DANNA GURARI

danna.gurari@colorado.edu \diamond https://dannagurari.colorado.edu/

RESEARCH INTERESTS

Computer vision, machine learning, accessibility, hybrid human-machine partnerships, medical image analysis

PROFESSIONAL APPOINTMENTS

Assistant ProfessorAugust 20Computer Science, University of Colorado BoulderAugust 20)21 - Present
Research FellowAugust 20School of Information, University of Texas at Austin)21 - Present
Assistant ProfessorJanuary 2017 -School of Information, University of Texas at AustinRelated Appointments: Faculty Affiliate for Texas Aging and Longevity Center (since 2019), Graduate Studies Committee (GSC) for Department of Computer Science (since 2018)	August 2021
Postdoctoral FellowAugust 2015 - JaComputer Science, University of Texas at AustinAdvisor: Dr. Kristen Grauman	anuary 2017
Boulder Imaging Software Developer/Project Manager/Education Lead	2007 - 2010
Raytheon Software Engineer	2005 - 2007
EDUCATION	
Ph.D., Computer Science Boston University; Advisor: Dr. Margrit Betke	2010 - 2015
M.S., Computer Science Washington University in St. Louis; Advisor: Dr. William D. Richard	2004 - 2005
B.S., Biomedical Engineering Major and Philosophy Minor Washington University in St. Louis	2000 - 2005
HONORS AND AWARDS	
Innovations in Medical Physics Award - Presentation [TP38]: Annual Conference for the American Association of Physics in Medicine (AAPM)	2024
Best in Physics Award - Presentation [TP32]: Annual Conference for the American Association of Physics in Medicine (AAPM)	2023
Best Paper Honorable Mention - Publication [J4]: ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)	2020
SIG-USE Innovation Award - Publication [C24]: Association for Information Science and Technology (ASIS&T)	2020
Civic Futures Award: Designing for the 100% - Recognition for government and education employees in Central Texas who are shaping the futu	2019 re

Best Paper Honorable Mention - Publication [C9]: ACM Conference on Human Factors in Computing Systems (CHI)	2017
Best Paper Runner-Up Award - Publication [W7]: AAAI Conference on Human Computation & Crowdsourcing (HCOMI Workshop on Human Computation for Image and Video Analysis	2016 ?):
Researcher Excellence Award - Annual award for selected Ph.D. students in Boston University's computer science depart	2015 tment
Best Paper Award: Innovative Idea - Publication [W3]: Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI): Interactive Medical Image Computation (IMIC) Workshop	2014
Best Paper Award - Publication [W1]: Workshop on Applications in Computer Vision (WACV)	2013
Ford Foundation Fellowship Honorable Mention	2011
FUNDING	
Research	
Adobe Research Amount: \$25,000	2024
University of Colorado Cancer Center, Investigator Initiated Trials Computer Vision Enhanced Breast DIBH-RT Co-PI: Danna Gurari (with Dr. David Thomas) Amount: \$70,000 (Total: \$100,000)	2023
Adobe Research Amount: \$20,000	2023
Wings of Hope for Pancreatic Research / CU Anschutz Cancer Center Computer Vision Assisted Alignment for Pancreatic Stereotactic Body Radiation Therapy Co-PI: Danna Gurari (with Dr. David Thomas) Amount: \$50,000 (Total: \$50,000, with CU Anschutz matching Wings of Hope gift)	2023 (SBRT)
Adobe Research Amount: \$15,000	2022
Microsoft AI4A Efficient Computer Vision Designed for People With Vision Impairments PI: Danna Gurari Amount: \$25,000 (Azure computing credit)	2021-2022
 National Science Foundation SaTC Grant 2148080 Novel Algorithms and Tools for Empowering People Who Are Blind to Safeguard Private Visual Content PI: Danna Gurari (with Co-PIs Dr. Leah Findlater and Dr. Yang Wang) Amount: \$567,706 (Total: \$1,199,993) 	2021 - 2025
Amazon Mechanical Turk Amount: \$8,640 (credit to cover Amazon Mechanical Turk fees)	2021

Microsoft AI4A Optimizing the Visual Experiences of the Visually Impaired on Social Media PI: Danna Gurari Amount: \$20,000 (Azure computing credit)	2021
University of Texas at Austin, Institute for Foundations of Machine Learning Optimizing the Visual Experiences of the Visually Impaired on Social Media Co-PI: Danna Gurari (with PI Dr. Alan Bovik) Amount: \$67,342 (Total: \$67,342)	2021
Microsoft AI4A Seeing UI Data Set Creation PI: Danna Gurari Amount: \$50,000	2020 - 2021
University of Texas at Austin, Good Systems ML4GIS: Developing and Evaluating Computer Vision Methods to Enhance Access to Geospatial Data in Large Historical Map Collections PI: Danna Gurari (with Co-PIs Aaron Choate and Michael Shensky) Amount: \$29,831 (Total: \$40,000)	2020 - 2021
Adobe Research Amount: \$14,000	2020
University of Texas at Austin, Good Systems Privacy Preferences and Values for Computer Vision Applications PI: Danna Gurari (with Co-PIs Kenneth R. Fleischmann and Bo Xie) Amount: \$32,779 (Total: \$99,966)	2019 - 2020
Microsoft AI4A Technologies that Serve the Needs of People Who Are Blind Or With Low Vision PI: Danna Gurari Amount: \$150,000	2019 - 2020
Microsoft Ability Initiative (MAI) Technologies that Serve the Needs of People Who Are Blind Or With Low Vision PI: Danna Gurari (with Co-PI Kenneth R. Fleischmann) Amount: \$236,092 (Total: \$300,000)	2019 - 2020
Adobe Research Amount: \$17,000	2019
National Science Foundation CRII Grant IIS-1755593 Predicting When, Why, and How Multiple People Will Disagree When Answering a Visual Queste PI: Danna Gurari Amount: \$174,947	2018 - 2021 ion

