

Kurt Luther, Ph.D.

CONTACT	Virginia Tech Research Center — Arlington 900 N. Glebe Road, Arlington, VA 22203 USA	Email: kluther@vt.edu Web: http://crowd.cs.vt.edu
RESEARCH INTERESTS	Human-computer interaction (HCI), human-centered artificial intelligence (AI), intelligent user interfaces, crowdsourcing, social computing, and computer-supported cooperative work (CSCW), with applications to national security, journalism, and history.	
EDUCATION	Georgia Institute of Technology (Georgia Tech) , Atlanta, Ga. Ph.D. in Human-Centered Computing, focus in Social Computing, 2006–2012 Dissertation: <i>Supporting and Transforming Leadership in Online Creative Collaboration</i> Committee: Amy Bruckman (chair), Ellen Do, Eric Gilbert, Scott Counts, Wendy Kellogg Purdue University , West Lafayette, Ind. B.S. in Computer Graphics Technology, minor in Art & Design, 2002–2006	
EXPERIENCE	Virginia Polytechnic Institute and State University (Virginia Tech) , Blacksburg, Va. Associate Professor (with tenure), Department of Computer Science, 2020–Present Founding Faculty Member, Innovation Campus, 2022–Present Director, Crowd Intelligence Lab, 2014–Present Assistant Professor, Department of Computer Science, 2014–2020 The Bulls Run Group, LLC , Bethesda, Md. Consultant, 2023–Present Virginia Military Institute , Lexington, Va. Adjunct Professor, Department of Computer and Information Sciences, 2021–Present Virginia Department of Military Affairs , Richmond, Va. Cyber Officer, 31 st Cyber Battalion, Virginia Defense Force, 2021–Present Military Images Magazine , Arlington, Va. Senior Editor and Columnist, 2020–Present Contributing Editor and Columnist, 2014–2020 Carnegie Mellon University , Pittsburgh, Pa. Postdoctoral Fellow, Human-Computer Interaction Institute, 2012–2014 Co-advisors: Steven Dow and Aniket Kittur YouTube (Google) , San Bruno, Calif. User Experience Research Intern, Summer 2010 Mentor: Sasha Lubomirsky Newgrounds.com, Inc. , Glenside, Pa. Web Development Intern, Summer 2009 Microsoft Research , Redmond, Wash. Research Intern, Social Computing Group and VIBE Group, Summer 2008 Mentor: Scott Counts IBM Thomas J. Watson Research Center , Hawthorne, N.Y. Research Intern, Social Computing Group, Summer 2007 Mentors: Jason Ellis and Wendy Kellogg	
CERTIFICATIONS	CompTIA Security+ Certification, 2024 SGAUS Basic Military Emergency Management Specialist, 2022 Virginia Army National Guard Cyber Security Assessment Analyst, 2022 GIAC Open Source Intelligence (GOSI) Certification, 2021 Amazon Web Services (AWS) Certified Cloud Practitioner, 2021	

AWARDS &
HONORS

External Awards & Honors

AAAI HCOMP Best Poster/Demo Award (#1 poster/demo of 22 submissions), 2023
National Science Foundation I-Corps Southwest Node People's Choice Award, 2022
2nd Place (Team Captain), SGAUS National Cyber Competition, 2022
ACM Senior Member, 2020
ACM IUI Best Paper Award (#1 paper of 282 submissions), 2019
AAAI HCOMP Best Poster/Demo Award (#1 poster/demo of 25 submissions), 2019
Purdue University Outstanding Technology Alumni Award, 2019
American Civil War Museum Emerging Scholar, 2019
Microsoft Cloud AI Research Challenge Grand Prize (\$25,000 award), 2018
AAAI HCOMP Best Poster/Demo Award (#1 poster/demo of 31 submissions), 2018
ACM Recognition of Service Award, 2018
National Science Foundation CAREER Award, 2017
AAAI HCOMP Notable Paper Award (#2 paper of 83 submissions), 2017
Army Historical Foundation Distinguished Writing Awards Finalist, 2015
ACM CSCW Best Paper Award (top 1% of 390 submissions), 2013
ACM CSCW Best Paper Honorable Mention Award (top 5% of 415 submissions), 2012
ACM CHI Golden Mouse Award (for most entertaining video), 2009
Indiana University Barwise Fellowship for Doctoral Studies in Informatics, 2006 (declined)

Internal Awards & Honors

Virginia Tech College of Engineering Dean's Award for Excellence in Outreach, 2024
Virginia Tech College of Engineering Faculty Fellow (\$15,000 award), 2021–2024
Virginia Tech College of Engineering Outstanding New Assistant Professor Award, 2018
Virginia Tech ICTAS Junior Faculty Award (\$80,000 award), 2018
Virginia Tech TLOS XCaliber Award Finalist (for technology-enriched teaching), 2016
Virginia Tech Center for HCI Research Impact Award, 2015
Georgia Tech James D. Foley Scholar (\$5,000 award), 2011
Purdue University Graduation with Highest Distinction and Departmental Honors, 2006
Purdue University Perfect 4.0 GPA Recognition Award, 2006
Purdue University Academic Success Award (\$11,100 merit scholarship), 2002–2006

FUNDING

External Funding (Total: \$3,150,675; Personal share: \$1,629,730)

OSINT and generative AI for cyber vulnerability assessment. Commonwealth Cyber Initiative Southwest Virginia (Workforce & Industry Engagement Program), Kurt Luther (PI), 2024. Total: \$9,205.

Senior Military College Cyber Institute. Department of Defense, subcontract from Norwich University, Laura Freeman (PI), Kurt Luther (Senior Advisor for OSINT), et al., 2023. Total: \$28,353.

Experiencing Civil War history through augmented reality: Soldiers, civilians, and the environment at Pamplin Historical Park. National Endowment for the Humanities MT-290202-23 (DPP: Prototyping), Paul Quigley (PI), Kurt Luther (Co-PI), et al., 2023–2025. Total: \$98,519.

Project Maven. Department of Defense, subcontract from Carnegie Mellon University, Laura Freeman (PI), Kurt Luther (Senior Personnel), et al., 2023. Total: \$27,550.

Transforming investigative science and practice with expert-led crowdsourcing. National Science Foundation IIS-1651969 (CAREER), Kurt Luther (PI), 2017–2023. Total: \$554,628. REU supplements: \$8,000 (2018), \$16,000 (2019).

ESHAEP. Department of Defense, subcontract from University of Southern California, Logan Eisenbeiser (PI), Kurt Luther (Senior Personnel), 2022. Total: \$27,550.

Historical photo identification with crowdsourcing and automated face recognition. National Science Foundation TI-2221733 (I-Corps), Kurt Luther (PI), 2022. Total: \$49,309.

Mission Engineering. Department of Defense, subcontract from Stevens Institute of Technology, Stoney Trent (PI), Kurt Luther (Senior Personnel), 2022. Total: \$27,550.

Exploring the impact of human-AI collaboration on open source intelligence (OSINT) investigations of social media disinformation. Commonwealth Cyber Initiative H-4Q21-010 (The Role of Cybersecurity in the Spread of Disinformation and Misinformation), Kurt Luther (PI), Aaron Brantly (Co-PI), and David Hicks (Co-PI), 2021–2022. Total: \$65,000.

Experiencing Civil War history through augmented reality: Soldiers, civilians, and the environment at Pamplin Historical Park. National Endowment for the Humanities MD-277054-21 (DPP: Discovery), Paul Quigley (PI), Kurt Luther (Co-PI), et al., 2021–2022. Total: \$30,000.

ASED. Department of Defense, subcontract from University of Southern California, Justus Graham (PI), Kurt Luther (Co-PI), 2020–2021. Total: \$200,000.

The American Soldier in World War II. National Endowment for the Humanities PW-264049-19 (HCRR: Implementation), Edward Gitre (PI), Kurt Luther (Co-PI), et al., 2019–2021. Total: \$349,864.

Threat Beacon. Department of Defense, subcontract from Virginia Tech Applied Research Corporation, Justus Graham (PI), Kurt Luther (Co-PI), 2020. Total: \$250,850.

GraphCrowd: Using crowdsourced design to visualize effects of environmental chemicals on signaling networks. National Institutes of Health 1UH2CA203768-01 (Big Data to Knowledge), Kurt Luther and T.M. Murali (MPIs; i.e., joint PIs), 2016–2019. Total: \$626,159.

Supporting crowdsourced sensemaking in big data with dynamic context slices. National Science Foundation IIS-1527453 (Cyber-Human Systems), Kurt Luther (PI) and Chris North (Co-PI), 2015–2019. Total: \$500,000. REU supplements: \$16,000 (2018), \$16,000 (2019).

Civil War Photo Sleuth. Microsoft Cloud AI Research Challenge Grand Prize, Kurt Luther (PI), Vikram Mohanty (student), and David Thames (student), 2018. Total: \$25,000.

The American Soldier collaborative digital archive. National Endowment for the Humanities PW-253766-17 (HCRR: Foundations), Edward Gitre (PI), Kurt Luther (Co-PI), and Marc Brodsky (Co-PI), 2017–2018. Total: \$50,000.

Graduate Student Symposium at the 2017 ACM Conference on Creativity & Cognition. National Science Foundation IIS-1723306 (Cyber-Human Systems), Kurt Luther (PI), 2017. Total: \$25,252.

