

# DANNA GURARI

danna.gurari@colorado.edu ◊ <https://home.cs.colorado.edu/~DrG/>

## RESEARCH INTERESTS

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Computer vision, machine learning, crowdsourcing, human computation, human computer interaction, accessibility, biomedical image analysis, medical image analysis

## PROFESSIONAL APPOINTMENTS

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**Assistant Professor** August 2021 - Present  
Computer Science, University of Colorado Boulder

**Research Fellow** August 2021 - Present  
School of Information, University of Texas at Austin

**Assistant Professor** January 2017 - August 2021  
School of Information, University of Texas at Austin  
Related Appointments: Faculty Affiliate for Texas Aging and Longevity Center (since 2019),  
Graduate Studies Committee (GSC) for Department of Computer Science (since 2018)

**Postdoctoral Fellow** August 2015 - January 2017  
Computer Science, University of Texas at Austin  
Advisor: Dr. Kristen Grauman

**Boulder Imaging** 2007 - 2010  
Software Developer/Project Manager/Education Lead

**Raytheon** 2005 - 2007  
Software Engineer

## EDUCATION

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**Ph.D., Computer Science** 2010 - 2015  
Boston University; Advisor: Dr. Margrit Betke

**M.S., Computer Science** 2004 - 2005  
Washington University in St. Louis; Advisor: Dr. William D. Richard

**B.S., Biomedical Engineering Major and Philosophy Minor** 2000 - 2005  
Washington University in St. Louis

## HONORS AND AWARDS

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**Best Paper Honorable Mention** 2020  
- Publication [J4]: ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)

**SIG-USE Innovation Award** 2020  
- Publication [C24]: Association for Information Science and Technology (ASIS&T)

**Civic Futures Award: Designing for the 100%** 2019  
- Recognition for government and education employees in Central Texas who are shaping the future

**Best Paper Honorable Mention** 2017  
- Publication [C9]: ACM Conference on Human Factors in Computing Systems (CHI)

**Best Paper Runner-Up Award** 2016  
- Publication [W7]: AAAI Conference on Human Computation & Crowdsourcing (HCOMP):  
Workshop on Human Computation for Image and Video Analysis

<b>Researcher Excellence Award</b> - Annual award for selected Ph.D. students in Boston University's computer science department	2015
<b>Best Paper Award: Innovative Idea</b> - Publication [W3]: Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI): Interactive Medical Image Computation (IMIC) Workshop	2014
<b>Best Paper Award</b> - Publication [W1]: Workshop on Applications in Computer Vision (WACV)	2013
<b>Ford Foundation Fellowship Honorable Mention</b>	2011

## FUNDING

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### Research

<b>University of Colorado Cancer Center, Investigator Initiated Trials</b> <i>Computer Vision Enhanced Breast DIBH-RT</i> Co-PI: Danna Gurari (with Dr. David Thomas) Amount: \$70,000 (Total: \$100,000)	2023
<b>Adobe Research</b> Amount: \$20,000	2023
<b>University of Colorado Anschutz, Department of Radiation Oncology</b> <i>Computer Vision Assisted Alignment for Pancreatic Stereotactic Body Radiation Therapy (SBRT)</i> PI: Danna Gurari Amount: \$25,000	2023
<b>Wings of Hope for Pancreatic Research</b> <i>Computer Vision Assisted Alignment for Pancreatic Stereotactic Body Radiation Therapy (SBRT)</i> Co-PI: Danna Gurari (with Dr. David Thomas) Amount: \$25,000 (Total: \$25,000)	2023
<b>Adobe Research</b> Amount: \$15,000	2022
<b>Microsoft AI4A</b> <i>Efficient Computer Vision Designed for People With Vision Impairments</i> PI: Danna Gurari Amount: \$25,000 (Azure computing credit)	2021-2022
<b>National Science Foundation SaTC Grant 2148080</b> <i>Novel Algorithms and Tools for Empowering People Who Are Blind to Safeguard Private Visual Content</i> PI: Danna Gurari (with Co-PIs Dr. Leah Findlater and Dr. Yang Wang) Amount: \$567,706 (Total: \$1,199,993)	2021 - 2025
<b>Amazon Mechanical Turk</b> Amount: \$8,640 (credit to cover Amazon Mechanical Turk fees)	2021
<b>Microsoft AI4A</b> <i>Optimizing the Visual Experiences of the Visually Impaired on Social Media</i> PI: Danna Gurari Amount: \$20,000 (Azure computing credit)	2021

