

Katy Ilonka Gero

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Current

Mar 2023 – **Postdoctoral Fellow in Computer Science**, Harvard University; supervised by Elena Glassman

Education

2017-2022 **Ph.D. in Computer Science**, Columbia University; advised by Lydia Chilton
Thesis: *AI and the writer: how language models support creative writers*

2017-2019 **M.S. in Computer Science**, Columbia University

2009-2013 **B.S. in Mechanical Engineering**, Massachusetts Institute of Technology

Research Statement: AI for Impactful Writing

My thesis focused on designing and understanding new generative tools for impactful and complex writing tasks, like my work on supporting science writing, where I studied how experts can make use of language models for explaining technical topics to a general audience. Moving forward, I remain interested in human-AI collaboration, particularly natural language systems, with a focus not just on building systems to support complex and deep work but also studying the mental models users develop of such systems. Additionally, I am invested in work that interrogates and prevents algorithmic harm.

Research areas:

Human-Computer Interaction, Human-AI Interaction, Natural Language Processing, Computational Creativity

Publications

Full Conference Publications

K. Gero, T. Long, L. Chilton. “Social Dynamics of AI Support in Creative Writing.” in *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI ’23)*.

K. Gero, V. Liu, L. Chilton. “Sparks: Inspiration for Science Writing Using Language Models.” in *Designing Interactive Systems Conference (DIS ’22)*.

K. Gero, L. Chilton, C. Melancon, M. Cleron. “Eliciting Gestures for Novel Note-taking Interactions.” in *Designing Interactive Systems Conference (DIS ’22)*.

K. Gero, V. Liu, S. Huang, J. Lee, L. Chilton. “What Makes Tweetorials Tick: How Experts Communicate Complex Topics on Twitter” in *Proceedings of the 21st ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW ’21)*.

K. Gero, Z. Ashktorab, C. Dugan, Q. Pan, J. Johnson, W. Geyer, M. Ruiz, S. Miller, D. Millen, W. Geyer. “Mental Models of AI Agents in a Cooperative Game Setting” in *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI ’20)*. [***Best Paper Award***]

K. Gero, C. Kedzie, J. Reeve, L. Chilton. “Low-Level Linguistic Controls for Style Transfer and Content Preservation” in *Proceedings of the 12th International Conference on Natural Language Generation (INLG ’19)*.

K. Gero, L. Chilton. “Metaphoria: An Algorithmic Companion for Metaphor Creation” in *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI ’19)*.

C. Reinhart, J. Dhariwal, K. Gero. “Biometeorological indices explain outside dwelling patterns based on Wi-Fi data in support of sustainable urban planning.” in *Building and Environment*. 2017.

N. Cheng, M. Lobovsky, S. Keating, A. Setapen, K. Gero, A. Hosoi, K. Iagnemma. “Design and analysis of a robust, low-cost, highly articulated manipulator enabled by jamming of granular media.” in *International Conference on Robotics and Automation (IEEE '12)*.

Workshop Papers, Posters, and Technical Reports

K. Gero, P. Das, P. Dognin, I. Padhi, P. Sattigeri and K. Varshney. “The incentive gap in data work in the era of large models.” in *Nature Machine Intelligence*.

K. Gero, J. Kummerfeld, E. Glassman. “Sensemaking Interfaces for Human Evaluation of Language Model Outputs.” in *Workshop on Human Evaluation for Generative Models (NeurIPs '22)*.

K. Gero, A. Calderwood, C. Liu, L. Chilton. “A Design Space for Writing Support Tools Using a Cognitive Process Model of Writing.” in *1st Workshop on Intelligent and Interactive Writing Assistants (ACL '22)*.

K. Gero. “How do we audit generative models?” in *Generative AI and HCI Workshop (CHI '22)*.

K. Gero, C. Kedzie, S. Petridis and L. Chilton. "Lightweight Decoding Strategies for Increasing Specificity." *arXiv preprint arXiv:2110.11850 (2021)*.

K. Booten* and K. Gero*. “Poetry Machines: Eliciting Interactive Writing Tools from Poets.” in *Proceedings of the 2021 on Creativity & Cognition (C&C '21)*.

*equal contribution

A. Calderwood, V. Qiu, K. Gero, and L. Chilton. “How Novelists Use Generative Language Models: An Exploratory User Study” in *1st Workshop on Human-AI Co-Creation with Generative Models (IUI '20)*.

K. Gero, L. Chilton. “How a Stylistic, Machine-Generated Thesaurus Impacts a Writer's Process” in *Proceedings of the 2019 on Creativity & Cognition (C&C '19)*.

K. Gero, L. Chilton. "Challenges in Finding Metaphorical Connections" in *Proceedings of the Workshop on Figurative Language Processing (NAACL '18)*.

Research Internships

Jun – Aug 2022 **IBM Research**, Yorktown Heights, NY; Mentor: Kush Varshney
Investigated data work in text generation; resulted in Nature Machine Intelligence publication.

Jun – Aug 2021 **Google Research**, New York, NY; Mentor: Chris Melancon
Ran study on novel stylus gestures for note-taking; resulted in DIS paper.