Mapping the Fourth of July in the American Civil War Era: A crowdsourced digital archive. National Historical Publications and Records Commission DH50013-15, Paul Quigley (PI), Kurt Luther (Co-PI), David Hicks (Co-PI), and Andi Ogier (Co-PI), 2015–2017. Total: \$74,224.

Crowd-augmented search and sensemaking. Google Faculty Research Award, Aniket Kittur (PI), Steven Dow (Co-PI), and Kurt Luther (Proposal Team Member), 2014. Total: \$75,660. (115/691 = 16.6% acceptance rate)

Internal Funding (Total: \$308,491)

Creativity and innovation at the intersection of technology, art, and history. Virginia Tech ICAT Research Leave Augmentation Award, Kurt Luther (PI). 2022. Total: \$70,000.

Faculty Fellowship. Virginia Tech College of Engineering, Kurt Luther (PI), 2021–2024. Total: \$15,000.

ISERC Grant. Virginia Tech Integrated Security Destination Area. Aaron Brantly (PI), Kurt Luther (Co-PI), and David Hicks (Co-PI). 2021–2022. Total: \$10,000.

Crowd intelligence software project. Luther and Alice Hamlett Undergraduate Research Scholarship, Yunis Hussein (Student), Kurt Luther (Faculty Advisor). 2021. Total: \$2,000.

Preparing under-represented students for data science careers with open source intelligence training. Virginia Tech Data & Decisions Grant, [Kurt Luther](#) (PI), Aaron Brantly (Co-PI), and David Hicks (Co-PI). 2020–2021. Total: \$15,000. (3/12 = 25% acceptance rate)

Augmenting computer vision with crowdsourcing to identify people in historical and modern photographs. Virginia Tech ICTAS Junior Faculty Award, [Kurt Luther](#) (PI) and Paul Quigley (Co-PI), 2018–2020. Total: \$80,000. (12/72 = 16.7% acceptance rate)

CAREER Incentive Grant. Virginia Tech College of Engineering, [Kurt Luther](#) (PI), 2017–2022. Total: \$40,000.

Equipment Grant. SCHEV, [Kurt Luther](#) (PI), 2018. Total: \$6,111.

Incentive Reward Fund. Virginia Tech Department of Computer Science, [Kurt Luther](#) (PI), 2017. Total: \$7,000.

VTArtWorks. Virginia Tech ICAT SEAD Major Initiative, Robert Leonard (PI), [Kurt Luther](#) (Co-PI), and Andi Ogier (Co-PI), 2016. Total: \$25,000.

Incentive Reward Fund. Virginia Tech Department of Computer Science, [Kurt Luther](#) (PI), 2016. Total: \$3,500.

Designing software and community participation for crowdsourced history research. Virginia Tech ICAT SEAD Mini-grant, [Kurt Luther](#) (PI), David Hicks (Co-PI), and Paul Quigley (Co-PI), 2016. Total: \$2,880.

Incentive Reward Fund. Virginia Tech Department of Computer Science, [Kurt Luther](#) (PI), 2015. Total: \$2,500.

Supporting community information sharing with mobile crowdsourcing and large display technologies. Virginia Tech Center for HCI Seed Grant, Michael Horning, Andrea Kavanaugh, [Kurt Luther](#), Manuel Pérez-Quiñones, and John Tedesco (joint PIs), 2015. Total: ≈\$15,000.

New Assistant Professor Mentoring Grant. Virginia Tech Office of the Executive Vice President and Provost, [Kurt Luther](#) (PI), 2015. Total: \$1,500.

Supporting crowdsourced sensemaking in big data with context slices. Virginia Tech ICTAS Seed Grant, [Kurt Luther](#) (PI) and Chris North (Co-PI), 2014. Total: \$10,000.

Supporting leadership development and reflection through creative social computing. Virginia Tech ICAT SEAD Mini-grant, [Kurt Luther](#) (PI), Nicholas Clegorne (Co-PI), and Holly Larson Lesko (Co-PI), 2014. Total: \$3,000.

PUBLICATIONS

Google Scholar citations: 1974; h-index: 21; i10-index: 35

Note: * indicates a student or postdoc (co-)advised by Kurt Luther.

Refereed Journal Articles

Anirban Mukhopadhyay*, Sukrit Venkatagiri*, and [Kurt Luther](#). 2024. OSINT Research Studios: A flexible crowdsourcing framework to scale up open source intelligence investigations. *Proceedings of the ACM on Human-Computer Interaction* 8, CSCW1: 105:1–105:38.

Marx Boyuan Wang, Md Momen Bhuiyan, Eugenia Ha Rim Rho, [Kurt Luther](#), and Sang Won Lee. 2024. Understanding the relationship between user identity and self-expression through animated GIFs on social media. *Proceedings of the ACM on Human-Computer Interaction* 8, CSCW1: 192:1–192:30.

Andreea Sistrunk, Nathan Self, Subhodip Biswas, [Kurt Luther](#), Nervo Verdezoto, and Naren Ramakrishnan. 2024. Redistrict: Online public deliberation support that connects and rebuilds inclusive communities. *Proceedings of the ACM on Human-Computer Interaction* 8, CSCW1: 116:1–116:23.

Vikram Mohanty* and [Kurt Luther](#). 2023. DoubleCheck: Designing community-based assessability for historical person identification. *ACM Journal on Computing and Cultural Heritage* 16, 4: 79:1–79:27. (2.1 impact factor [2023])

Matthew Wilchek*, Will Hanley, Jude Lim*, [Kurt Luther](#), and Feras Batarseh. 2023. Human-in-the-loop for computer vision assurance: A survey. *Engineering Applications of Artificial Intelligence* 123: 106376:1–106376:15. (7.5 impact factor [2023])

Aditya Bharadwaj*, David Gwizdala*, Yoonjin Kim, [Kurt Luther](#), and T. M. Murali. 2022. Flud: A hybrid crowd-algorithm approach for visualizing biological networks. *ACM Transactions on Computer-Human Interaction* 29, 1: 8:1–8:53. (4.8 impact factor [2023])

Sukrit Venkatagiri*, Aakash Gautam, and [Kurt Luther](#). 2021. CrowdSolve: Managing tensions in an expert-led crowdsourced investigation. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW1: 118:1–118:30.

Vikram Mohanty*, David Thames*, Sneha Mehta*, and [Kurt Luther](#). 2020. Photo Sleuth: Identifying historical portraits with face recognition and crowdsourced human expertise. *ACM Transactions on Interactive Intelligent Systems* 10, 4: 33:1–33:36. (3.6 impact factor [2023]) (Invited submission)

Nai-Ching Wang*, David Hicks, Paul Quigley, and [Kurt Luther](#). 2019. Read-Agree-Predict: A crowdsourced approach to discovering relevant primary sources for historians. *Human Computation* 6, 1: 147–175.

Sukrit Venkatagiri*, Jacob Thebault-Spieker*, Rachel Kohler*, John Purviance*, Rifat Sabbir Mansur*, and [Kurt Luther](#). 2019. GroundTruth: Augmenting expert image geolocation with crowdsourcing and shared representations. *Proceedings of the ACM on Human-Computer Interaction* 3, CSCW: 107:1–107:30. (205/658 = 31.2% acceptance rate)

Tianyi Li*, Chandler J. Manns*, Chris North, and [Kurt Luther](#). 2019. Dropping the baton? Understanding errors and bottlenecks in a crowdsourced sensemaking pipeline. *Proceedings of the ACM on Human-Computer Interaction* 3, CSCW: 136:1–136:26. (205/658 = 31.2% acceptance rate)

Maoyuan Sun, Jian Zhao, Hao Wu, [Kurt Luther](#), Chris North, and Naren Ramakrishnan. 2019. The effect of edge bundling and seriation on sensemaking of biclusters in bipartite graphs. *IEEE Transactions on Visualization and Computer Graphics* 25, 10: 2983–2998. (4.7 impact factor [2023])

Nai-Ching Wang*, David Hicks, and [Kurt Luther](#). 2018. Exploring trade-offs between learning and productivity in crowdsourced history. *Proceedings of the ACM on Human-Computer Interaction* 2, CSCW: 178:1–178:24. (289/1107 = 26.1% acceptance rate)

Tianyi Li*, [Kurt Luther](#), and Chris North. 2018. CrowdIA: Solving mysteries with crowdsourced sensemaking. *Proceedings of the ACM on Human-Computer Interaction* 2, CSCW: 105:1–105:29. (289/1107 = 26.1% acceptance rate)

Aditya Bharadwaj*, Divit P. Singh*, Anna Ritz, Allison N. Tegge, Christopher L. Poirel, Pavel Kraikivski, Neil Adames, [Kurt Luther](#), Shiv D. Kale, Jean Peccoud, John J. Tyson, and T. M. Murali. 2017. GraphSpace: stimulating interdisciplinary collaborations in network biology. *Bioinformatics* 33, 19: 3134–3136. (4.4 impact factor [2023])

Refereed Papers in Conference Proceedings

Jude Lim*, Vikram Mohanty*, Terry Dodson*, and [Kurt Luther](#). 2023. BackTrace: A human-AI collaborative approach to discovering studio backdrops in historical photographs. In *Proceedings of the 11th AAAI Conference on Human Computation and Crowdsourcing (HCOMP '23)*, 91–102. (18/64 = 28.1% acceptance rate)

Vikram Mohanty* and [Kurt Luther](#). 2023. Photo Steward: A deliberative collective intelligence workflow for validating historical archives. In *Proceedings of the 11th ACM Collective Intelligence Conference (CI '23)*, 34–52. (7/29 = 24.1% acceptance rate)

Sukrit Venkatagiri*, Anirban Mukhopadhyay*, David Hicks, Aaron Brantly, and [Kurt Luther](#). 2023. CoSINT: Designing a collaborative capture the flag competition to investigate misinformation. In *Proceedings of the 18th ACM Conference on Designing Interactive Systems* (DIS '23), 2551–2572. (173/726 = 23.8% acceptance rate)

Jacob Thebault-Spieker*, Sukrit Venkatagiri*, Naomi Mine, and [Kurt Luther](#). 2023. Diverse perspectives can mitigate political bias in crowdsourced content moderation. In *Proceedings of the 6th ACM Conference on Fairness, Accountability, and Transparency* (FAccT '23), 1280–1291. (154/608 = 25.3% acceptance rate)

Andreea Sistrunk, Nathan Self, Subhodip Biswas, James A. Egenrieder, [Kurt Luther](#), Adriana Glenn, and Naren Ramakrishnan. 2023. Redrawing public school boundaries: An intersection of geography, education policy, and computer science. In *Proceedings of the 21st European Conference on Computer-Supported Cooperative Work* (ECSCW '23), 21 pages.