<b>University of Texas at Austin, Institute for Foundations of Machine Learning</b>	2021
<i>Optimizing the Visual Experiences of the Visually Impaired on Social Media</i>	
Co-PI: Danna Gurari (with PI Dr. Alan Bovik)	
Amount: \$67,342 (Total: \$67,342)	
 <b>Microsoft AI4A</b>	 2020 - 2021
<i>Seeing UI Data Set Creation</i>	
PI: Danna Gurari	
Amount: \$50,000	
 <b>University of Texas at Austin, Good Systems</b>	 2020 - 2021
<i>ML4GIS: Developing and Evaluating Computer Vision Methods to Enhance Access to Geospatial Data in Large Historical Map Collections</i>	
PI: Danna Gurari (with Co-PIs Aaron Choate and Michael Shensky)	
Amount: \$29,831 (Total: \$40,000)	
 <b>Adobe Research</b>	 2020
Amount: \$14,000	
 <b>University of Texas at Austin, Good Systems</b>	 2019 - 2020
<i>Privacy Preferences and Values for Computer Vision Applications</i>	
PI: Danna Gurari (with Co-PIs Kenneth R. Fleischmann and Bo Xie)	
Amount: \$32,779 (Total: \$99,966)	
 <b>Microsoft AI4A</b>	 2019 - 2020
<i>Technologies that Serve the Needs of People Who Are Blind Or With Low Vision</i>	
PI: Danna Gurari	
Amount: \$150,000	
 <b>Microsoft Ability Initiative (MAI)</b>	 2019 - 2020
<i>Technologies that Serve the Needs of People Who Are Blind Or With Low Vision</i>	
PI: Danna Gurari (with Co-PI Kenneth R. Fleischmann)	
Amount: \$236,092 (Total: \$300,000)	
 <b>Adobe Research</b>	 2019
Amount: \$17,000	
 <b>National Science Foundation CRII Grant IIS-1755593</b>	 2018 - 2021
<i>Predicting When, Why, and How Multiple People Will Disagree When Answering a Visual Question</i>	
PI: Danna Gurari	
Amount: \$174,947	
 <b>Silicon Valley Community Foundation Chan Zuckerberg Initiative Grant</b>	 2018 - 2020
<i>Video Analysis: Efficiently Tracking and Detecting Life Cycle Phase Transitions for Live Cells</i>	
PI: Danna Gurari	
Amount: Cannot disclose publicly	
 <b>Microsoft AI4A: AI for Accessibility Grantee Summit</b>	 2019
PI: Danna Gurari	
Amount: ~\$3,000 (fully-supported travel grant for two people)	
 <b>Microsoft Faculty Summit</b>	 2019

PI: Danna Gurari  
Amount: ~\$1,500 (fully-supported travel grant)

**Amazon Mechanical Turk** 2019  
Amount: \$5,405 (credit to cover Amazon Mechanical Turk fees)

**SAP Sponsorship** 2018  
Amount: \$2,764 (fully-supported travel grant)

**Adobe Research** 2017 - 2018  
Amount: \$36,000

## Service

**Apple Gift** 2023  
Amount: Cannot disclose publicly (support for CVPR 2023 VizWiz Grand Challenge workshop)

**SIGACCESS Gift** 2022  
Amount: \$5,000 (support for CVPR 2022 VizWiz Grand Challenge workshop)

**Apple Gift** 2022  
Amount: Cannot disclose publicly (support for CVPR 2022 VizWiz Grand Challenge workshop)

**Microsoft Azure Workshop Grant** 2022  
Amount: \$30,000 (computing credit for CVPR 2022 VizWiz Grand Challenge workshop)