Jun – Aug 2019 **IBM Research**, Cambridge, MA; Mentor: Zahra Ashktorab
Ran study on mental models of AI; resulted in CHI Best Paper Award

Employment

Mar 2016 –
Aug 2017 **Soofa**, Research & Development Lead, Cambridge, MA
*Soofa creates technology for cities, like solar-powered transit signs.
Managed research projects on the Soofa Platform.*

Aug 2013 – **Rest Devices**, Product Developer, Boston, MA
Mar 2016 Rest Devices designed and manufactured a soft, wearable baby monitor.
Oversaw manufacturing; designed and implemented new algorithms.

Funding

2019 **Magic Grant**, The Brown Institute for Media Innovation, \$65k
2018 **Seed Grant for Interdisciplinary Research**, Columbia University, \$2k

Awards & Recognition

2022 Paul Charles Michelman Memorial Award for Exemplary Service, Columbia University
2018 Graduate Student Digital Project Honorable Mention, NYC Digital Humanities
2017 Provost's Diversity Fellowship, Columbia University
2017 NSF Graduate Research Fellow (NSF GRFP)
2013 Carl G. Sontheimer Prize for Excellence in Innovation & Creativity, Massachusetts Institute of Technology

Invited Talks

2023 The Incentive Gap in Data Work, *Observable*, Data and Donuts
2023 AI and the Writer, *Secure AI*, Lunch-n-Learn
2023 AI and the Writer, *University of Colorado Boulder*, ATLAS Institute
2023 Human Controllability & Assisted Writing, *Carnegie Mellon University*, Human-Centered NLP Class
2021 AI Support Tools, *Conversations with The Browser*
2021 What are Language Models and How Should We Use Them? *RISD*, Computational Poetics Class
2021 Social Media for Technical Communication, *Columbia University*, Communicating Data & Statistics
2021 Path to PhD, *Rutgers University*, Douglass Project for Women in STEM
2020 Technology for Writing, *AI4ALL*, AI4ALL Summer Program
2020 Technology for Writing, *Ignition Hacks*
2020 Technology for Writing., *Columbia University*, Demystifying the Dissertation Speaker
2020 Re-Generating Text with Style, *CultureHub*, Re-Fest
2019 Semantic Tools for Writers, *Dartmouth College*, Computational Models & Mimesis Symposium
2019 AI Tools for Creative Writing, *Grammarly*, NLP Meeting
2019 Words, words, words, style, words, words, words, and words, *Babycastles*, WordHack

Community Service

2019-22 Mentor for **Women in Science at Columbia** and **Women in Computer Science**, Columbia University
Various semester-based career mentorship for undergrads.
2021 Mentor for **BEARS Research Program for Women**, Barnard College
Run monthly meetings with five undergrads to demystify research.
2020-21 Organizer of **Pre-Application Review Program** for PhD Applicants, Columbia University
With Chris Kedzie, initiated this now-permanent program to improve equity in PhD admission process.
2020-21 Organizer for **Bits4Justice**, Columbia University
Ran bi-monthly meetings organizing student racial justice activism in the Computer Science department.
2019-20 Academic Chair for **Women in Computer Science (WiCS) Club**, Columbia University
Ran events to introduce undergraduates to research.

Professional Service

2024 Registration Co-Chair, **Creativity and Cognition (C&C)**
2024 Co-Organizer, **Workshop on Intelligent and Interactive Writing Assistants**, ACL
2023 Associate Chair, **Computer Supported Cooperative Work (CSCW)**

2023 Co-Organizer, **Workshop on Intelligent and Interactive Writing Assistants**, CHI
2022 Co-Organizer, **Workshop on Intelligent and Interactive Writing Assistants**, ACL
2021 Co-Organizer, **Workshop on Human-AI Co-Creation with Generative Models**, IUI
2020 Co-Organizer, **Workshop on Human-AI Co-Creation with Generative Models**, IUI

Reviewer for ToCHI, CHI, UIST, CSCW, DIS, C&C, and WebConf.

Mentees

Sarah Huang, Barnard CS Undergraduate

Jennifer Lee, Columbia CS/Literature Undergraduate → Stanford Modern Thought and Literature PhD

Vivian Qiu, Columbia CS/Creative Writing Undergraduate → AlphaSights Manager

Charlotte Li, Columbia CS Undergraduate → Northwestern Computer Science PhD

Alex Calderwood, Columbia CS/Journalism Master's → UC Santa Cruz Computational Media PhD

Media Writing

2022 **AI Reveals the Most Human Parts of Writing**, Wired

2020 **What Kinds of Sonnets Will Computers Write?** Catapult

2018 **Is It Possible for Machines to Translate Poetry?** Electric Literature

Involvement in the Arts

Since '22 **Editorial Team**, taper magazine

2022 **Invited Four Week Writing Residency**, Vermont Studio Center

2022-21 **Resident Contributing Writer**, CultureHub

2020 **Poetry Fellow**, Brooklyn Poets