Tianjiao Yu*, Sukrit Venkatagiri*, Ismini Lourentzou, and [Kurt Luther](#). 2023. Sedition Hunters: A quantitative study of the crowdsourced investigation into the 2021 U.S. Capitol attack. In *Proceedings of the 32nd ACM Web Conference* (WWW '23), 3849–3858. (365/1900 = 19.2% acceptance rate)

Manisha Kusuma*, Vikram Mohanty*, Marx Wang*, and [Kurt Luther](#). 2022. Civil War Twin: Exploring ethical challenges in designing an educational face recognition application. In *Proceedings of the 5th AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society* (AIIES '22), 369–384. (79/235 = 33.6% acceptance rate)

Yasmine Belghith*, Sukrit Venkatagiri*, and [Kurt Luther](#). 2022. Compete, collaborate, investigate: Exploring the social structures of open source intelligence investigations. In *Proceedings of the 40th ACM Conference on Human Factors in Computing Systems* (CHI '22), 129:1–129:18. (638/2579 = 24.7% acceptance rate)

Tianyi Li*, Yasmine Belghith*, Chris North, and [Kurt Luther](#). 2020. CrowdTrace: Visualizing provenance in distributed sensemaking. In *Proceedings of the 31st IEEE Visualization Conference* (VIS '20), 191–195. (59/164 = 36.0% acceptance rate)

Vikram Mohanty*, Kareem Abdol-Hamid*, Courtney Ebersohl*, and [Kurt Luther](#). 2019. Second Opinion: Supporting last-mile person identification with crowdsourcing and face recognition. In *Proceedings of the 7th AAAI Conference on Human Computation and Crowdsourcing* (HCOMP '19), 86–96. (22/87 = 25.3% acceptance rate)

Aditya Bharadwaj*, Pao Siangliulue, Adam Marcus, and [Kurt Luther](#). 2019. Critter: Augmenting creative work with dynamic checklists, automated quality assurance, and contextual reviewer feedback. In *Proceedings of the 37th ACM Conference on Human Factors in Computing Systems* (CHI '19), 539:1–539:12. (705/2960 = 23.8% acceptance rate)

Vikram Mohanty*, David Thames*, Sneha Mehta*, and [Kurt Luther](#). 2019. Photo Sleuth: Combining human expertise and face recognition to identify historical portraits. In *Proceedings of the 24th ACM Conference on Intelligent User Interfaces* (IUI '19), 547–557. (71/282 = 25.2% acceptance rate) (**Best Paper Award**)

Divit P. Singh*, Lee Lisle*, T. M. Murali, and [Kurt Luther](#). 2018. CrowdLayout: Crowdsourced design and evaluation of biological network visualizations. In *Proceedings of the 36th ACM Conference on Human Factors in Computing Systems* (CHI '18), 232:1–232:14. (666/2592 = 25.7% acceptance rate)

Rachel Kohler*, John Purviance*, and [Kurt Luther](#). 2017. Supporting image geolocation with diagramming and crowdsourcing. In *Proceedings of the 5th AAAI Conference on Human Computation and Crowdsourcing* (HCOMP '17), 98–107. (24/83 = 28.9% acceptance rate) (**Notable Paper Award**)

Alvin Yuan, [Kurt Luther](#), Markus Krause, Sophie Isabel Vennix*, Steven P. Dow, and Björn Hartmann. 2016. Almost an expert: The effects of rubrics and expertise on perceived value of crowdsourced design critiques. In *Proceedings of the 19th ACM Conference on Computer-*

Supported Cooperative Work & Social Computing (CSCW '16), 1005–1017. (142/571 = 24.9% acceptance rate)

Kurt Luther, Nathan Hahn, Steven P. Dow, and Aniket Kittur. 2015. Crowdlines: Supporting synthesis of diverse information sources through crowdsourced outlines. In *Proceedings of the 3rd AAAI Conference on Human Computation and Crowdsourcing* (HCOMP '15), 110–119. (21/70 = 30.0% acceptance rate)

Kurt Luther, Jari-Lee Tolentino*, Wei Wu, Amy Pavel, Brian P. Bailey, Maneesh Agrawala, Björn Hartmann, and Steven P. Dow. 2015. Structuring, aggregating, and evaluating crowdsourced design critique. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing* (CSCW '15), 473–485. (165/575 = 28.7% acceptance rate)

Justin B. Cranshaw, Kurt Luther, Patrick Gage Kelley, and Norman Sadeh. 2014. Curated City: Capturing individual city guides through social curation. In *Proceedings of the 32nd ACM Conference on Human Factors in Computing Systems* (CHI '14), 3249–3258. (465/2043 = 22.8% acceptance rate)

Kurt Luther, Casey Fiesler, and Amy Bruckman. 2013. Redistributing leadership in online creative collaboration. In *Proceedings of the 16th ACM Conference on Computer Supported Cooperative Work* (CSCW '13), 1007–1022. (139/390 = 35.6% acceptance rate) (**Best Paper Award**)

Paul André, Michael Bernstein, and Kurt Luther. 2012. Who Gives a Tweet?: Evaluating microblog content value. In *Proceedings of the 15th ACM Conference on Computer Supported Cooperative Work* (CSCW '12), 471–474. (164/415 = 39.5% acceptance rate) (**Best Paper Honorable Mention Award**)

Kurt Luther, Kelly Caine, Kevin Ziegler*, and Amy Bruckman. 2010. Why it works (when it works): Success factors in online creative collaboration. In *Proceedings of the 16th ACM Conference on Supporting Group Work* (GROUP '10), 1–10. (36/101 = 35.6% acceptance rate)

Kurt Luther, Scott Counts, Kristin B. Stecher, Aaron Hoff, and Paul Johns. 2009. Pathfinder: An online collaboration environment for citizen scientists. In *Proceedings of the 27th ACM Conference on Human Factors in Computing Systems* (CHI '09), 239–248. (277/1130 = 24.5% acceptance rate)

Brian Magerko, Waleed Manzoul, Mark Riedl, Allan Baumer, Daniel Fuller, Kurt Luther, and Celia Pearce. 2009. An empirical study of cognition and theatrical improvisation. In *Proceedings of the 7th ACM Conference on Creativity and Cognition* (C&C '09), 117–126. (34/137 = 24.8% acceptance rate)

Kurt Luther and Amy Bruckman. 2008. Leadership in online creative collaboration. In *Proceedings of the 12th ACM Conference on Computer Supported Cooperative Work* (CSCW '08), 343–352. (86/370 = 23.2% acceptance rate)

Jason B. Ellis, Kurt Luther, Katherine Bessièrè, and Wendy A. Kellogg. 2008. Games for virtual team building. In *Proceedings of the 7th ACM Conference on Designing Interactive Systems* (DIS '08), 295–304. (52/152 = 34.2% acceptance rate)

Nicholas Diakopoulos, Kurt Luther, and Irfan Essa. 2008. Audio Puzzler: Piecing together time-stamped speech transcripts with a puzzle game. In *Proceedings of the 16th ACM Conference on Multimedia* (MM '08), 865–868. (80/236 = 33.9% acceptance rate)

Youn-ah Kang, John Stasko, Kurt Luther, Avinash Ravi, and Yan Xu. 2008. RevisiTour: Enriching the tourism experience with user-generated content. In *Proceedings of the International Conference on Information and Communication Technologies in Tourism* (ENTER '08), 59–69.

Nicholas Diakopoulos, [Kurt Luther](#), Yevgeniy (Eugene) Medynskiy, and Irfan Essa. 2007. The evolution of authorship in a remix society. In *Proceedings of the 18th ACM Conference on Hypertext and Hypermedia (HT '07)*, 133–136. (33% acceptance rate)

Lightly Refereed Workshop & Position Papers

Matthew Wilchek*, Linhan Wang, Feras A. Batarseh, and [Kurt Luther](#). 2024. KHAIT: K-9 Handler Artificial Intelligence Teaming for collaborative sensemaking. *CHI 2024 Workshop on Sensemaking: What Is It Today?* 6 pages.

Fei Shan* and [Kurt Luther](#). 2023. Community-driven AI support for genealogy research. *CSCW 2023 Workshop on Community-Driven AI*, virtual event. 3 pages.

