opera Solutions**, New York, NY
Management Consultant
- Created payment optimization, vendor performance, cost reduction models using advanced statistics and data visualization for American Express
 - Worked with an extensive team of engineers, researchers, and C-level partners to ideate strategic growth plans using big data analytics for American Express

Publications

Journals and Conference Papers

- [P11] **Eugenia H. Rho**, Maggie Harrington, Yuyang Zhong, Reid Pryzant, Nicholas P. Camp, Dan Jurafsky, Jennifer L. Eberhardt. Escalated Police Stops of Black Men Are Linguistically and Psychologically Distinct in Their Earliest Moments. Proceedings of the National Academy of Sciences (PNAS), 2022 (Under Review)
- [P10] Xiaohan Ding, Mike Horning, **Eugenia H. Rho**. Same Words, Different Meanings: Interpretable Predictions of Polarization Trends in Broadcast Media Language and Granger Causal Effects on Online Public Discourse. AAAI Conference on Web and Social Media (ICWSM), 2022 (Under Review)
- [P9] Uma Gunturi, Anisha Kumar, **Eugenia H. Rho**. Understanding the Linguistic Signature of Acts and Recalls of Online Racial Microaggressions through Interpretable NLP. ACM Conference on Human Factors in Computing Systems (CHI), 2022 (Under Review)
- [P8] Rohan Leekha, **Eugenia H. Rho**. Forecasting the Role of Offspring Hashtags in Longitudinal Lexical Shifts in Protests and Counter Protest Discourse. ACM Transactions on Computer-Human Interaction (TOCHI), 2022 (Under Submission)

- [P7] Yao Li, **Eugenia H. Rho**, and Alfred Kobsa. Cultural Differences in the Effects of Contextual Factors and Privacy Concerns on Users' Privacy Decision on Social Networking Sites. *Journal of Behavior and Information Technology*, 2020
- [P6] **Eugenia H. Rho** and Melissa Mazmanian. Political Hashtags and the Lost Art of Democratic Discourse. *ACM Conference on Human Factors in Computing Systems (CHI)*, 2020. **Best Paper Honorable Mention**
- [P5] **Eugenia H. Rho** and Melissa Mazmanian. Hashtag Burnout? An Experimental Study Investigating How Political Hashtags Shape Reactions to News Content. *ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW)*, 2019
- [P4] Ted Grover, Elvan Bayraktaroglu, Gloria Mark, and **Eugenia Ha Rim Rho**. Moral and Affective Differences in U.S. Immigration Policy Debate on Twitter. *Journal of Computer Supported Cooperative Work* Vol 28, Issue:3-4 (June 2019), p. 317-355.
- [P3] **Eugenia H. Rho**, Gloria Mark, and Melissa Mazmanian. Fostering Civil Discourse Online: Linguistic Behavior in Comments of #MeToo Articles Across Political Perspectives. *ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW)*, 2018
- [P2] **Eugenia H. Rho**, Alfred Kobsa, Carolyn Nguyen. Differences in Online Privacy & Security Attitudes Based on Economic Living Standards: A Global Study of 24 Countries. *Proceedings of the European Conference on Information Systems (ECIS)*, 2018
- [P1] **Eugenia H. Rho**, Oliver L. Haimson, Nazanin Andalibi, Melissa Mazmanian, and Gillian R. Hayes. Class Confessions: Restorative Properties in Online Experiences of Socioeconomic Stigma. *ACM Conference on Human Factors in Computing Systems (CHI)*, 2017

Workshop Papers

- [W4] **Eugenia H. Rho**. Quality of Democratic Discourse in the Age of Political Hashtags and Social Media News Consumption. *ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW)*, 2020
- [W3] Krithika Jagannath, **Eugenia H. Rho**. Intelligent Agents in Everyday Settings: Leveraging a Multi-Methods Approach. *ACM Conference on Human Factors in Computing Systems (CHI)*, 2018
- [W2] Yao Li, **Eugenia H. Rho**. Contextual Impact on SNS Users' Privacy Decisions: A Cross-Cultural Study. *ACM Conference on Human Factors in Computing Systems (CHI)*, 2018
- [W1] **Eugenia H. Rho**. Privacy Norms in the Context of Connected & Self-Driving Cars. *ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW '17)*

Grants and Fellowships

- 2021 Predicting Online Groupthink Rhetoric in COVID-19 Health Mandate Discourse (PI); Total Award Value: \$15,000; Virginia Tech Center for Peace Studies and Violence Prevention
- 2020 UCI Information & Computer Science Kling Endowed Memorial Fellowship - \$2000

- 2019 CSCW Doctoral Consortium Fellowship - \$1565
- 2018 Roberta Ellen Lamb Memorial Fellowship - \$10,000
- 2015 Award of Graduate Dean's Recruitment Fellowship - \$5,000