Silicon Valley Commu Video Analysis: Efficient PI: Danna Gurari Amount: Cannot disclose	anity Foundation Chan Zuckerberg Initiative Grant thy Tracking and Detecting Life Cycle Phase Transitions for Live Cells e publicly	2018 - 2020
Microsoft AI4A: AI fo PI: Danna Gurari	or Accessibility Grantee Summit	2019
Amount: \sim \$3,000 (fully-	supported travel grant for two people)	
Microsoft Faculty Sur PI: Danna Gurari	nmit	2019
Amount: \sim \$1,500 (fully-	supported travel grant)	
Amazon Mechanical T Amount: \$5,405 (credit t	Furk to cover Amazon Mechanical Turk fees)	2019
SAP Sponsorship Amount: \$2,764 (fully-su	upported travel grant)	2018
Adobe Research Amount: \$36,000		2017 - 2018
Service		
Apple Gift Amount: Cannot disclose	e publicly (support for CVPR 2024 VizWiz Grand Challenge workshop)	2024
Apple Gift Amount: Cannot disclose	e publicly (support for CVPR 2023 VizWiz Grand Challenge workshop)	2023
SIGACCESS Gift Amount: \$5,000 (support	t for CVPR 2022 VizWiz Grand Challenge workshop)	2022
Apple Gift Amount: Cannot disclose	e publicly (support for CVPR 2022 VizWiz Grand Challenge workshop)	2022
Microsoft Azure Worl Amount: \$30,000 (compu	kshop Grant iting credit for CVPR 2022 VizWiz Grand Challenge workshop)	2022
Microsoft Azure Worl Amount: \$30,000 (compu	kshop Grant iting credit for CVPR 2021 VizWiz Grand Challenge workshop)	2021
Microsoft Azure Worl Amount: \$30,000 (compu	kshop Grant iting credit for CVPR 2020 VizWiz Grand Challenge workshop)	2020
Google Cloud Platfor: Amount: \$10,000 (compu	m Workshop Grant Iting credit for CVPR 2020 Visual Question Answering & Dialog worksh	2020 op)
Lorentz e-Science Con Crowdsourcing for Medic Amount: €15,000 (~\$17	mpetition cal Image Analysis Workshop ,500) + fully-supported international travel grant (~\$3,000)	2018
Evolv Technology Gif Amount: \$1,700 (support	t t for HCOMP 2016 GroupSight workshop)	2016

Teaching

Google Cloud Education Grants Amount: \$15,600

Microsoft Azure Curriculum Grants

Amount: \$65,000

PUBLICATIONS

- Authors with names underlined are individuals I advised or mentored.

- Equal authorship is denoted with an asterisk (*).

- Author ordering has lead authors (typically students) listed in order of descending contribution (e.g., first author is the lead author) while the last author is the senior author.

Peer-Reviewed Journal Publications

- [J9] Maniratnam Mandal, Deepti Ghadiyaram, **Danna Gurari**, and Alan Bovik. "Helping Visually Impaired People Take Better Quality Pictures." *IEEE Transactions on Image Processing (T-IP)*, 2023.
- [J8] Abigale Stangl, Kristina Shiroma, Nathan Davis, Bo Xie, Kenneth R. Fleischmann, Leah Findlater, and Danna Gurari. "Privacy Concerns for Visual Assistance Technologies." ACM Transactions on Accessible Computing, 41 pages, 2022.
- [J7] Samreen Anjum, <u>Ambika Verma</u>, Brandon Dang, and **Danna Gurari**. "Exploring the Use of Deep Learning with Crowdsourcing to Annotate Images." *Human Computation Journal*, 21 pages, 2021.
- [J6] Jakki O. Bailey, Barkha Patel, and **Danna Gurari**. "A Perspective on Building Ethical Datasets for Children's Conversational Agents" *Frontiers in Artificial Intelligence*, 34 pages, 2021.
- [J5] <u>Samreen Anjum</u>, <u>Chi Lin</u>, and **Danna Gurari**. "CrowdMOT: Crowdsourcing Strategies for Tracking Multiple Objects in Videos." *Proceedings of the ACM on Human Computer Interaction (PACM HCI)*, 25 pages, 2021.
- [J4] Xiaoyu Zeng, Yanan Wang, <u>Tai-Yin Chiu</u>, <u>Nilavra Bhattacharya</u>, and **Danna Gurari**. "Vision Skills Needed to Answer Visual Questions." *Proceedings of the ACM on Human Computer Interaction (PACM HCI)*, 31 pages, 2020. (Top 22 from 1,000+ submitted papers across the 3 CSCW 2020 cycles. Best Paper Honorable Mention Award.)
- [J3] Rachel N. Simons, Danna Gurari, and Kenneth R. Fleischmann. "I Hope This Is Helpful': Understanding Crowdworkers' Challenges and Motivations for an Image Description Task." Proceedings of the ACM on Human Computer Interaction (PACM HCI), 26 pages, 2020.
- [J2] Danna Gurari, <u>Yinan Zhao</u>, Suyog Dutt Jain, Margrit Betke, and Kristen Grauman. "Predicting How to Distribute Work Between Algorithms and Humans to Segment an Image Batch." *International Journal* of Computer Vision (IJCV), 19 pages, March 2019. (2016 impact factor = 8.2)
- [J1] Danna Gurari, Kun He, Bo Xiong, Jianming Zhang, <u>Mehrnoosh Sameki</u>, Suyog Dutt Jain, Stan Sclaroff, Margrit Betke, and Kristen Grauman. "Predicting Foreground Object Ambiguity and Efficiently Crowdsourcing the Segmentation(s)." *International Journal of Computer Vision (IJCV)*, 24 pages, January 2018. (2016 impact factor = 8.2)

Peer-Reviewed Conference Publications

[C42] Mina Huh, Fangyuan Xu, Yi-Hao Peng, <u>Chongyan Chen</u>, Hansika Murugu, **Danna Gurari**, Eunsol Choi, and Amy Pavel. "Long-form Answers to Visual Questions Asked by Blind and Low Vision People." *Conference on Language Modeling (COLM)*, 9 pages, October 2024. (299/1036 = 28.8% acceptance rate)