Anirban Mukhopadhyay*, Sukrit Venkatagiri*, and [Kurt Luther](#). 2023. Developing collaboration and competition skills in a crowd of student OSINT investigators. *CSCW 2023 Workshop on Supporting Workers in Developing Effective Collaboration Skills for Complex Work*, Minneapolis, Minn., USA. 6 pages.

Anirban Mukhopadhyay*, Sukrit Venkatagiri*, and [Kurt Luther](#). 2022. Towards designing a flexible expert-led crowdsourcing framework for investigating misinformation. *CHI 2022 Workshop on Designing Credibility Tools to Combat Mis/Disinformation: A Human-Centered Approach*, New Orleans, La., USA. 2 pages.

Sukrit Venkatagiri*, Vikram Mohanty*, Tianjiao Yu*, and [Kurt Luther](#). 2021. Sedition Hunters: Countering extremism through collective action. *CSCW 2021 Workshop on Addressing Challenges and Opportunities in Online Extremism Research: An Interdisciplinary Perspective*, virtual event. 6 pages.

Vikram Mohanty*, Marx Wang*, Manisha Kusuma*, David Thames*, and [Kurt Luther](#). 2020. Find your twin in history: Exploring ethical design challenges in facial recognition. *CSCW 2020 Workshop on Beyond Checklist Approaches to Ethics in Design*, virtual event. 6 pages.

[Kurt Luther](#). Solving AI's last-mile problem with crowd-augmented expert work. 2019. *AAAI Fall Symposium on Artificial Intelligence and Work (FSS 2019)*, Arlington, Va., USA. 5 pages. (Invited submission)

Sukrit Venkatagiri*, Jacob Thebault-Spieker*, and [Kurt Luther](#). 2019. Designing for coordinated action: Challenges and opportunities of working with experts. *CSCW 2019 Workshop on Mapping the "How" of Collaborative Action*, Austin, Tx., USA. 5 pages.

Aditya Bharadwaj*, David Gwizdala*, Yoonjin Kim, [Kurt Luther](#), and T.M. Murali. 2019. Flud: A hybrid crowd-algorithm approach for visualizing biological networks. *CHI 2019 Workshop on Where is the Human? Bridging the Gap Between AI and HCI*, Glasgow, UK. 4 pages.

Tianyi Li*, Asmita Shah*, [Kurt Luther](#), and Chris North. 2018. Crowdsourcing intelligence analysis with context slices. *CHI 2018 Workshop on Sensemaking in a Senseless World*, Montréal, Canada. 12 pages. (21% acceptance rate for full presentations)

Sukrit Venkatagiri*, Jacob Thebault-Spieker*, Aliza Camacho*, and [Kurt Luther](#). 2018. Localness and urbanness in geographic crowd work. *CSCW 2018 Workshop on Rural Computing: Beyond Access & Infrastructure*, Jersey City, N.J., USA. 7 pages.

Rachel Kohler*, John Purviance*, and [Kurt Luther](#). 2017. GroundTruth: Bringing together experts and crowds for image geolocation. *HCOMP 2017 2nd GroupSight Workshop on Human Computation for Image and Video Analysis*, Quebec City, Canada. 4 pages.

Sneha Mehta*, Chris North, and [Kurt Luther](#). 2016. An exploratory study of human performance in image geolocation tasks. *HCOMP 2016 GroupSight Workshop on Human Computation for Image and Video Analysis*, Austin, Tx., USA. 4 pages.

[Kurt Luther](#), Andrea Kavanaugh, and Michael Horning. 2015. Supporting local news sharing with mobile crowdsourcing and large display technologies. *CSCW 2015 Workshop on Information Technology in City Life*, Vancouver, Canada. 2 pages.

Kurt Luther, Steven Dow, and Aniket Kittur. 2014. How can crowdsourcing help individuals learn? *CSCW 2014 Workshop on Designing Futures for Peer-to-Peer Learning*, Baltimore, Md., USA. 4 pages.

Kurt Luther. 2011. Fast, accurate, and brilliant: Realizing the potential of crowdsourcing and human computation. *CHI 2011 Workshop on Crowdsourcing and Human Computation*, Vancouver, Canada. 4 pages.

Paul André, m.c. schraefel, Alan Dix, Ryen W. White, Michael Bernstein, and Kurt Luther. 2010. Designing for Schadenfreude (or, how to express well-being and see if you're boring people). *CHI 2010 Workshop on Microblogging: What and How Can We Learn From It?*, Atlanta, Ga., USA. 4 pages.

Sarita Yardi, Kurt Luther, Nicholas Diakopoulos, and Amy Bruckman. 2008. Opening the black box: Four views of transparency in remix culture. *CSCW 2008 Workshop on Tinkering, Tailoring, & Mashing: The Social and Collaborative Practices of the Read-Write Web*, San Diego, Calif., USA. 4 pages.

Jason B. Ellis, Kurt Luther, Katherine Bessiere, and Wendy A. Kellogg. 2008. Games for virtual team building. *CSCW 2008 Workshop on Supporting Distributed Team Work*, San Diego, Calif., USA. 10 pages.

Kurt Luther and Nicholas Diakopoulos. Distributed creativity. 2007. *C&C 2007 Workshop on Supporting Creative Acts Beyond Dissemination*, Washington, D.C., USA. 6 pages.

Lightly Refereed Conference Papers (demos, posters, videos, extended abstracts, etc.)

Vikram Mohanty*, Jude Lim*, Terry Dodson*, and Kurt Luther. Behind the canvas: A human-AI workflow for tracing 19th-century photographers and studio backdrops. *AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2023)*, Delft, Netherlands. (Poster, Demo) **(Best Poster/Demo Award)**

Andreea Sistrunk, Nathan Self, Subhodip Biswas, Kurt Luther, Nervo Verdezoto, and Naren Ramakrishnan. Redistrict: Designing a self-serve interactive boundary optimization system. *ACM Conference on Designing Interactive Systems (DIS 2023)*, Pittsburgh, Pa., USA. (Demo)

Andreea Sistrunk, Subhodip Biswas, Nathan Self, Kurt Luther, and Naren Ramakrishnan. 2022. Redistricting Practices in Public Schools: Social Progress or Necessity? *European Conference on Computer-Supported Cooperative Work (ECSCW 2022)*, Coimbra, Portugal. (Poster)

Vikram Mohanty* and Kurt Luther. 2021. Double-checking history: Designing assessable systems for historical photo identification. *AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2021)*, virtual event. (Demo)

Liling Yuan*, Vikram Mohanty*, and Kurt Luther. 2021. SleuthTalk: Identifying historical photos with intelligent shortlists, private collaboration, and structured feedback. *ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW 2021)*, virtual event. (Demo)

Vikram Mohanty*, David Thames*, Sneha Mehta*, and Kurt Luther. 2020. Supporting historical photo identification with face recognition and crowdsourced human expertise (extended abstract). In *Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI '20)*, 4755–4759. (Invited submission)

Sukrit Venkatagiri*, Jacob Thebault-Spieker*, Sarwat Kazmi*, Efua Akonor*, and Kurt Luther. 2019. It's QuizTime: A study of online verification practices on Twitter. *AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2019)*, Stevenson, Wash., USA. (Poster)

Jacob Thebault-Spieker*, Sukrit Venkatagiri*, David Mitchell*, Chris Hurt*, and Kurt Luther. 2019. PairWise: Mitigating political bias in crowdsourced content moderation. *AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2019)*, Stevenson, Wash., USA. (Demo, Poster) **(Best Poster/Demo Award)**

Aditya Bharadwaj*, David Gwizdala*, Yoonjin Kim, [Kurt Luther](#), and T.M. Murali. 2019. Flud: A hybrid crowd-algorithm approach for visualizing biological networks. *BioVis COSI at ISMB 2019*, Basel, Switzerland. (Talk, Poster)

Jill M. Derwin, Valerie A. Thomas, Randolph H. Wynne, S. Seth Peery, John Coulston, [Kurt Luther](#), Greg Liknes, and Stacie Bender. 2019. Validating the national-scale remote sensing models using crowdsourced observations. *21st William T. Pecora Memorial Remote Sensing Symposium (Pecora 21) and 38th International Symposium on Remote Sensing of Environment (ISRSE-38)*, Baltimore, Md., USA. (Talk)

Vikram Mohanty*, David Thames*, and [Kurt Luther](#). 2018. Are 1,000 features worth a picture? Combining crowdsourcing and face recognition to identify Civil War soldiers. *AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2018)*, Zurich, Switzerland. (Demo, Poster) (**Best Poster/Demo Award**)

Vikram Mohanty*, David Thames*, and [Kurt Luther](#). 2018. Photo Sleuth: Combining collective intelligence and computer vision to identify historical portraits. *ACM Conference on Collective Intelligence (CI 2018)*, Zurich, Switzerland. (Talk) (32% acceptance rate for oral presentations)

Rachel Kohler*, John Purviance*, and [Kurt Luther](#). 2018. Geolocating images with crowdsourcing and diagramming. In *Proceedings of the 27th International Joint Conference on Artificial Intelligence (IJCAI '18)*, 5299–5303. (Invited submission)

Sukrit Venkatagiri*, Jacob Thebault-Spieker*, and [Kurt Luther](#). 2018. Verifying truth from the ground: Leveraging human strengths in the image geolocation process. *Human-Computer Interaction Consortium (HCIC 2018) Conference*, Watsonville, Calif., USA. (Poster)