Invited Talks and Guest Lectures

- 2021 Influence of Officer Speech in Traffic Stop Outcomes for Black Drivers. Center for Human-Computer Interaction, Department of Computer Science, Virginia Tech (Host: Mike Horning)
- 2021 Design of Online Environments and the Quality of Democratic Discourse At-Scale. Department of Computer Science, Stanford University, Human-Computer Interaction Lecture: People, Computers & Design Seminar (Host: Michael Bernstein)
- 2020 Department of Computer Science, Virginia Tech
- 2020 Human Centered Design & Engineering, University of Washington
- 2020 School of Information, George Mason University
- 2019 Understanding Consequences of Brevity in Online Communication Through a Controlled Experiment with Social Media Users. Invited guest lecture for Critical Writing on Information Technology (INF 131), Irvine, CA.
- 2017 Usability of Interactive Systems. Invited Guest lecture for Human Computer Interaction (INF 131), Irvine, CA.
- 2017 Motivations and Barriers in Using Facebook Live Across Closed Mental Health Support Groups on Facebook. Invited talk for KAIST Interaction (KIX) Lab, Korea Advanced Institute of Science and Technology, Daejeon, South Korea.

Selected Press and Interviews

- Dec 2019 Political Hashtags Make People Less Likely to Believe the News (Interview), Radio New Zealand
- Dec 2019 Hashtag Fatigue: How #Metoo Turns People off From the News (Magazine Print), Newsweek Japan
- Nov 2019 How Political Hashtags Make Discussion More Partisan (Interview), KCBS Radio
- Nov 2019 Hashtag Haven: Why People Distrust Social Media Clickbait, Yahoo Finance
- Nov 2019 Political Hashtags Like #Metoo and #Blacklivesmatter Make People Less Likely to Believe the News, The Conversation
- Nov 2019 Political Hashtags Like #Metoo and #Blacklivesmatter Make Some People Doubt the Stories They're Attached To, Nieman Journalism Lab, Harvard University

Teaching Experience

Instructor, Virginia Tech, Department of Computer Science

Spring 2022 CS 5984 Computational Social Science

Teaching Assistant, University of California, Irvine, Department of Informatics

Summer 2020 INF 288 Master of Human-Computer Interaction & Design Capstone Project

Fall 2019 INF 281 User Needs Analysis (38 students)

Summer 2019 ICS 139 Critical Writing on Information Technology (41 students)

Spring 2018 ICS 5 Global Disruption & Information Technology (249 students)

Spring 2017 ICS 166 Game Design (30 students)

Winter 2017 INF 131 Human Computer Interaction (197 students)
Led a 1-hour weekly discussion seminar with 80 students

Fall 2016 INF 131 Human Computer Interaction (119 students)
Led two 1-hour weekly discussion seminars with 60 students in each section

Service

Academic Service

2022 Search Committee, Virginia Tech Computer Science

2021 Graduate Admissions Committee, Virginia Tech Computer Science

Grant Review

2022 NSF Panel

Program Committee

2022 ACM Conference on Computer Supported Cooperative Work (CSCW)

2020 ACM Conference on Human Factors in Computing Systems (CHI) Late Breaking Work

Paper Reviewer

2016–2022 ACM Conference on Computer Supported Cooperative Work (CSCW)

2017–2022 ACM Conference on Human Factors in Computing Systems (CHI)

2021 AAAI Conference on Web and Social Media (ICWSM)

2021 Proceedings of the European Conference on Information Systems (ECIS)

2018 ACM Designing Interactive Systems Conference (DIS)

Student Volunteer

- 2018 ACM Conference on Human Factors in Computing Systems (CHI)
- 2017 ACM Conference on Computer Supported Cooperative Work (CSCW)

Member

- 2015 – Present ACM Special Interest Group on Computer-Human Interaction
- 2020 – Present Association for Computational Linguistics

Advising and Mentorship

- 2021 Faculty Panelist for ACM Computer-Human Interaction Mentoring (CHIMe) Symposium Workshop
- 2021 Faculty Research Talk, Graduate Student Orientation, Virginia Tech
- 2016 – Present Women in Information & Computer Sciences (WICS) at UC Irvine
- 2016 –2017 Helped organize “Explore ICS Program” – a 5-month mentorship program for introducing female undergraduate/undeclared students to Information & Computer Science (ICS) majors as part of a campus-wide effort to increase women and underrepresented minorities in the ICS field
- 2017 Panelist, Internship Experience with Tech Industries, UCI Informatics
- 2017 Graduate Student Panelist, Orientation for Incoming PhD Students at UCI Informatics
- 2016 Treasurer, Informatics Graduate Student Association (IGSA)

Student Advising

- 2021 – Present **Graduate Advisees at Virginia Tech**
 - Xiaohan Ding (Ph.D., Computer Science)
 - Kaike Ping (Ph.D., Computer Science)
 - Rohan Leekha (M.S., Computer Science)
 - Anisha Kumar (M.S., Computer Science)
 - Uma Gunturi (M.S., Computer Science)
 - Samridhi Roshan (B.S., Computer Science)
 - Eunice Hong (B.S., Computer Science)
- 2021 – Present **Thesis Committee**
 - Sukrit Venkatagiri (Ph.D., Computer Science)
 - Bill Ingram (Ph.D., Computer Science)
 - Aman Ahuja (Ph.D., Computer Science)
 - Satvik Chekuri (Ph.D., Computer Science)
 - Marx Wang (M.S., Computer Science)