- [C41] Chongyan Chen, Mengchen Liu, Noel Codella, Yunsheng Li, Lu Yuan, and Danna Gurari. "Fully Authentic Visual Question Answering Dataset from Online Communities." European Conference on Computer Vision (ECCV), 14 pages, October 2024. (2395/8585 = 27.9% acceptance rate)
- [C40] Josh Myers-Dean, Jarek Reynolds, Brian Price, Yifei Fan, and Danna Gurari. "SPIN: Hierarchical Segmentation with Subpart Granularity in Natural Images." European Conference on Computer Vision (ECCV), 14 pages, October 2024. (2395/8585 = 27.9% acceptance rate)
- [C39] Lotus Zhang, Abigale Stangl, Tanusree Sharma, <u>Yu-Yun Tseng</u>, Inan Xu, **Danna Gurari**, Yang Wang, and Leah Findlater. "Designing Accessible Obfuscation Support for Blind Individuals Visual Privacy Management." ACM Conference on Human Factors in Computing Systems (CHI), 27 pages, April 2024. (1060/4028 = 26% acceptance rate)
- [C38] Josh Myers-Dean, Yifei Fan, Brian Price, Wilson Chan, and Danna Gurari. "Interactive Segmentation for Diverse Gesture Types Without Context." *IEEE Winter Conference on Applications in Computer Vision (WACV)*, 10 pages, January 2024. (847/2042 = 41% acceptance rate)
- [C37] Jarek Reynolds*, Chandra Kanth Nagesh*, and Danna Gurari. "Salient Object Detection for Images Taken by People With Vision Impairments." *IEEE Winter Conference on Applications in Computer Vision* (WACV), 10 pages, January 2024. (847/2042 = 41% acceptance rate)
- [C36] Chongyan Chen, Samreen Anjum, and Danna Gurari. "VQA Therapy: Exploring Answer Differences by Visually Grounding Answers." *IEEE International Conference on Computer Vision (ICCV)*, 10 pages, October 2023. (2160/8260 = 26% acceptance rate)
- [C35] Zhuohao Zhang, Smirity Kaushik, JooYoung Seo, Haolin Yuan, Sauvik Das, Leah Findlater, Danna Gurari, Abigale Stangl, and Yang Wang. "ImageAlly: A Human-AI Hybrid Approach to Support Blind People in Detecting and Redacting Private Image Content." The Symposium on Usable Privacy and Security (SOUPS), 20 pages, August 2023. (33/147 = 22% acceptance rate)
- [C34] <u>Reza Akbarian Bafghi</u> and **Danna Gurari**. "A New Dataset Based on Images Taken by Blind People for Testing the Robustness of Image Classification Models Trained for ImageNet Categories." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 10 pages, June 2023. (2359/9155 = 26% acceptance rate)
- [C33] Abigale Stangl, Emma Sadjo, Pardis Emami-Naeini, Yang Wang, Danna Gurari, and Leah Findlater. "Dump it, Destroy it, Send it to Data Heaven': Blind People's Expectations for Visual Privacy in Visual Assistance Technologies." International Web for All Conference (W4A), 10 pages, May 2023. (16/32 = 50% acceptance rate)
- [C32] Tanusree Sharma, Abigale Stangl, Lotus Zhang, Yu-Yun Tseng, Inan Xu, Leah Findlater, Danna Gurari, and Yang Wang. "Disability-First Design and Creation of A Dataset Showing Private Visual Information Collected With People Who Are Blind." ACM Conference on Human Factors in Computing Systems (CHI), 19 pages, April 2023. (880/3182 =28% acceptance rate)
- [C31] <u>Tai-Yin Chiu</u> and **Danna Gurari**. "Line Search-Based Feature Transformation for Fast, Stable, and Tunable Content-Style Control in Photorealistic Style Transfer." *IEEE Winter Conference on Applications* in Computer Vision (WACV), 10 pages, January 2023. (641/1577=41% acceptance rate)
- [C30] Yu-Yun Tseng*, <u>Alexander Bell</u>*, and **Danna Gurari**. "VizWiz-FewShot: Locating Objects in Images Taken by People With Visual Impairments." *European Conference on Computer Vision (ECCV)*, 16 pages, October 2022. (1650/5803=28% acceptance rate)
- [C29] Chongyan Chen, Samreen Anjum, and Danna Gurari. "Grounding Answers for Visual Questions Asked by Visually Impaired People." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 10 pages, June 2022. (Top ~4% (i.e., 344) from 8161 submitted papers. Oral Presentation.)
- [C28] <u>Tai-Yin Chiu</u> and **Danna Gurari**. "PCA-Based Knowledge Distillation Towards Lightweight and Content-Style Balanced Photorealistic Style Transfer Models." *IEEE Conference on Computer Vision and Pattern*

Recognition (CVPR), 10 pages, June 2022. (2067/8161=25.3% acceptance rate)