Jill M. Derwin, Valerie A. Thomas, Randolph H. Wynne, S. Seth Peery, John Coulston, [Kurt Luther](#), Greg Liknes, and Stacie Bender. 2018. Validating the 2011 and 2016 NLCD Tree Canopy Cover products using crowdsourced interpretations. *American Geophysical Union (AGU) Fall Meeting 2018*, Washington, D.C., USA. (Poster)

Aditya Bharadwaj*, Divit P. Singh*, Anna Ritz, Alison N. Tegge, Christopher L. Poirel, Pavel Kraikivski, Neil Adames, [Kurt Luther](#), Shiv D. Kale, Jean Peccoud, John J. Tyson, and T. M. Murali. 2017. GraphSpace: Stimulating interdisciplinary collaborations in network biology. *BOSC COSI at ISMB 2017*, Prague, Czech Republic. (Talk)

Rachel Kohler* and [Kurt Luther](#). 2017. Crowdsourced image geolocation as collective intelligence. *Collective Intelligence 2017*, New York, N.Y., USA. (Poster)

[Kurt Luther](#), Amy Pavel, Wei Wu, Jari-lee Tolentino*, Maneesh Agrawala, Björn Hartmann, and Steven P. Dow. 2014. CrowdCrit: Crowdsourcing and aggregating visual design critique. *ACM Conference on Computer Supported Cooperative Work (CSCW 2014)*, Baltimore, Md., USA. (Demo)

[Kurt Luther](#), Nicholas Diakopoulos and Amy Bruckman. 2010. Edits & credits: Exploring integration and attribution in online creative collaboration. *ACM Conference on Human Factors in Computing Systems (alt.chi 2010)*, Atlanta, Ga., USA. (Talk) (Invited submission)

Michael Bernstein, Paul André, [Kurt Luther](#), Erin Treacy Solovey, Erika S. Poole, Sharoda A. Paul, Shaun K. Kane, and Jonathan Grudin. 2009. CHistory. *ACM Conference on Human Factors in Computing Systems (CHI 2009)*, Boston, Mass., USA. (Video) (**Most Entertaining Video Award**)

[Kurt Luther](#) and Amy Bruckman. 2009. Flash collabs: Collaborative innovation networks in online communities of animators. *Conference on Collaborative Innovation Networks (COINS 2009)*, Savannah, Ga., USA. (Talk)

[Kurt Luther](#), Kevin Ziegler*, Kelly E. Caine, and Amy Bruckman. 2009. Predicting successful completion of online collaborative animation projects. *ACM Conference on Creativity and Cognition (C&C 2009)*, Berkeley, Calif., USA. (Poster)

Kurt Luther, Matthew Flaschen*, Andrea Forte, Christopher Jordan, and Amy Bruckman. 2009. Provelt: A new tool for supporting citation in MediaWiki. *International Symposium on Wikis and Open Collaboration (WikiSym 2009)*, Orlando, Fla., USA. (Demo)

Book

Mia Ridge, Samantha Blickhan, Meghan Ferriter, Austin Mast, Ben Brumfield, Brendon Wilkins, Daria Cybulska, Denise Burgher, Jim Casey, Kurt Luther, Michael Haley Goldman, Nick White, Pip Willcox, Sara Carlstead Brumfield, Sonya J. Coleman, and Ylva Berglund Prytz. 2021. *The Collective Wisdom Handbook: Perspectives on Crowdsourcing in Cultural Heritage*. <https://doi.org/10.21428/a5d7554f.1b80974b>

Book Chapter

Amy Bruckman, Kurt Luther, and Casey Fiesler. 2015. When should we use real names in published accounts of internet research? In *Digital Research Confidential: The Secrets of Studying Behavior Online*, Eszter Hargittai and Christian Sandvig (eds.). MIT Press, Cambridge, Mass., USA, 243–258.

Magazine Articles

Author of 37 “Photo Sleuth” articles published in *Military Images* (2015–Present). Indexed on JSTOR: <https://www.jstor.org/journal/militaryimages>

Kurt Luther. Human computation for image and video analysis. 2018. *AI Magazine* 39, 4: 67–68. (Invited submission)

Kurt Luther and Amy Bruckman. 2011. Leadership and success factors in online creative collaboration. *IEEE Potentials* 30, 5: 27–32. (Invited submission)

Technical Reports & Preprints

Vikram Mohanty*, Jude Lim*, and Kurt Luther. 2023. What Lies Beneath? Exploring the impact of underlying AI model updates in AI-infused systems. 24 pages. Available on arXiv: <https://doi.org/10.48550/arXiv.2311.10652>

Edward J.K. Gitre and Kurt Luther. 2018. The American Soldier collaborative digital archive. White paper for grant PW-253766-17, National Endowment for the Humanities. 34 pages.

Alvin Yuan, Kurt Luther, Marcus Krause, Steven P. Dow, and Björn Hartmann. 2015. Worker expertise and expert rubrics in crowdsourced design critique. UCB/EECS-2015-223, University of California, Berkeley. 14 pages.

Wei Wu, Kurt Luther, Amy Pavel, Björn Hartmann, Steven P. Dow, and Maneesh Agrawala. 2013. CrowdCritic: Strategies for crowdsourcing visual design critique. UCB/EECS-2013-95, University of California, Berkeley. 36 pages.

Nicholas Diakopoulos, Kurt Luther, Yevgeniy “Eugene” Medynskiy, and Irfan Essa. 2007. Remixing authorship: Reconfiguring the author in online video remix culture. GIT-IC-07-05, Georgia Institute of Technology. 10 pages.

Other Publication

Kurt Luther, Andrea Kavanaugh, Jacob Thebault-Spieker, and Judd Antin. 2020. Introduction to the special issue on negotiating truth and trust in socio-technical systems. *ACM Transactions on Social Computing* 3, 1: 1:1–1:2.

OTHER
RESEARCH
ACTIVITIES

Workshops & Panels Co-Organized

Kurt Luther, Vikram Mohanty*, Benjamin C.G. Lee, and Ioanna Lykourentzou. 2024. Past Meets Future: Human-AI interaction for digital history and cultural heritage. *29th ACM Conference on Intelligent User Interfaces (IUI 2024)*, Greenville, S.C., USA.

Nitesh Goyal, Sungsoo Ray Hong, Regan L. Mandryk, Toby Jia-Jun Li, [Kurt Luther](#), and Dakuo Wang. 2023. SHAI 2023: Workshop on designing for safety in human-AI interactions. *28th ACM Conference on Intelligent User Interfaces (IUI 2023)*, Sydney, Australia.

Aaron Brantly, Charles Clancy, Chad Levinson, and [Kurt Luther](#). 2019. Social computing and its impact on intelligence. *Emerging Trends: New Tools, Threats, and Thinking*, Arlington, Va., USA.

Nai-Ching Wang*, David Cline, David Hicks, [Kurt Luther](#), Kelly McPherson, Craig Perrier, and Paul Quigley. 2018. The design, development and implementation of funded transdisciplinary digital history projects: Illustrative cases of K-16 collaboration in action. *132nd Annual Meeting of the American Historical Association (AHA 2018)*, Washington, D.C., USA.

Danna Gurari, [Kurt Luther](#), Geneviève Patterson, and Steve Branson. 2017. GroupSight: The 2nd workshop on human computation for image and video analysis. *5th AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2017)*, Québec City, Canada.

Paul Quigley, [Kurt Luther](#), David Hicks, Daniel Newcomb, and Nai-Ching Wang*. 2016. New directions for inquiry: Citizen student archivists crowdsourcing the past. *96th Annual Conference of the National Council for the Social Studies (NCSS 2016)*, Washington, D.C., USA.

David Hicks, [Kurt Luther](#), and Paul Quigley. 2016. Crowdsourcing the history of American Independence Day in Civil War-era Virginia. *2016 Virginia Forum*, Williamsburg, Va., USA.

Eric Cook, [Kurt Luther](#), Dan Perkel, and Jeff Bardzell. 2011. The creativity agenda in the iSchool context. *6th International iConference 2011*, Seattle, Wash., USA.

Jenn Thom-Santelli, Eric Cook, [Kurt Luther](#), Amy Bruckman, Jeff Bardzell, and David McDonald. 2010. Approaching “amateur.” *16th ACM Conference on Supporting Group Work (GROUP 2010)*, Sanibel Island, Fla., USA.

Dan Perkel, Lyndsay Grant, Becky Herr-Stephenson, and [Kurt Luther](#). 2010. Rules of engagement in participatory cultures: Negotiating feedback, audiences and critique in online communities. *Conference on Digital Media and Learning (DML 2010)*, La Jolla, Calif., USA.

David Ayman Shamma, Dan Perkel, and [Kurt Luther](#). 2009. Understanding the creative conversation: Modeling to engagement. *7th ACM Conference on Creativity and Cognition (C&C 2009)*, Berkeley, Calif., USA.

Doctoral Consortia

CHI 2010 Doctoral Consortium, Atlanta, Ga., USA. (26% acceptance rate)
GROUP 2009 Doctoral Consortium, Sanibel Island, Fla., USA.