**Microsoft Azure Workshop Grant** 2021  
Amount: \$30,000 (computing credit for CVPR 2021 VizWiz Grand Challenge workshop)

**Microsoft Azure Workshop Grant** 2020  
Amount: \$30,000 (computing credit for CVPR 2020 VizWiz Grand Challenge workshop)

**Google Cloud Platform Workshop Grant** 2020  
Amount: \$10,000 (computing credit for CVPR 2020 Visual Question Answering & Dialog workshop)

**Lorentz e-Science Competition** 2018  
*Crowdsourcing for Medical Image Analysis Workshop*  
Amount: €15,000 (~\$17,500) + fully-supported international travel grant (~\$3,000)

**Evolv Technology Gift** 2016  
Amount: \$1,700 (support for HCOMP 2016 GroupSight workshop)

## Teaching

**Google Cloud Education Grant** Fall 2023  
Amount: \$2,250

**Google Cloud Education Grant** Fall 2022  
Amount: \$5,500

**Microsoft Azure Curriculum Grants** 2018 - 2022  
Amount: \$65,000

## PUBLICATIONS

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*Authors with names underlined are individuals I advised or mentored*

### 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, Ambika Verma, 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] Samreen Anjum, Chi Lin, 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, Tai-Yin Chiu, Nilavra Bhattacharya, 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**, Yinan Zhao, 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, Mehrnoosh Sameki, 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

- [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] Reza Akbarian Bafghi 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] Tai-Yin Chiu 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, Alexander Bell, 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] Tai-Yin Chiu 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] Tai-Yin Chiu and **Danna Gurari**. “PhotoWCT<sup>2</sup>: 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] Abigale Stangl, 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] Nathan Davis, **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] Tai-Yin Chiu 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**, Yinan Zhao, Meng Zhang, and Nilavra Bhattacharya. “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] Tai-Yin Chiu, Yinan Zhao, 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] Yinan Zhao, 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] Nilavra Bhattacharya, Qing Li, 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] Anubrata Das, Samreen Anjum, 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] Yinan Zhao, 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] Aimee Yun-Fang Lin, Shelley Shwu-Ching Young, Harrison Pang-Sheng Lai, 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] Mehrnoosh Sameki, Tianyi Zhang, Linli Ding, 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**, Mehrnoosh Sameki, 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] Mehrnoosh Sameki, **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] Mehrnoosh Sameki, **Danna Gurari**, and Margrit Betke. “Characterizing Image Segmentation Behavior of the Crowd.” *Collective Intelligence*, 4 pages, June 2015.
- [C4] **Danna Gurari**, Diane Theriault, Mehrnoosh Sameki, 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] Seule Ki Kim, **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

- [W10] Samreen Anjum and **Danna Gurari**. “CTMC: Cell Tracking with Mitosis Detection Dataset Challenge.” *CVPR Computer Vision for Microscopy Image Analysis (CVMI) Workshop*, 9 pages, June 2020.
- [W9] Abigale Stangl 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] Anuparna Banerjee, Samridhi Ojha, 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] Mehrnoosh Sameki, 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**, Mehrnoosh Sameki, 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, Mehrnoosh Sameki, **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] Mehrnoosh Sameki, **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, Mehrnoosh Sameki, 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

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

- [TP34] **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.
- [TP33] **Fairness in Datasets for Machine Learning in Accessibility Workshop**, Google, “Responsible Data Practices Panel.” Virtual, August 10, 2023.
- [TP32] **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.
- [TP31] **Sight Tech Global**, “Did Computer Vision AI Just Get Worse or Better?” Virtual, December 8, 2022.
- [TP30] **UG<sup>2</sup>+ 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 (LABELS)**, 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

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**Course: Neural Networks and Deep Learning** Spring 2022, Fall 2022  
 Role: Created new curriculum and materials  
 Audience: Graduate students at University of Colorado Boulder

**Course: Recent Advances in Computer Vision** Fall 2021, Fall 2023  
 Role: Created new curriculum and materials  
 Audience: Graduate students at University of Colorado Boulder