- [C27] <u>Tai-Yin Chiu</u> and **Danna Gurari**. "PhotoWCT²: Compact Autoencoder for Photorealistic Style Transfer Resulting from Blockwise Training and Skip Connections of High-Frequency Residuals." *IEEE Winter Conference on Applications in Computer Vision (WACV)*, 10 pages, January 2022. (35% acceptance rate)
- [C26] Abigale Stangl, Nitin Verma, Kenneth R. Fleischmann, Meredith R. Morris, and Danna Gurari. "Going Beyond One-Size-Fits-All Image Descriptions to Satisfy the Information Wants of People Who are Blind or Have Low Vision." ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 23 pages, October 2021. (36/124=29% acceptance rate)
- [C25] <u>Abigale Stangl</u>, Kristina Shiroma, Bo Xie, Kenneth R. Fleischmann, and Danna Gurari. "Visual Content Considered Private by People Who Are Blind." ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 20 pages, October 2020. (46/167=27.5% acceptance rate)
- [C24] <u>Nathan Davis</u>, Danna Gurari, and Bo Xie. "Quality of Images Showing Medication Packaging from Individuals with Vision Impairments: Implications for the Design of Visual Question Answering Applications." Association for Information Science and Technology (ASIS&T), 18 pages, October 2020. (54% acceptance rate. SIG-USE Innovation Award.)
- [C23] <u>Tai-Yin Chiu</u> and **Danna Gurari**. "Iterative Feature Transformation for Fast and Versatile Universal Style Transfer." *European Conference on Computer Vision (ECCV)*, 16 pages, August 2020. (1361/5025=27.1% acceptance rate)
- [C22] Danna Gurari, <u>Yinan Zhao</u>, <u>Meng Zhang</u>, and <u>Nilavra Bhattacharya</u>. "Captioning Images Taken by People Who Are Blind." *European Conference on Computer Vision (ECCV)*, 18 pages, August 2020. (1361/5025=27.1% acceptance rate)
- [C21] <u>Tai-Yin Chiu</u>, <u>Yinan Zhao</u>, and **Danna Gurari**. "Assessing Image Quality Issues for Real-World Problems." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 11 pages, June 2020. (1470/6656=22% acceptance rate)
- [C20] Abigale Stangl, Meredith Morris, and Danna Gurari. "Person, Shoes, Tree. Is the Person Naked?" What People with Vision Impairments Want in Image Descriptions." ACM Conference on Human Factors in Computing Systems (CHI), 13 pages, April 2020. (769/3126=24.3% acceptance rate)
- [C19] <u>Yinan Zhao</u>, Brian Price, Scott Cohen, and **Danna Gurari**. "Unconstrained Foreground Object Search." *IEEE International Conference on Computer Vision (ICCV)*, 10 pages, October 2019. (1077/4303=25% acceptance rate)
- [C18] <u>Nilavra Bhattacharya</u>, <u>Qing Li</u>, and **Danna Gurari**. "Why Does a Visual Question Have Different Answers?" *IEEE International Conference on Computer Vision (ICCV)*, 10 pages, October 2019. (1077/4303=25% acceptance rate)
- [C17] <u>Anubrata Das</u>, <u>Samreen Anjum</u>, and **Danna Gurari**. "Dataset Bias: Predicting and Understanding the Implications for Visual Question Answering" Association for Information Science and Technology (ASIS&T), 10 pages, October 2019.
- [C16] Danna Gurari, Qing Li, Chi Lin, Yinan Zhao, Anhong Guo, Abigale Stangl, and Jeffrey Bigham. "VizWiz-Priv: A Dataset for Recognizing the Presence and Purpose of Private Visual Information in Images Taken by Blind People." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 10 pages, June 2019. (1300/5165=25.2% acceptance rate)
- [C15] <u>Yinan Zhao</u>, Brian Price, Scott Cohen, and **Danna Gurari**. "Guided Image Inpainting: Replacing an Image Region by Pulling Content from Another Image." *IEEE Winter Conference on Applications in Computer Vision (WACV)*, 11 pages, January 2019. (286/772=37% acceptance rate)
- [C14] <u>Aimee Yun-Fang Lin</u>, Shelley Shwu-Ching Young, <u>Harrison Pang-Sheng Lai</u>, and **Danna Gurari**. "A Preliminary Study on Color and Grayscale Images for Object Recognition and Scene Classification Tasks

on Amazon Mechanical Turk Crowdsourcing Platform." International Conference on Human Systems Engineering and Design (IHSED), 5 pages, October 2018.

- [C13] Abigale Stangl, Esha Kothari, Suyog Dutt Jain, Tom Yeh, Kristen Grauman, and Danna Gurari. "Browse-WithMe: Design and Prototype of an Online Clothes Shopping Assistant for People with Visual Impairments." ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 12 pages, October 2018. (26% acceptance rate)
- [C12] Chun-Ju Yang, Kristen Grauman, and Danna Gurari. "Visual Question Answer Diversity." AAAI Conference on Human Computation & Crowdsourcing (HCOMP), 9 pages, July 2018. (29% acceptance rate)
- [C11] Danna Gurari, Qing Li, Abigale Stangl, Anhong Guo, Chi Lin, Jiebo Luo, Kristen Grauman, and Jeffrey P. Bigham. "VizWiz Grand Challenge: Answering Visual Questions from Blind People." *IEEE Conference* on Computer Vision and Pattern Recognition (CVPR), 10 pages, June 2018. (Top 9% from 3,309 submitted papers. Spotlight Presentation.)
- [C10] <u>Mehrnoosh Sameki</u>, <u>Tianyi Zhang</u>, <u>Linli Ding</u>, Margrit Betke, and **Danna Gurari**. "Crowd-O-Meter: Predicting if a Person is Vulnerable to Believe Political Claims." AAAI Conference on Human Computation & Crowdsourcing (HCOMP), 10 pages, October 2017. (28.9% acceptance rate)
- [C9] Danna Gurari and Kristen Grauman. "CrowdVerge: Predicting If People Will Agree on the Answer to a Visual Question." ACM Conference on Human Factors in Computing Systems (CHI), 12 pages, May 2017. (Top 5% from 2,400+ submitted papers. Best Paper Honorable Mention Award.)
- [C8] Danna Gurari, <u>Mehrnoosh Sameki</u>, and Margrit Betke. "Investigating the Influence of Data Familiarity to Improve the Design of a Crowdsourcing Image Annotation System." AAAI Conference on Human Computation & Crowdsourcing (HCOMP), 10 pages, November 2016. (30.3% acceptance rate)
- [C7] Danna Gurari, Suyog Dutt Jain, Margrit Betke, and Kristen Grauman. "Pull the Plug? Predicting If Computers or Humans Should Segment Images." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 10 pages, June 2016. (29.9% acceptance rate)
- [C6] <u>Mehrnoosh Sameki</u>, Danna Gurari, and Margrit Betke. "Predicting the Quality of Crowdsourced Image Drawings from Crowd Behavior." AAAI Conference on Human Computation & Crowdsourcing (HCOMP), 2 pages, November 2015.
- [C5] <u>Mehrnoosh Sameki</u>, Danna Gurari, and Margrit Betke. "Characterizing Image Segmentation Behavior of the Crowd." *Collective Intelligence*, 4 pages, June 2015.
- [C4] Danna Gurari, Diane Theriault, <u>Mehrnoosh Sameki</u>, Brett Isenberg, Tuan A. Pham, Alberto Purwada, Patricia Solski, Matthew Walker, Chentian Zhang, Joyce Y. Wong, and Margrit Betke. "How to Collect Segmentations for Biomedical Images? A Benchmark Evaluating the Performance of Experts, Crowdsourced Non-Experts, and Algorithms." *IEEE Winter Conference on Applications in Computer Vision* (WACV), 8 pages, 2015. (36.7% acceptance rate)
- [C3] <u>Seule Ki Kim</u>, Danna Gurari, Chian Yang, Christopher D. Hartman, Matthew Jacobsen, Joyce Y. Wong, and Margrit Betke. "I'mCell: A Touch Pad Tool for Annotating Cell Images." *Biomedical Signal Analysis* (BSA): 3-D Imaging in Medicine, Florianopolis, Brazil, 3 pages, 2014.
- [C2] Zheng Wu, Danna Gurari, Joyce Y. Wong, and Margrit Betke. "Hierarchical Partial Matching and Segmentation of Interacting Cells." Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 8 pages, 2012. (32% acceptance rate)
- [C1] Byunghyung Kim, Danna Gurari, Hough O'Donnell, and Margrit Betke. "Interactive Art System for Multiple Users Based on Tracking Hand Movements." *IADIS International Conference Interfaces and Human Computer Interaction (IHCI)*, 8 pages, 2011.