Research Camps

I-Corps: National Science Foundation Innovation Corps
National Program, Southwest Node, March 14–April 26, 2022 (**People’s Choice Award**)
Regional Program, Mid-Atlantic Hub, January 4–21, 2022

Agile Research University
Northwestern University, Evanston, Ill., USA, November 27–29, 2017

CrowdCamp: Rapidly Iterating Ideas for Collective Intelligence and Crowdsourcing
HCOMP 2015 Workshop, San Diego, Calif., USA, November 9, 2015
CSCW 2013 Workshop, San Antonio, Tx., USA, February 23–24, 2013
CHI 2012 Workshop, Austin, Tx., USA, May 5–6, 2012

CSST: Summer Research Institute for the Science of Socio-Technical Systems
CSST 2012, Santa Fe, N.M., USA, July 29–August 2, 2012

THATCamp: The Humanities and Technology Camp
Virginia Tech, Blacksburg, Va., USA, April 10–11, 2015

Chatham University, Pittsburgh, Pa., USA, October 5–6, 2013
George Mason University, Fairfax, Va., USA, June 7–8, 2013

INVITED TALKS

- Roanoke (Va.) Civil War Round Table, 2024
- Mount Diablo (Calif.) Genealogy Society, 2023
- Military Archives Section (MARS), 87th Annual Meeting, Society of American Archivists, 2023
- Human-in-the-Loop Science Summer Seminar Series, Amazon Web Services, 2023
- Virtual Teacher Institute, American Battlefield Trust, 2023
- 26th Annual Family History Institute, Wythe Co. (Va.) Genealogical and Historical Assoc., 2023
- Cybersecurity/AI Colloquia, University of North Dakota, 2023
- Dept. of Computer Science, Emory University, 2022
- Sacred Trust Talks, Gettysburg National Military Park and Gettysburg Foundation, 2022
- Behind the Scenes of the City Conference, Stockholm City Museum, 2021
- 29th Annual Civil War Weekend, Virginia Tech, 2021
- 4th IEEE Workshop on Human-in-the-Loop Methods and Future of Work in BigData, 2020
- ACM SIGGRAPH Frontiers Talks, 2020
- AAAI Fall Symposium on Artificial Intelligence and Work, 2019
- CASCI Speaker Series, University of Maryland College Park, 2019
- Computational Journalism R&D Lab, The Washington Post, 2019
- Machine Learning + Libraries Summit, Library of Congress, 2019
- Emerging Scholars Series, American Civil War Museum, 2019
- Dept. of Computer and Information Science, IUPUI, 2019
- DUB (Design, Use, Build) Seminar, University of Washington, 2019
- Dept. of Computer and Information Sciences, Virginia Military Institute, 2018
- Bellingcat Open Source Investigation Workshop, 2018
- 18th Annual Image of War Seminar, Center for Civil War Photography, 2018
- War Stories: Symposium on Conflict and Civic Engagement, Indiana University, 2018
- Segal Distinguished Seminar, Northwestern University, 2017
- HCI Seminar, Stanford University, 2017
- Crowdsourcing Seminar, Carnegie Mellon University, 2017
- Nau Center for Civil War History, University of Virginia, 2016
- 25th Annual Civil War Weekend, Virginia Tech, 2016
- HCI Lab, University of Maryland College Park, 2015
- Willson Center Digital Humanities Lab, University of Georgia, 2015
- Virginia Center for Civil War Studies, Virginia Tech, 2014
- Dept. of Computer Science, Virginia Tech, 2014
- Engineering Design, Penn State University, 2014
- Dept. of Computer Science, University of Illinois at Urbana–Champaign, 2014
- Dept. of Computer Science & Engineering, University of Minnesota, 2014
- Dept. of Media and Information, Michigan State University, 2014
- Dept. of Computer Science, University of Colorado Boulder, 2014
- School of Information, University of Michigan, 2013
- Crowdsourcing Seminar, Carnegie Mellon University, 2013
- Google Research, 2012
- Dept. of Computer Graphics Technology, Purdue University, 2012
- GVU Center Brown Bag Seminar, Georgia Tech, 2012
- Social Computing Lab, Carnegie Mellon University, 2012
- MIT Media Lab, 2011

TEACHING

As Instructor of Record at Virginia Tech

- CS3744: Introduction to GUI Programming and Graphics (undergraduate)
 - Spring 2016 (81 students); Theme: Social Media
 - Fall 2016 (57 students); Theme: Social Media
 - Spring 2018 (101 students); Theme: Digital History

Fall 2018 (42 students [all remote]); Theme: Social News and Misinformation
Fall 2019 (65 students [all remote]); Theme: Social News and Misinformation

CS4784: Human-Computer Interaction Capstone (undergraduate)
Spring 2015 (21 students); Theme: Social Computing and Creativity

CS4984/PSCI4984/CS5984: Open Source Intelligence Lab (undergraduate/graduate)
Spring 2021 (45 students [all remote]); Theme: Dis- and Misinformation
Fall 2021 (21 students [all remote]); Theme: Dis- and Misinformation

CS5774: User Interface Software (graduate)
Fall 2014 (20 students); Theme: Social Media
Fall 2016 (23 students); Theme: Social Media
Fall 2018 (23 students [hybrid; 16 remote]); Theme: Social News and Misinformation
Fall 2020 (26 students [all remote]); Theme: Social News and Misinformation
Fall 2021 (68 students [all remote]); Theme: Social News and Misinformation
Fall 2023 (69 students [all remote]); Theme: Social News and Misinformation

CS6724: Advanced Topics in Human-Computer Interaction (graduate)
Fall 2015 (9 students); Theme: Crowdsourcing and Human Computation
Fall 2017 (8 students); Theme: Investigative Technologies in Society
Spring 2020 (19 students); Theme: Human-AI Interaction
Spring 2024 (15 students); Theme: Human-AI Interaction

As Instructor of Record at Virginia Military Institute

CIS479: Open Source Intelligence (undergraduate)
Fall 2021 (10 cadets); Theme: Dis- and Misinformation

As Graduate Teaching Assistant at Georgia Tech

CS6470: Design of Online Communities (graduate)
Spring 2009 (22 students); Instructor: Amy Bruckman

ADVISING & MENTORING

Postdoctoral Associate

Jacob Thebault-Spieker, 2018–2020
First employment: Assistant Professor, University of Wisconsin–Madison
HCOMP Best Demo Award, 2019
Participant, NSF CSST Summer Research Institute, 2019

Research Associates

Jing Cui, Software Engineer, 2018 (Co-supervised with T. M. Murali)
Peter Hauck, Senior Research Scientist, 2017

Graduate Thesis Advisees

Tianjiao Yu, Ph.D. Computer Science (Co-advised with Ismini Lourentzou)
Expected graduation: Spring 2025

Fei Shan, Ph.D. Computer Science
Expected graduation: Spring 2026

Anirban Mukhopadhyay, Ph.D. Computer Science
Expected graduation: Spring 2026
Software Engineering Intern, Microsoft, 2023
Software Engineering Intern, Microsoft, 2022

Matthew Wilchek, Ph.D. Computer Science (Co-advised with Feras Batarseh)
Expected graduation: Spring 2026

Sakshi Mhatre, M.S. Computer Science (Co-advised with Erin Lanus)
Expected graduation: Summer 2024

Vikram Mohanty, Ph.D. Computer Science
Graduated in 2023
First employment: Postdoc, Bosch Research North America
HCOMP Best Demo Award, 2023
Dr. Dennis G. Kafura Graduate Fellowship in Computer Science, 2023
Research Intern, Toyota Research Institute, 2022
Research Intern, VSCO, 2021
Data Science Intern, Dataminr, 2019
IUI Best Paper Award, 2019
HCOMP Best Demo Award, 2018

Jude Lim, M.S. Computer Science
Graduated in 2023
First employment: Internet/Intranet Web Developer, Fairfax County (Va.) Government
HCOMP Best Demo Award, 2023

Terryl Dodson, M.S. Computer Science, Virginia Tech
Graduated in 2023
First employment: Firmware Developer, IBM
HCOMP Best Demo Award, 2023
New Horizons Graduate Scholar and GEM Fellow

Sukrit Venkatagiri, Ph.D. Computer Science
Graduated in 2022
First employment: Postdoc, U. Washington and Assistant Professor, Swarthmore College
Student Member, ACM CSCW Steering Committee, 2022
UX Research Intern, Facebook, 2021
Research Intern, Microsoft Research, 2020
HCOMP Best Demo Award, 2019
Graduate Fellow, Rita Allen Foundation Misinformation Solutions Forum, 2018

Manisha Kusuma, M.S. Computer Science
Graduated in 2021
First employment: Software Engineer, Microsoft

Yasmine Belghith, M.S. Computer Science
Graduated in 2021
First employment: Human-Centered Computing Ph.D. Student, Georgia Tech

Liling Yuan, M.S. Computer Science
Graduated in 2021
First employment: Software Engineer, Microsoft

Aditya Bharadwaj, Ph.D. Computer Science (Co-advised with T.M. Murali)
Graduated in 2020
First employment: Research Scientist, B12
Participant, HCOMP Doctoral Consortium, 2019
Research Intern, B12, 2018

Tianyi Li, Ph.D. Computer Science (Co-advised with Chris North)
Graduated in 2020
First employment: Assistant Professor, Loyola University Chicago
Participant, CSCW Doctoral Consortium, 2019
Research Intern, Microsoft Research, 2019
Pratt Fellow, 2019

Nai-Ching Wang, Ph.D. Computer Science
Graduated in 2018
First employment: Software Engineer, Akuna Capital

Participant, HCOMP Doctoral Consortium, 2016
Finalist, CHI Student Research Competition, 2016

Rachel Kohler, M.S. Computer Science
Graduated in 2017
First employment: Software Engineer, BNSF Railway
HCOMP Notable Paper Award, 2017
William Preston Society Master's Thesis Award (STEM category), 2017