**Course: Introduction to Machine Learning** Fall 2018, Springs of 2018-2021  
 Role: Created new curriculum and materials  
 Audience: Graduate students at University of Texas at Austin

**Course: Crowdsourcing for Computer Vision** Spring 2017, Fall 2017, Fall 2019  
 Role: Created new curriculum and materials  
 Audience: Graduate students at University of Texas at Austin

### Guest Lectures

- Course: Disciplinary Foundations, Topic: Machine Learning 2017, 2019

- Course: Human Computation and Crowdsourcing, Topic: Crowdsourcing for Computer Vision 2017
- Course: Honors Machine Learning and Vision, Topic: Binary Image 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

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### Postdoctoral Fellows, Mentor

Samreen Anjum August 2023 - Present  
 Abigale Stangl May 2019 - Dec 2020

### Doctoral Students, Advisor

Nicholas Cooper August 2023 - Present  
 Neelima Prasad August 2023 - Present  
 Jarek Reynolds August 2023 - Present  
 Atharva Peshkar August 2022 - Present  
 Josh Myers-Dean August 2021 - Present  
 Yu-Yen (Everley) Tseng August 2021 - Present  
 Chongyan Chen May 2020 - Present  
 Samreen Anjum August 2018 - July 2023  
 Tai-Yin Chiu, Ph.D. May 2019 - Oct 2022  
 Yinan Zhao, Ph.D. August 2017 - Aug 2021

### Masters Students, Advisor

Anush Kumar Venkatesh August 2023 - Present  
 Ojasvi Bhalerao January 2022 - May 2023  
 Chongyan Chen September 2019 - May 2019  
 Yanan Wang January 2019 - August 2019  
 Meng Zhang January 2019 - May 2019  
 Xiaoyu (Edith) Zeng January 2019 - May 2019

### Doctoral Students, Committee Member

Rey Koki December 2023 - Present  
 Mohsena Ashraf November 2023 - Present  
 Michael McCabe August 2023 - Present  
 Shivendra Agrawal May 2023 - Present  
 Jaxsen Day September 2019 - Present  
 Nathan Davis January 2019 - Present  
 Lucas Hayne September 2022 - October 2023  
 Xu Han October 2021 - July 2023

Tyler Scott  
Mitch Fulton  
Mehrnoosh Sameki, Ph.D.

September 2021 - Jan 2023  
Spring 2022  
April 2014 - August 2017

### **Masters Students, Committee Member**

Claire Simpson  
Lu Jin  
Yifan Gong  
Brandon Uyvu Dang

May 2023 - Present  
January 2020 - May 2020  
January 2019 - May 2019  
January 2018 - May 2018

### **Visiting Researcher, Advisor**

Qing Li

Summer 2018

### **Independent Study/Research Advisor**

Stuti Pandey  
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

Spring 2023 - Present  
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

### **Undergraduate Students, Mentor**

Jarek Reynolds  
Zach Bogart  
Tatiana Schmidt  
Eugene Yang

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

### **High School Student, Mentor**

Christopher Hung

Summer 2013

### **Online Mentoring**

MeToMeToo, [www.metometoo.com](http://www.metometoo.com)

2011 - 2013

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.

## **PROFESSIONAL SERVICE**

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### **Conference Co-Organizer**

(CVPR) Accessibility Chair  
(HCOMP) Works in Progress and Demos co-chair

2023, 2024  
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, 2023  
(CVPR) VizWiz Grand Challenge: Describing Images from Blind People 2020, 2021, 2022, 2023  
(CVPR) UG<sup>2</sup>+ 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 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

### **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  
Synthesis (LABELS) 2016, 2017  
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 Austin 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**

Professional Development Chair for Graduate Women in Science & Engineering, Boston  
University 2011 - 2013

### **Other**

National Science Foundation (NSF) Human-Centered Computing (HCC) Grant Proposal Review 2021  
Silicon Valley Community Foundation Chan Zuckerberg Initiative (CZI) Grant Proposal Review 2019  
National Science Foundation (NSF) Cyber-Human Systems (CHS) Grant Proposal Review 2018

## MEDIA COVERAGE

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