Peer-Reviewed Workshop Publications

- [W11] Stuti Pandey, Josh Myers-Dean, Jarek Reynolds, and Danna Gurari. "Interpreting COVID Lateral Flow Tests' Results with Foundation Models." CVPR Workshop on Domain adaptation, Explainability, Fairness in AI for Medical Image Analysis (DEF-AI-MIA), 8 pages, June 2024.
- [W10] Samreen Anjum and **Danna Gurari**. "CTMC: Cell Tracking with Mitosis Detection Dataset Challenge." <u>CVPR Computer Vision for Microscopy Image Analysis (CVMI) Workshop</u>, 9 pages, June 2020.
- [W9] <u>Abigale Stangl</u> and **Danna Gurari**. "Towards Technologies that Mitigate Private Visual Information Disclosure by People who are Blind or Have Low Vision." *CHI Networked Privacy Workshop*, 4 pages, April 2020.
- [W8] <u>Anuparna Banerjee</u>, <u>Samridhi Ojha</u>, and **Danna Gurari**. "Let's Agree to Disagree: A Meta-Analysis of Disagreement Among Crowd Workers During Visual Question Answering." *AAAI HCOMP Workshop on Human Computation for Image and Video Analysis (GroupSight)*, 4 pages, October 2017.
- [W7] <u>Mehrnoosh Sameki</u>, Mattia Gentil, **Danna Gurari**, Elham Saraee, Erik Hasenberg, Joyce Y. Wong and Margrit Betke. "CrowdTrack: Interactive Tracking of Cells in Microscopy Image Sequences with Crowdsourcing Support." AAAI HCOMP Workshop on Human Computation for Image and Video Analysis (GroupSight), 4 pages, 2016. Best Paper Runner-Up Award. (Selected by steering committee from anonymized papers)
- [W6] Danna Gurari, <u>Mehrnoosh Sameki</u>, Zheng Wu and Margrit Betke. "Mixing Crowd and Algorithm Efforts to Segment Objects in Biomedical Images." *MICCAI Interactive Medical Image Computation Workshop* (*IMIC*), 8 pages, 2016.
- [W5] Mattia Gentil, <u>Mehrnoosh Sameki</u>, Danna Gurari, Elham Saraee, Erik Hasenberg, Joyce Y. Wong, and Margrit Betke. "Interactive Tracking of Cells in Microscopy Image Sequences." *MICCAI Interactive Medical Image Computation Workshop (IMIC)*, 10 pages, 2016.
- [W4] <u>Mehrnoosh Sameki</u>, Danna Gurari, and Margrit Betke. "ICORD: Intelligent Collection of Redundant Data? A Dynamic System for Crowdsourcing Cell Segmentations Accurately and Efficiently." CVPR Computer Vision for Microscopy Image Analysis (CVMI) Workshop, 10 pages, June 2016.
- [W3] Danna Gurari, Diane Theriault, <u>Mehrnoosh Sameki</u>, and Margrit Betke. "How to Use Level Set Methods to Accurately Find Boundaries of Cells in Biomedical Images? Evaluation of Six Methods Paired with Automated and Crowdsourced Initial Contours." *MICCAI Interactive Medical Image Computation Workshop (IMIC)*, 9 pages, 2014. Best Paper Award for Innovative Idea.
- [W2] Danna Gurari, Diane Theriault, and Margrit Betke. "Informed Segmentation: A Framework for Using Context to Select an Algorithm and a Case Study Using Humans in the Loop." MICCAI Interactive Medical Image Computation Workshop (IMIC), 9 pages, 2014.
- [W1] Danna Gurari, Seule Ki Kim, Eugene Yang, Brett Eisenberg, Tuan A. Pham, Alberto Purwada, Patricia Solski, Matthew Walker, Joyce Y. Wong, and Margrit Betke. "SAGE: An Approach and Implementation Empowering Quick and Reliable Quantitative Analysis of Segmentation Quality." *IEEE Workshop on Applications in Computer Vision (WACV)*, pp. 475-481, 2013. Best Paper Award. 2 awardees from 161 submitted papers.

Dissertation and Thesis

- [T2] Danna Gurari. Combining Crowd Worker, Algorithm, and Expert Efforts to Find Boundaries of Objects in Images. *PhD Dissertation*, Boston University Department of Computer Science, July 2015.
- [T1] Danna Gurari. Harmonic Imaging Using a Mechanical Sector, B-Mode Ultrasound System. Master's Thesis, Washington University Department of Computer Science, August 2005.

PRESENTATIONS

Invited Technical Oral Presentations (excludes conference/workshop publication presentations)

Authors with names underlined are individuals I advised or mentored.

- Unless otherwise specified, ${\it I}$ gave the presentation.