Divit Singh, M.S. Computer Science (Co-advised with T.M. Murali)
Graduated in 2016
First employment: Software Engineer, Bloomberg

Graduate Research (Non-Thesis) Advisee

Nicholas Viscuso, M.S. Business Administration — Business Analytics, 2023

Graduate Thesis Committees

Min Zhang, Ph.D. Computer Science
Kenneth King, M.S. Computer Science
Sara Alsalamah, Ph.D. Computer Science
PeiQing Guo, M.S. Computer Science
Xuxin Tang, Ph.D. Computer Science
Daniel Garrison, Ph.D. Computer Science
Stephanie Travis, Ph.D. Computer Science
Eslam Hussein, Ph.D. Computer Science
Morva Saaty, Ph.D. Computer Science
Donghan Hu, Ph.D. Computer Science
Andreea Sistrunk, Ph.D. Computer Science (Graduated 2024)
Lulwah Alkulaib, Ph.D. Computer Science (Graduated 2024)
Jignasu Yagnesh Pathak, M.S. Computer Science (Graduated 2023)
MD Momen Bhuiyan, Ph.D. Computer Science (Graduated 2023)
Boyuan (Marx) Wang, M.S. Computer Science (Graduated 2023)
Zhen Guo, Ph.D. Computer Science (Graduated 2023)
Stephen Wei-Hao Sun, M.S. Computer Science (Graduated 2022)
Jill Derwin, Ph.D. Forestry and Remote Sensing (Graduated 2022)
Leanna Ireland, Ph.D. Sociology (Graduated 2021)
Juliet Clark, M.S. Computer Science (Graduated 2021)
Arul Thileeban Sagayam, M.S. Computer Science (Graduated 2021)
Sushmethaa Muhundan, M.S. Computer Science (Graduated 2021)
Moeti Masiane, Ph.D. Computer Science (Graduated 2020)
Zijian Xu, M.S. Computer Science (Graduated 2020)
Setor Zilevu, M.S. Computer Science (Graduated 2019)
Sarang Joshi, M.S. Computer Science (Graduated 2018)
Michael Stewart, Ph.D. Computer Science (Graduated 2018)
Andrey Esakia, Ph.D. Computer Science (Graduated 2018)
Katelyn Brown, M.A. History (Graduated 2018)
Anamary Leal, Ph.D. Computer Science (Graduated 2017)
Hannah Roth, M.S. Computer Science (Graduated 2017)
Daniel Newcomb, M.A. History (Graduated 2017)
Chris Frisina, M.S. Computer Science (Graduated 2016)
Maoyuan Sun, Ph.D. Computer Science (Graduated 2016)
Sanchit Chadra, M.S. Computer Science (Graduated 2015)
Nathan Self, M.S. Computer Science (Graduated 2015)
Jessica Zeitz Self, Ph.D. Computer Science (Graduated 2016)

Undergraduate Research Advisees and Interns

Note: Surnames of Hume Center students are abbreviated for privacy reasons.

Thomas C., B.S. Computer Science, Virginia Tech, 2023–Present
Ethan D., B.A. National Security and Foreign Affairs, Virginia Tech, 2023–Present
Amirah J., B.S. Business Information Technology, Virginia Tech, 2023–Present
Peyton L., B.S. Computer Science, Virginia Tech, 2023–Present
Vivien P., B.S. Computer Science, Virginia Tech, 2023–Present
Sai Krishna Yeshala, B.S. Computer Science, Virginia Tech, 2021
T.K. T., B.S. Computer Engineering, Virginia Tech, 2021
Skyler S., B.S. Computer Engineering, Virginia Tech, 2021
Tyler T., B.S. Computer Engineering, Virginia Tech, 2021
Ben Z., B.S. Business Information Technology, Virginia Tech, 2021
Taylor R., B.S. National Security and Foreign Affairs, Virginia Tech, 2021
Matthew M., B.S. National Security and Foreign Affairs, Virginia Tech, 2021
Sophia P., B.S. Computer Science, Virginia Tech, 2020–2021
Raymar R., B.S. Data-Centric Computing, Virginia Tech, 2020–2021
Yunis H., B.S. Computational Modeling and Data Analytics, Virginia Tech, 2020–2021
Alex H., B.S. Business Information Technology, Virginia Tech, 2020–2021
Chris C., B.S. Computer Science, Virginia Tech, 2020–2021
Ryan B., B.S. Cybersecurity Management and Analytics, Virginia Tech, 2020–2021
Emily A., B.S. Computer Engineering, Virginia Tech, 2020–2021
Clarissa M., B.S. National Security and Foreign Affairs, Virginia Tech, 2020–2021
Mariela J., B.S. Computer Science, Virginia Tech, 2020–2021
Katie F., B.S. National Security and Foreign Affairs, Virginia Tech, 2020–2021
Brandon N., B.S. National Security and Foreign Affairs, Virginia Tech, 2020–2021
Boyuan (Marx) Wang, B.S. Data-Centric Computing, Virginia Tech, 2020
Xavier Pleimling, B.S. Computer Science & B.S. Mathematics, Virginia Tech, 2020
Paul Blackburn, B.S. Computer Science, Virginia Tech, 2020
Chanaka Perera, B.S. Computer Science, Virginia Tech, 2020
Efua Akonor, B.S. Computer Science, Wellesley College, 2019
Sarwat Kazmi, B.S. Information Science & B.A. Government & Politics, U. Maryland, 2019
David Mitchell, B.S. Computer Science, UIUC, 2019
Puriwat Lahpong, B.S. Computer Science, Virginia Tech, 2019
Daniel Ocheltree, B.S. Computer Science, Virginia Tech, 2019
Chris Hurt, B.S. Computer Science, Virginia Tech, 2018–2019
Chandler Manns, B.S. Computer Science, Virginia Tech, 2018–2019
Kareem Abdol-Hamid, B.S. Computer Science, Virginia Tech, 2018
Ben Hinkle, B.S. Computer Science, Virginia Tech, 2018
Levi Shipley, B.S. Computer Science, Virginia Tech, 2018
Aliza Camacho, B.A. Computer Science & B.A. Anthropology, Wellesley College, 2018
Ryan Russell, B.S. Computer and Information Science, Virginia Military Institute, 2018
Natalie Robinson, B.A. History & B.A. Public Relations, University of Georgia, 2018
Anne Hoang, B.S. Computer Science, Virginia Tech, 2018
David Thames, B.S. Computer Science, Virginia Tech, 2017–2018
Asmita Shah, B.S. Computer Science, Virginia Tech, 2017–2018
Shahmir Ahmed, B.S. Computer Science, Virginia Tech, 2017
Liyang Li, B.S. Computer Science, Virginia Tech, 2017
Caroline Ritchey, B.A. National Security & B.A. History, Virginia Tech, 2017
Parker Irving, B.S. Computer Science, Virginia Tech, 2017
Allison Collier, B.S. Computer Science, Virginia Tech, 2017
Nam Nguyen, B.S. Computer Science, Virginia Tech, 2017
David Gwizdala, B.S. Computer Engineering, Virginia Tech, 2016–2017
Wenfeng Ren, B.S. Computer Science, Virginia Tech, 2016
Melanie Trammell, B.S. Computer Science, Virginia Tech, 2016
Zhizheng (Andy) Chen, B.S. Computer Science, Virginia Tech, 2015
Amit Dayal, B.S. Computer Science, Virginia Tech, 2015
Jared Deiner, B.S. Computer Science, Virginia Tech, 2015
Vijay Kuruvilla, B.S. Computer Science, Virginia Tech, 2015
Edward McEnrue, B.S. Computer Science, Virginia Tech, 2015

Avanti Dabholkar, B.S. HCI & B.Arch. Architecture, CMU, 2013–2014
Bhawna Agarwal, B.Design, Indian Institute of Technology Guwahati, 2014
Jari-lee (Jay) Tolentino, B.S. Informatics & B.A. Studio Art, UC Irvine, 2013

PROFESSIONAL
SERVICE

Note: ♦ indicates one Special Recognition for Outstanding Review.

AAAI Conference on Human Computation and Crowdsourcing (HCOMP)

Co-Chair, Steering Committee, 2024–Present
Member, Steering Committee, 2022–2024
General and Program Co-Chair: 2021
Works-in-Progress and Demos Co-Chair: 2023 [joint with ACM CI]
Best Paper Committee Member: 2019
Doctoral Consortium Mentor: 2017
Associate Chair (Papers): 2019
Program Committee Member: 2016, 17, 24
Program Committee Member, Workshop on Volunteer-Based Crowdsourcing: 2014

ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW)

Demos Co-Chair: 2021
Doctoral Consortium Mentor: 2023
Graphic Design Chair & Webmaster: 2010, 11
Associate Chair (Papers): 2015♦, 16♦, 18 [Online First], 20, 25
External Reviewer: 2008, 10, 11, 12, 13, 14, 15, 16, 18, 19, 21, 23

ACM Conference on Human Factors in Computing Systems (CHI)

Videos Co-Chair: 2016
Student Volunteers Co-Chair: 2010
Associate Chair (Papers): 2020, 21♦♦, 24♦
Associate Chair (Videos): 2011, 12, 13
Associate Chair (Works-in-Progress): 2011, 12
ACM Student Research/Design Competition Juror: 2013, 14
External Reviewer: 2008, 09, 10, 11, 12, 13, 14♦♦, 15♦♦, 16♦, 17, 18♦, 19, 21

ACM Collective Intelligence Conference (CI)

