Curriculum Vitae – Sara Beery

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Education

Expected 2022	Doctorate of Philosophy in Computing and Mathematical Sciences **California Institute of Technology**, Pasadena, CA Advisor: Pietro Perona | Computational Vision Lab Research Areas: Computer Vision for Biodiversity Monitoring and Conservation, Fine-Grained Categorization, Object Detection, Domain Generalization
June 2016	Bachelor of Science in Electrical Engineering Bachelor of Science in Mathematics **Seattle University**, Seattle, WA Computer Engineering and Applied Mathematics Specializations Computer Science Minor Research Areas: Computer Vision, Image Processing, Near-shore Ocean Phenomena, Epidemiology

Fellowships, Scholarships, Awards, and Honors

2021	Caltech Engineering and Applied Science Division DEI New Horizons Award
	Caltech Computing and Mathematical Sciences Gradient for Change DEI Award
	University of Chicago Center for Data and Computing Rising Star in Data Science
2020-21	Amazon AI4Science Fellowship
	PIMCO Fellowship in Data Science
2016-20	National Science Foundation Graduate Research Fellowship
2015-16	Center for Environmental Justice and Sustainability Research Fellowship
	SWE Wanda Munn Scholarship
	American Women in Science Scholarship
	Seattle University Bannan Scholarship
2015	Mathematical Contest in Modeling Honorable Mention
2014-15	General Electric Women's Network Scholarship
	American Women in Science Scholarship
	Seattle University Bannan Scholarship
2004 & 2005	National Latin Exam Gold Medal

Publications and Patents

(*denotes co-first authorship)

Beery (2021). Scaling Biodiversity Monitoring for the Data Age. Invited Feature for ACM XRDS Crossroads Special Issue on Sustainability.

Beery*, Cole*, Winner, Parker, Perona (2021). Species Distribution Modeling for Machine Learning Practitioners: A Review. In Proceedings of the ACM SIGCAS Conference on Computing and Sustainable Societies.

Kulits, Wall, Bedetti, Henley, **Beery** (2021). ElephantBook: A Semi-Automated Human-in-the-Loop System for Elephant Re-Identification. In Proceedings of the ACM SIGCAS Conference on Computing and Sustainable Societies.

Tuia*, Kellenberger*, **Beery***, Costelloe*, Zuffi, Risse, Mathis, Mathis, Langvelde, Burghardt, Kays, Klink, Wikelski, Couzin, van Horn, Crofoot, Stewart, Berger-Wolf (2021). Seeing Biodiversity: Perspectives in Machine Learning for Wildlife Conservation. Invited submission to Nature Communications.

Van Horn, Cole, **Beery**, Wilber, Belongie, & Mac Aodha (2021). Benchmarking Representation Learning for Natural World Image Collections. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition. **(Oral)**

Koh, Sagawa, Marklund, Xie, Zhang, Balsubramani, Hu, Yasunaga, Phillips, **Beery**, Leskovec, Kundaje, Pierson, Levine, Finn, & Liang (2021). WILDS: A Benchmark of in-the-Wild Distribution Shifts. In Proceedings of the International Conference on Machine Learning. **(Oral)**

Norouzzadeh, Morris, **Beery**, Joshi, Jojic, & Clune. (2021). A deep active learning system for species identification and counting in camera trap images. In Methods in Ecology and Evolution. doi:10.1111/2041-210X.13504

Beery, Wu, Rathod, Votel, & Huang (2020). Context R-CNN: Long Term Temporal Context for Per-Camera Object Detection. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (pp. 13075-13085).

Beery, Liu, Morris, Piavis, Kapoor, Joshi, Meister, & Perona. (2020). Synthetic examples improve generalization for rare classes. In The IEEE Winter Conference on Applications of Computer Vision (pp. 863-873).

Beery, Van Horn, & Perona. (2018). Recognition in terra incognita. In Proceedings of the European Conference on Computer Vision (ECCV) (pp. 456-473).

