

Katy Ilonka Gero

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Education

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| Ph.D. in Computer Science Columbia University Advisor: Lydia Chilton Thesis: <i>AI and the writer: how language models support creative writers</i> | Sep 2017 – Nov 2022 |
| M.S. in Computer Science Columbia University | Sep 2017 – May 2019 |
| B.S. in Mechanical Engineering Massachusetts Institute of Technology | Sep 2009 – May 2013 |

Research Interests

My thesis focuses on designing and understanding new tools for 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, with a particular focus on high-impact tasks and preventing algorithmic harm. I would like to empower everyday users to understand and question the algorithms they interact with. I am starting up a project on how to audit generative models such that anyone can investigate problematic language generation.

Research areas:

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

Publications

Full Conference Publications

K. Gero, T. Long, L. Chilton. “Social Dynamics of AI Support in Creative Writing.” *Under submission*.

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)*. [***CHI 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, 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)*.

Employment

IBM Research, Research Intern
Mentor: Kush Varshney
Various work on fairness and bias in neural text generation.
Yorktown Heights, NY
Jun 2022 – Aug 2022

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

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

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

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

Awards & Recognition

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| Magic Grant, \$65k The Brown Institute for Media Innovation | 2019 - 2020 |
| Graduate Research Fellowship Program Fellow National Science Foundation | 2017 - 2022 |
| Seed Grant for Interdisciplinary Research, \$1.8k Center for Science & Society Columbia University | 2018 |
| Graduate Student Digital Project Honorable Mention, \$500 NYC Digital Humanities | 2018 |
| Provost's Diversity Fellowship, \$6k Columbia University | 2017 - 2018 |
| Carl G. Sontheimer Prize for Excellence in Innovation and Creativity Department of Mechanical Engineering Massachusetts Institute for Technology | 2013 |

Invited Talks

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| AI Support Tools Conversations with The Browser (virtual) Invited Guest | 2021 |
| What are Language Models and How Should We Use Them? Rhode Island School of Design , Computational Poetics (virtual). Invited Guest Lecturer | 2021 |
| Social Media for Technical Communication Columbia University , Communicating Data and Statistics (virtual). Invited Guest Lecturer | 2021 |
| Path to PhD Douglass Project for Women in STEM , Rutgers University (virtual). Invited Guest Speaker | 2021 |
| Technology for Writing AI4ALL Summer Program , AI4ALL (virtual). Invited Guest Speaker | 2020 |
| Technology for Writing Ignition Hacks , (virtual). Invited Guest Speaker | 2020 |
| Technology for Writing Columbia University , Demystifying the Dissertation Speaker Virtual | 2020 |
| Re-Generating Text with Style CultureHub Re-Fest , Speaker & Panelist New York, New York | 2020 |

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| Semantic Tools for Writers Computational Models and Mimesis Symposium , Speaker & Participant Dartmouth College, Hanover, New Hampshire | 2019 |
| AI Tools for Creative Writing Grammarly , NLP Meeting Speaker New York, New York | 2019 |
| Words, words, words, style, words, words, words, and words Babycastles , WordHack Featured Artist New York, New York | 2019 |

Community Service

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

Professional Service

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| Co-Organizer of In2Writing (incl. initial workshop proposal) Workshop on Intelligent and Interactive Writing Assistants Association of Computational Linguistics Conference | 2021, 2022 |
| Co-Organizer of HAI-GEN Workshop on Human-AI Co-Creation with Generative Models Intelligent User Interfaces Conference | 2020, 2021 |
| Reviewer for ToCHI, CHI, UIST, CSCW, DIS, C&C, WebConf | Since 2020 |

Involvement in the Arts

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| Editorial Team , taper magazine | 2022 - current |
| Invited Four Week Writing Residency , Vermont Studio Center | 2022 |
| Resident Contributing Writer , CultureHub | 2020 - 2021 |
| Poetry Fellow , Brooklyn Poets | 2020 |