Program Co-Chair, 2018
Works-in-Progress and Demos Co-Chair: 2023 [joint with AAAI HCOMP]
Program Committee Member: 2017

ACM Conference on Creativity & Cognition (C&C)

Papers Co-Chair: 2019
Best Paper Committee Chair: 2019
Graduate Student Symposium Co-Chair: 2017
Local Arrangements Co-Chair: 2011
Associate Chair (Papers): 2015
External Reviewer: 2007, 09, 13, 17

ACM Conference on Computer Graphics and Interactive Techniques (SIGGRAPH)

Posters Coordinator: 2012, 13
Presentations Coordinator, Computer Animation Festival: 2009
General Submissions & Late Breaking Juror: 2012, 13
External Reviewer: 2009

AAAI Conference on Web and Social Media (ICWSM)

Senior Program Committee Member: 2016
External Reviewer: 2021

ACM Conference on Knowledge Discovery and Data Mining (KDD)

Program Committee Member, Workshop on Data-driven Humanitarian Mapping: 2021

Conference for Truth and Trust Online (TTO)

Program Committee Member: 2019

International Symposium on Open Collaboration (OpenSym)

Program Committee Member: 2011

Other External Reviewing

IEEE Conference on Visual Analytics Science and Technology (VAST): 2018

ACM Conference on Mobile Human-Computer Interaction (MobileHCI): 2017

ACM Conference on Designing Interactive Systems (DIS): 2017

ACM Conference on User Interface Software and Technology (UIST): 2010, 12, 13, 14

ACM Conference on Ubiquitous Computing (Ubicomp): 2012

Journal Associate Editor

Associate Editor, *ACM Transactions on Interactive Intelligent Systems*, 2024–Present

Lead Guest Editor, Special Issue on Negotiating Truth and Trust in Socio-Technical Systems,

ACM Transactions on Social Computing, 2020

Journal or Magazine External Reviewer

ACM Journal on Computing and Cultural Heritage

ACM Transactions on Computer–Human Interaction

ACM Transactions on Interactive Intelligent Systems

American Behavioral Scientist

Communications of the ACM

Games and Culture

Human–Computer Interaction

IEEE Computer

Journalism

Proceedings of the ACM on Interactive, Mobile, Wearable, and Ubiquitous Technologies

Transformative Works and Cultures

Book Proposal Reviewer

Oxford University Press, 2019

Cambridge University Press, 2017

Grant Advisory Board Member

City Faces: Visual culture and social structure in Stockholm, 1880-1930. Swedish Research Council, Rebecka Lennartsson (PI), SEK 12,091,000 (≈\$1,440,000), 2021–2026.

VTArtWorks. Doris Duke Charitable Foundation, Robert Leonard (PI), \$222,824, 2015–2020.

Virginia Tech

Innovation Campus

Co-Chair, Intelligent Interfaces Faculty Search Committee, 2023

Member, Executive Committee, 2022–Present

National Security Institute

Senior Advisor for OSINT and Faculty Co-Lead, OSINT Lab, 2023–Present

Faculty Affiliate, 2022–2025

Faculty Affiliate, Hume Center for National Security and Technology, 2017–2022

Faculty Fellow, Institute for Creativity, Arts, and Technology, 2015–Present

Center for Human-Computer Interaction

Associate Director for Research, 2022–Present

Member, Executive Committee, 2020–Present

Faculty Affiliate, 2014–Present

Member, Organizing Committee, 8th Annual Workshop on the Future of HCI, 2024

Member, Organizing Committee, 7th Annual Workshop on the Future of HCI, 2023

Chair, Organizing Committee, 3rd Annual Workshop on the Future of HCI, 2018
Associate Director for Social Informatics, 2015–2016

Center for Future Work Places and Practices
Member, Executive Committee, 2023
Member, Organizing Committee, 2021–2022

Department of Computer Science
Member, Personnel (Promotion & Tenure) Committee, 2020, 24
Member, Ph.D. Qualifier Exam Committee (HCI Area), 2018, 23
Member, Graduate Program Committee, 2018–2021
Member, Faculty Search Committee, 2016, 17, 18

Department of History
Faculty Affiliate, 2016–Present
Member, Faculty Search Committee, 2020

Human-Centered Design Interdisciplinary Graduate Education Program
Faculty Affiliate, 2015–Present
Member, Executive Committee, 2016–2018

Member, Public Interest Technology Lab, 2024–Present
Faculty Affiliate, Tech4Humanity Lab, 2020–Present
Faculty Affiliate, Tech for Humanity Initiative, 2019–Present
Faculty Affiliate; Information, Trust, and Society Initiative; 2018–2019
Member, Space Subcommittee, Creativity & Innovation Strategic Growth Area, 2016–2017

Carnegie Mellon University

Coordinator, Social Computing Lab Summer REU Program, 2013

Georgia Tech

Lab Manager, Electronic Learning Communities Lab, 2007–2012
Reviewer, President’s Undergraduate Research Awards, 2011
Member, School of Interactive Computing Faculty Search Committee, 2010
Judge, Undergraduate Research Spring Symposium, 2010–2011

Other Service

Review Panelist, National Science Foundation, 2016, 17(×2), 18, 19, 21
Technical Advisor, *Wisdom of the Crowd* CBS television series, 2017
Technical Advisor, Center for Virtual History, University of Georgia, 2011–2015
Editor-at-Large, *Digital Humanities Now*, 2013

Professional Memberships

Member, Association for the Advancement of Artificial Intelligence (AAAI)
Senior Member, Association for Computing Machinery (ACM)
Member, Military Cyber Professionals Association (MCPA)

SELECTED
MEDIA
COVERAGE

Financial Times: The still lives and distant voices of old family photographs, 2024
<https://www.ft.com/content/f8ad041d-a697-4708-bffb-eb31cfbdea97>

Vice: Twitch influencers ruined r/Place for everyone, 2022
<https://www.vice.com/en/article/qjb53p/twitch-influencers-ruined-rplace-for-everyone>

C-SPAN: Civil War Photographs as Resources, 2021
<https://www.c-span.org/video/?519483-1/civil-war-resources-clothing-ammunition>

PolitiFact: Image mocks a Tesla recharging with a generator. Here’s what it doesn’t show, 2021
<https://www.politifact.com/article/2021/nov/12/image-mocks-tesla-recharging-generator-heres-what/>

The HISTORY Channel: *History's Greatest Mysteries: "The Escape of John Wilkes Booth,"* 2020

<https://www.history.com/shows/historys-greatest-mysteries/season-1/episode-4>

PolitiFact: No evidence Joe Biden's great-grandfather was Confederate soldier, enslaved people, 2020

<https://www.politifact.com/factchecks/2020/jun/26/viral-image/no-evidence-joe-bidens-great-grandfather-was-confe/>

Snopes: Did Joe Biden's Great-Grandfather Own Slaves? 2020

<https://www.snopes.com/fact-check/joe-biden-slaves-great-grandfather/>

TIME: How Artificial Intelligence is Helping Identify Thousands of Unknown Civil War Soldiers, 2019

<https://time.com/5749059/civil-war-photos/>

NPR: Satchmo In His Adolescence: 1915 Film Clip May Show Young Louis Armstrong, 2019

<https://www.npr.org/2019/06/22/732675892/satchmo-in-his-adolescence-1915-film-clip-may-show-young-louis-armstrong>

Smithsonian: The Computer Scientist Who Wants to Put a Name to Every Face in Civil War Photographs, 2019

<https://www.smithsonianmag.com/innovation/computer-scientist-who-wants-to-put-name-to-every-face-in-civil-war-photographs-180971754/>

Popular Mechanics: AI Could Help You Identify Civil War Vets in Your Family Tree, 2019

<https://www.popularmechanics.com/military/a26625006/civil-war-photo-sleuth-search/>

Fox News: AI could help identify Civil War veterans in your family, 2019

<https://www.foxnews.com/tech/ai-could-help-identify-civil-war-veterans-in-your-family>

Slate: Who's behind that beard? Historians are using facial recognition software to identify people in Civil War photographs, 2018

<https://slate.com/technology/2018/11/civil-war-photo-sleuth-facial-recognition.html>

Fast Company: Online sleuths are using face recognition to identify Civil War soldiers in old photographs, 2018

<https://www.fastcompany.com/90275255/online-sleuths-are-using-face-recognition-to-identify-civil-war-soldiers-in-old-photographs>

IEEE Spectrum: How to Run a Successful Mobile Crowdsourcing Project, 2016

<http://spectrum.ieee.org/at-work/innovation/how-to-run-a-successful-mobile-crowdsourcing-project>

Science: The Power of Crowds, 2016

<http://science.sciencemag.org/content/351/6268/32>

Harvard Business Review: What Makes a Great Tweet, 2012

<http://hbr.org/2012/05/what-makes-a-great-tweet/ar/1>

TIME: Cool It With the Hashtags: How to Not Be Extremely Annoying on Twitter, 2012

<http://newsfeed.time.com/2012/02/04/cool-it-with-the-hashtags-how-to-not-be-extremely-annoying-on-twitter/>

The Atlantic: Be Better at Twitter: The Definitive, Data-Driven Guide, 2012

<https://www.theatlantic.com/technology/archive/2012/01/be-better-at-twitter-the-definitive-data-driven-guide/252273/>

CNN: 4 Online Services to Satisfy Your Vanity, 2011

http://www.cnn.com/2011/TECH/social.media/01/12/vanity.netiquette/index.html?eref=ib_technology