Miguel, **Beery**, Flores, Klemesrud, & Bayrakcismith. (2016). Finding areas of motion in camera trap images. In 2016 IEEE international conference on image processing (ICIP) (pp. 1334-1338). IEEE. **(Oral)**

Beery, Loukili, Borgstadt, Rich, Kise, & Davis. (2016), Methods and apparatus to track a blade, US Patent Application No. US20200217660A1, European Patent Application No. EP3290592A1

Workshop Publications and Conference Abstracts

Beery, S., Agarwal, A., Cole, E., & Birodkar, V. (2021). The iWildCam 2021 Competition Dataset. The Eighth Fine-Grained Visual Categorization Workshop at CVPR.

Beery, S*. & Bondi, E*. (2021). Can poachers find animals from public camera trap images?. CV4Animals Workshop at CVPR.

Lanzino, E., & Beery, S. (2021). Image-to-Image Translation for Synthetic Samples of Rare Classes. CV4Animals Workshop at CVPR.

Kulits, P., Pan, A., Van Horn, G., Beery, S., Young, E., & Perona, P. (2020). Automated Salmonid Counting in Sonar Data. Climate Change AI Workshop at NeurIPS.

Koh, P. W.*, Sagawa, S.*, Marklund, H., Xie, M., Zhang, M., Balsubramani, A., Phillips, R., Beery, S., Kundaje, A., Pierson, E., Levine, S., Finn, C., & Liang, P. (2020). WILDS: A Survey and Benchmark of in-the-Wild Distribution Shifts. Workshop on ML Retrospectives, Surveys & Meta-Analyses at NeurIPS.

Beery, S., Wu, G., Rathod, V., Votel, R., & Huang, J. (2020). Context R-CNN: Long Term Temporal Context for Per-Camera Object Detection. 4th Annual Digital Data Conference, Integrated Digitized Biocollections (iDigBio).

Beery, S., Cole, E., & Gjoka, A. (2020). The iWildCam 2020 Competition Dataset. The Seventh Fine-Grained Visual Categorization Workshop at CVPR.

Beery, S., Wu, G., Rathod, V., Votel, R., & Huang, J. (2020). Context R-CNN: Long Term Temporal Context for Per-Camera Object Detection. The Women in Computer Vision Workshop at CVPR.

Robertson, T., Belongie, S., Hartwig, A., Kaeser-Chen, C., Zhang, C., Tan, K.C., Liu, Y., Brulé, D., Deltheil, C., Loarie, S. Van Horn, G., Mac Aodha, O., Beery, S., Perona, P., Copas, K., & Waller, J. (2019). Training machines to identify species using gbif-mediated datasets. Biodiversity Information Science and Standards.

Beery, S., Morris, D., Yang, S., Simon, M., Norouzzadeh, A., & Joshi, N. (2019). Efficient pipeline for automating species id in new camera trap projects. Biodiversity Information Science and Standards, 3, e37222.

Beery, S., Morris, D., & Yang, S. (2019). Efficient Pipeline for Camera Trap Image Review. Data Mining and AI for Conservation Workshop at Knowledge Discovery and Data (KDD). **(Selected to be featured in the KDD Earth Day Session.)**

Beery, S., Morris, D., & Perona, P. (2019). The iWildCam 2019 Challenge Dataset. The Sixth Fine-Grained Visual Categorization Workshop at CVPR.

Beery, S., Van Horn, G., & Perona, P. (2018). Recognition for Camera Traps in Unknown Territory. AI for Wildlife Conservation Workshop at the Federated Artificial Intelligence Meeting (FAIM).

Beery, S., Van Horn, G., Mac Aodha, O., & Perona, P. (2018). The iWildCam 2018 Challenge Dataset. The Fifth Fine-Grained Visual Categorization Workshop at CVPR.

Edwards, J. R., Beery, S., & Railey, K. E. (2016). An investigation into bio-inspired sonar search performance. The Journal of the Acoustical Society of America, 140(4), 2967-2967.

Beery, S., Flores, E., & Miguel, A. (2013). Snow Leopard Identification Using Digital Image Processing. Murdock College Science Research Conference.