- [TP38] Annual Conference for the American Association of Physics in Medicine, "Analysis of the Accuracy of Computer Vision Assisted Surface-Guided Radiation Therapy." <u>Atharva Peshkar</u>, Danna Gurari, Sarah Milgrom, Willem Schreuder, and David Thomas. Houston, Texas, July 22, 2024. (Innovations in Medical Physics Award.)
- [TP37] Computer Vision with Humans in the Loop Workshop, Computer Vision and Pattern Recognition (CVPR), "Predicting When to Engage Humans to Efficiently, Collect High Quality Image and Video Annotations" Seattle, Washington, June 18, 2024.
- [TP36] Future of Accessible Work and GenAI Workshop, University of California, Irvine, "AI Descriptions of Visual Content Taken by People With Visual Impairments: The Past Decade and What's Next." Virtual, June 7, 2024.
- [TP35] Virtual Perception and Cognitive Science Seminar, University of Minnesota, "AI Descriptions of Visual Content Taken by People With Visual Impairments: The Past Decade and What's Next." Virtual, December 12, 2023.
- [TP34] Fairness in Datasets for Machine Learning in Accessibility Workshop, Google, "Responsible Data Practices Panel." Virtual, August 10, 2023.
- [TP33] Functional Vision and Accessibility (FVA) Conference, Smith-Kettlewell Eye Research Institute, "AI Descriptions of Visual Content Taken by People With Visual Impairments: The Past Decade and What's Next." Virtual, August 4, 2023.
- [TP32] Annual Conference for the American Association of Physics in Medicine, "Computer Vision Assisted Alignment for Stereotactic Body Radiation Therapy (SBRT)." <u>Atharva Peshkar</u>, Danna Gurari, Sergi Pujades, Michael Black, and David Thomas. Houston, Texas, July 25, 2023. (Top 15 from ~2,200 submitted abstracts. Best in Physics Award.)
- [TP31] Sight Tech Global, "Did Computer Vision AI Just Get Worse or Better?" Virtual, December 8, 2022.
- [TP30] UG²+ Challenge: Bridging Gap Between Computational Photography, Computer Vision and Pattern Recognition (CVPR), "Understanding Quality Issues in Images Taken by Blind People and Their Implications for AI that Describes the Images." New Orleans, Louisiana, June 20, 2022.
- [TP29] Vision Lab, Stanford, "Describing Images with AI: Challenges and Opportunities for a Real-World Application." Virtual, June 6, 2022.
- [TP28] Human-Centered Machine Learning Group, Apple, "Describing Images with AI: Challenges and Opportunities for a Real-World Application." Virtual, May 23, 2022.
- [TP27] Ability Summit, Microsoft, "AI and Accessibility in the Cloud." Virtual, May 10, 2022.
- [TP26] International Conference on Information Technology (Keynote), "Describing Images with AI: Challenges and Opportunities for a Real-World Application." Virtual, April 12, 2022.
- [TP25] Data-Enabled Science Seminar, University of Houston Mathematics Department, "Designing Computer Vision Algorithms to Support Real Users and Recognize Multiple Perspectives." Virtual, October 22, 2021.
- [TP24] Future of Computer Vision Datasets Workshop, Computer Vision and Pattern Recognition (CVPR), "Current Limitations of Computer Vision Datasets." Virtual, June 20, 2021.

- [TP23] NLP Highlights Podcast, Allen Institute for AI, "VQA for Real Users." Virtual, May 4, 2021.
- [TP22] LANTERN The Third Workshop Beyond Vision and Language: Integrating Real World Knowledge, European Chapter of the Association for Computational Linguistics, "Vision and Language Problems for a Real-World Application of Describing Images Taken by People Who Are Blind." Virtual, April 20, 2021.
- [TP21] **IBM Research seminar**, "Vision and Language Problems for a Real-World Application of Describing Images Taken by People Who Are Blind." Virtual, March 23, 2021.
- [TP20] Sight Tech Global, "Computer Vision, AI and Accessibility: What's missing from this picture?" Virtual, December 3, 2020.
- [TP19] A State of the Science Virtual Conference on Rehabilitation Technology and Methods in Blindness and Low Vision, The Smith-Kettlewell Eye Research Institute, "Challenges and Opportunities for Computer Vision." Virtual, October 23, 2020.
- [TP18] Visual Question Answering and Dialog Workshop, Computer Vision and Pattern Recognition (CVPR), "Visual Question Answering: Challenges and Opportunities for a Real-World Application." Seattle, Washington, June, 2020.
- [TP17] Microsoft Research Webinar Series, "Designing Computer Vision Algorithms to Describe the Visual World to People Who Are Blind or Low Vision." Redmond, Washington, March, 2020.
- [TP16] University of Colorado Boulder, Computer Science Department, "Designing Computer Vision Algorithms to Support Real Users and Recognize Multiple Perspectives." Boulder, Colorado, March, 2020.
- [TP15] Microsoft Faculty Fellowship Summit, "Designing Computer Vision Algorithms to Support Real Users and Recognize Multiple Perspectives." Redmond, Washington, February, 2020.
- [TP14] Crowd, Cloud and the Future of Work Workshop, Microsoft Faculty Summit, "Learning to Recognize When and Why a Crowd Will Offer Different Answers to a Visual Question." Redmond, Washington, July, 2019.
- [TP13] Microsoft Faculty Summit, "Learning to Describe Images Taken by People Who Are Blind." Redmond, Washington, July, 2019.
- [TP12] Workshop on Shortcomings in Vision and Language (SiVL), European Conference on Computer Vision (ECCV), "Visual Questions: Learning to Assist Blind People and Detect When/Why a Crowd Will Disagree on the Answer." Munich, Germany, September, 2018.
- [TP11] Workshop on Large-scale Annotation of Biomedical data and Expert Label Synthesis (LA-BELS), Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), "Mixing Crowds, Machines, and Experts for Biomedical Image Annotation." Quebec, September, 2017.
- [TP10] Computer Vision for Microscopy Image Analysis (CVMI) Workshop, Computer Vision and Pattern Recognition (CVPR), "Mixing Crowds, Machines, and Experts for Biomedical Image Annotation." Las Vegas, Nevada, July, 2016.
- [TP9] University of Texas at Austin, School of Information, "Mixing Crowds, Machines, and Experts for Scalable Image Annotation." Austin, Texas, May, 2016.
- [TP8] University of Rochester, Computer Science Department, "Mixing Crowds, Machines, and Experts for Scalable Image Annotation." Rochester, New York, October, 2015.
- [TP7] **Tufts University**, Computer Science Department, "Combining Crowd Worker, Algorithm, and Expert Efforts to Accurately and Efficiently Annotate Images." Medford, Massachusetts, April, 2015.
- [TP6] University of Texas at Austin, Computer Vision Group, "Combining Crowd Worker, Algorithm, and Expert Efforts to Accurately and Efficiently Annotate Images." Austin, Texas, April, 2015.

- [TP5] Massachusetts Institute of Technology (MIT), Media Lab, Camera Culture Group, "Combining Crowd Worker, Algorithm, and Expert Efforts to Accurately and Efficiently Annotate Images." Cambridge, Massachusetts, March, 2015.
- [TP4] Massachusetts Institute of Technology (MIT), Computer Science and Artificial Intelligence Laboratory, Computer Vision Group, "How to Utilize Crowdsourced Humans and Computers to Efficiently Collect Accurate Boundaries of Objects in Images?" Cambridge, Massachusetts, December, 2014.
- [TP3] Massachusetts Institute of Technology (MIT), Computer Science and Artificial Intelligence Laboratory, Computer Graphics Group, "How to Utilize Crowdsourcing and Algorithms to Efficiently Collect Accurate Boundaries of Objects in Images?" Cambridge, Massachusetts, October, 2014.
- [TP2] Istituto Italiano di Tecnologia (IIT), Pattern Analysis and Computer Vision Department, "Segmentation of Interacting Cells", Genova, Italy, September, 2012.
- [TP1] Boston University (BU), Image and Video Computing Group Seminar, "Segmentation of Interacting Cells," Boston, Massachusetts, April, 2012.

Outreach Presentations

- [OP4] **Boston University**, "Computer Vision and My Journey to Develop an Academic Career in this Field." Boston University ACM-W Student Chapter, August 2020.
- [OP3] **Boston University**, "Introduction to Computer Vision." Four presentations to female high school students from the Boston community, *The Artemis Project*, Boston, Massachusetts, July 2014, July 2013, June 2012, and July 2011.
- [OP2] **Boston University**, "Automated Cell Tracking." Presentation to first year BU undergraduate students, *Kern Leadership Workshop*, Boston, Massachusetts, September, 2011.
- [OP1] **Boston University**, "How to Find and Win a Fellowship." Presentation to undergraduate and first year graduate science and engineering female students, *Graduate Women In Science and Engineering Seminar*, Boston, Massachusetts, September, 2011.

TEACHING ACTIVITIES

Course: Neural Networks and Deep Learning Role: Created new curriculum and materials Audience: Graduate students at University of Colorado Boulder	Spring 2022, Fall 2022, Spring 2024
Course: Recent Advances in Computer Vision Role: Created new curriculum and materials Audience: Graduate students at University of Colorado Boulder	Fall 2021, Fall 2023
Course: Introduction to Machine Learning Role: Created new curriculum and materials Audience: Graduate students at University of Texas at Austin	Fall 2018, Springs of 2018-2021
Course: Crowdsourcing for Computer Vision Role: Created new curriculum and materials Audience: Graduate students at University of Texas at Austin	Spring 2017, Fall 2017, Fall 2019
Guest Lectures	
• Course: Disciplinary Foundations, Topic: Machine Learning	2017, 2019
• Course: Human Computation and Crowdsourcing, Topic: Crowdsou	rcing for Computer Vision 2017
• Course: Honors Machine Learning and Vision, Topic: Binary Image	e Analysis 2015

• Course: Image and Video Computing, Topic: Active Contours	2014
Teaching Fellowships	
• Course: Introduction to Internet Technologies and Web Programming	2014
• Course: Image and Video Computing	2011
Education Lead, Boulder Imaging	2008 - 2010
Role: Created curriculum and materials (in-class and video)	
Audience: Employees and customers	
Topics: High performance cameras, video standards, high performance digital video	
recording systems, and image processing and analysis	

ADVISING AND MENTORING

Postdoctoral Fellows, Mentor

Samreen Anjum Abigale Stangl

Doctoral Students, Advisor

Zhuoheng Li Nicholas Cooper Neelima Prasad Jarek Reynolds Atharva Peshkar Josh Myers-Dean Yu-Yen (Everley) Tseng Chongyan Chen Samreen Anjum, Ph.D. Tai-Yin Chiu, Ph.D. Yinan Zhao, Ph.D.

Masters Students, Thesis Advisor

Anush Kumar Venkatesh Ojasvi Bhalerao Chongyan Chen Yanan Wang Meng Zhang Xiaoyu (Edith) Zeng

Undergraduate Students, Mentor

Jarek Reynolds Zach Bogart Tatiana Schmidt Eugene Yang

Doctoral Students, Committee Member

Mary Martin Mohammad Imrul Jubair Rey Koki August 2024 - Present August 2023 - Present August 2023 - Present August 2023 - Present August 2022 - Present August 2021 - Present August 2021 - Present May 2020 - Present August 2018 - July 2023 May 2019 - Oct 2022 August 2017 - Aug 2021

August 2023 - May 2024

May 2019 - Dec 2020

August 2023 - May 2024 January 2022 - May 2023 September 2019 - May 2019 January 2019 - August 2019 January 2019 - May 2019 January 2019 - May 2019

> January 2022 - May 2023 Summer 2014 January 2013 - July 2013 Summer 2012

May 2024 - Present April 2024 - Present December 2023 - Present Mohsena Ashraf Shivendra Agrawal Jaxsen Day Nathan Davis Michael McCabe Lucas Hayne Xu Han Tyler Scott Mitch Fulton Mehrnoosh Sameki, Ph.D.

Masters Students, Committee Member

Claire Simpson Lu Jin Yifan Gong Brandon Uyvu Dang

Undergraduate Students, Committee Member

Eric Fithian

Independent Study/Research Advisor

Aashish Mukund Stuti Pandev Neel Karsanbhai Chandra Kanth Nagesh Reza Akbarian Bafghi Alexander (Alec) Bell Sanjana Tripathi Anubrata Das Nilavra Bhattacharya Chi (Benny) Lin Ambika Verma Brandon Uyvu Dang Aimee Yun-Fang Lin Anuparna Banerjee Samridhi Ojha Esha Kothari

Visiting Researcher, Advisor

Qing Li

High School Student, Mentor

Christopher Hung

Online Mentoring

 ${\it MeToMeToo}, \ www.metometoo.com$

My twin sister and I published resources we used while developing academic careers, with the larger goal of establishing a centralized resource for those pursuing similar careers. Our articles to date have over 3,000 views from an international audience.

November 2023 - Present May 2023 - Present September 2019 - Present January 2019 - Present August 2023 - April 2024 September 2022 - October 2023 October 2021 - July 2023 September 2021 - Jan 2023 Spring 2022 April 2014 - August 2017

> May 2023 - May 2024 January 2020 - May 2020 January 2019 - May 2019 January 2018 - May 2018

> > August 2024 - Present

Spring 2024 - Present Spring 2023 - May 2024 Fall 2022 - May 2023 July 2022 - May 2023 August 2021 - December 2022 August 2021 - November 2022 Spring 2020 January 2019 - October 2019 January 2018 - December 2019 August 2017 - May 2019 May 2017 - September 2019 May 2017 - May 2018 January 2017 - September 2017 January 2017 - September 2017 January 2017 - September 2017 July 2016 - August 2017

Summer 2018

Summer 2013

2011 - 2013

PROFESSIONAL SERVICE

Conference Co-Organizer

(CVPR) Accessibility Chair	2023, 2024
(HCOMP) Works in Progress and Demos co-chair	2021
Interdisciplinary User-Centered Health Informatics Conference: Aging, Culture, and Community	2019
(CVPR) Student Volunteer Chair	2018

Workshop Co-Founder and/or Co-Organizer

(CVPR) AVA: Accessibility, Vision, and Autonomy Meet	2022 - 2024
(CVPR) VizWiz Grand Challenge: Describing Images from Blind People	2020, 2021 - 2024
(CVPR) UG ² + Challenge: Bridging Gap Between Computational Photography & Visual	Recognition 2021
(CSCW) Good Systems: Ethical AI	2019
(ECCV) VizWiz Grand Challenge: Answering Visual Questions from Blind People	2018
Lorentz-eScience Workshop on Crowdsourcing for Medical Image Analysis	2018
(HCOMP) GroupSight: Workshop on Human Computation for Image and Video Analysis	s 2016, 2017

Area Chair

IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)	2024
IEEE Winter Conference on Applications in Computer Vision (WACV)	2016, 2021, 2023, 2025

Program Committee/Reviewer

Human Computation Journal	2021
ACM Transactions on Accessible Computing (TACCESS)	2020
European Conference on Computer Vision (ECCV)	2020
AAAI Conference on Human Computation and Crowdsourcing (HCOMP)	2019
ACM Conference on Human Factors in Computing Systems (CHI)	2016, 2017, 2019
MICCAI Workshop on Large-scale Annotation of Biomedical data and Expert Label	2016, 2017
Synthesis (LABELS)	
MICCAI Interactive Medical Image Computing (IMIC) Workshop	2016
AAAI Conference on Artificial Intelligence	2016
ACM Transactions on Intelligent Systems and Technology (ACM TIST)	2015
Computer Vision and Image Understanding (CVIU)	2015
Winter Conference on Applications of Computer Vision (WACV)	2014, 2015

Departmental Service

Executive Committee, University of Colorado Boulder	2023 - Present
Diversity, Equity, and Inclusion (DEI) Committee, University of Colorado Boulder	2021 - 2023
Chair of Faculty/Staff Awards & Honors Nominating Committee, University of Texas at Austi	n 2020 - 2021
Committee on Committees, University of Texas at Austin	2019 - 2021
Doctoral Studies Committee, University of Texas at Austin	2019 - 2020
Assistant Professor Search Committee, University of Texas at Austin	2018 - 2019
Undergraduate Education Committee, University of Texas at Austin	2018 - 2019
Faculty Workload Committee, University of Texas at Austin	2018
TA Task Force, University of Texas at Austin	2018
Seminar Series Organizer for Image and Video Computing Group, Boston University	2011 - 2015

University Service

AB Nexus Grant Proposal Review	2024
Professional Development Chair for Graduate Women in Science & Engineering, Boston	2011 - 2013
University	

Other

National Science Foundation (NSF) Human-Centered Computing (HCC) Grant Proposal Review2021Silicon Valley Community Foundation Chan Zuckerberg Initiative (CZI) Grant Proposal Review2019National Science Foundation (NSF) Cyber-Human Systems (CHS) Grant Proposal Review2018

MEDIA COVERAGE

WIRED - "AI Could Change How Blind People See the World"	2023
CVPR Daily - "VizWiz Grand Challenge Workshop"	2021
EurekAlert! - "One-size fits all image descriptions on the web don't meet the needs of blind people"	2021
TechXplore - "Keeping the unseen safe: Improving digital privacy for blind people"	2021
Mirage News - "Keeping unseen safe: Improving digital privacy for blind people"	2021
CU Boulder CEAS News - "Keeping the unseen safe: Improving digital privacy for blind people"	2021
Analytics India Magazine - "How Microsoft Is Enabling Its AI-Based Technology To Be Disability-Inclusive"	2020
DE 24 News with article reposted to AlKhaleej Today and The Next Web - "Microsoft unveils efforts to make AI more accessible to people with disabilities"	2020
TechCrunch with article reposted to Yahoo! Finance, Daily News, Dizzed, HEDGE Accordingly, iTechNews, ProWell Tech, Small Tech News, and Tweaks - "Microsoft and partners aim to shrink the 'data desert' limiting accessible AI"	2020
TechRepublic - "Microsoft wants AI to be more helpful for people who are blind or use wheelchairs"	2020
Microsoft AI Blog - "Shrinking the 'Data Desert': Inside Efforts to Make AI systems More Inclusive of People With Disabilities"	2020
IBM Research Blog for publication [C22] - "Image Captioning as an Assistive Technology"	2020
Alastair Somerville on Medium.com for publication [C20] - "Adding Context to Alt Text: User Centred Image Description"	2020
Microsoft Research Blog for publication [C20] - "Alt Text That Informs: Meeting the Needs of People Who Are Blind or Low Vision"	2020
The Daily Texan - "UT, Microsoft Researchers Seek to Make Computers More Accessible to People Who Are Blind"	2019
MIT Technology Review for publication [C11] - "A New Data Trove Could Teach Computers to Tell Blind People What They Need to Know"	2018
Korea IT Times for publication [C11] - "SK Telecom Wins Prize at 'VizWiz Grand Challenge 2018"	2018

D!gitalist Magazine for publication [C11] - "Computer Vision: An Artificial Eye To Blind People"	2018
Center for Data Innovation Blog for publication [C11] - "Training Virtual Assistants for People Who Are Blind"	2018
Denis Dushi et al. on Medium.com for publication [C11] - "VizWiz: Computer Vision Researchers Join Forces for Social Good"	2018