Invited Talks & Panels

Computer Vision for Global-Scale Biodiversity Monitoring - Scaling Geospatial and Taxonomic Coverage Using Contextual Clues

- Berkeley AI + Climate Seminar, 2021
- University of Guelph CARE-AI and Biodiversity Institute Joint Seminar, 2021
- Seminar at Microsoft Research Cambridge, 2020
- Computational Sustainability (CompSust) Doctoral Consortium, 2020

Beyond Benchmarks - Going from Competition-Winning Methods to Real-World Solutions

- LifeCLEF, 2021
- Queer in AI at ICML, 2021

AI-Assisted Biodiversity Monitoring

- Data Science Frontiers Seminar at the African Institute for Mathematical Sciences, 2021
- Leveraging AI to Extend Specimen Networks at iDigBio, 2021
- Princeton AI4All, 2021
- Caltech i-STEM Initiative Panelist, 2021

Out in Technology and Math (Panelist) – UCSD, 2021

Computer Vision for Biodiversity Monitoring and Conservation

- EPFL Joint Mathis Lab Seminar, 2021
- AI for Mankind, 2021
- Yale Center for Biodiversity and Global Change Seminar, 2020

Deep Learning & Camera Traps

- Plenary at Imaginecology Workshop (Deep Learning pour le traitement et l'analyse d'images et de sons en écologie) at Le GDR EcoStat, 2020

Improving Computer Vision for Camera Traps: Leveraging Practitioner Insight to Build Solutions for Real-World Challenges

- Ecological Society of America Annual Meeting, 2020
- CompSust Open Graduate Seminar, 2020
- Camera Trap Technology Symposium, 2019

Animal Re-ID from Camera Traps: Can We Deal with Low-Quality Data? – Deep Learning Methods and Applications for Animal Re-Identification at WACV, 2020

AI for Camera Traps - Challenges, Best Practices, Benchmarks, and De-Siloing Data

- World Agroforestry Centre (ICRAF) Seminar, 2020
- WILDLABS Virtual Meetup on Camera Trapping, 2019
- Computer Vision for Wildlife Conservation Workshop at ICCV, 2019

What's Next in Computer Vision for Wildlife Monitoring (Panelist) – Computer Vision for Wildlife Conservation Workshop at ICCV, 2019

Computer Vision for Camera Traps

- Caltech AI4Science Workshop, 2019
- USC Center for AI in Society Symposium on AI for Conservation, 2019
- Research Seminar at Google Venice, 2019

An investigation into bio-inspired sonar search performance – NASA-JPL Robotics Seminar, 2017

Identifying snow leopards in camera trap images –Seattle U. S.M.A.R.T. Seminar, 2016

Technological advances in farming that made a city girl fall in love with agriculture – Society of Women Engineers Conference, 2015

Funding Awarded (Total $905K)

Beery, S., and Perona, P., *Summer School on Computer Vision Methods for Ecology*, Resnick Sustainability Institute Large-Scale Proposal, Computational costs supported by Microsoft AI for Earth and Amazon AWS, awarded August 2021, $222,285 + $180,000 in-kind

Lanzini, E., van Gemert, J., Bruintjes, R., Lengyel, A., and **Beery, S.**, *Using Style Transfer to Improve Realness of Synthetic Camera Trap Images*, Microsoft AI for Earth Grant, awarded December 2020, $10,000 in-kind

Beery, S., PIMCO Data Science Fellowship, awarded December 2020, $15,000

Beery, S., Cole, E., and Perona, P., *Automated Ecological Monitoring - Learning from Context*, Resnick Sustainability Institute, awarded October 2020, $120,000

Beery, S., Amazon AI4Science Fellowship, awarded September 2020, $20,000

Shippee, T., Cole, E., Rubenstein, D., and **Beery, S.** *Investigating efficient transfer of ML species identification models from nearby regions*. Microsoft AI for Earth Grant, awarded September 2020, $10,000 in-kind

Kulits, P., Wall, J., Hahn, N., Lefcourt, J., Parham, J., Holmberg, J., Berger-Wolf, T., Stere, T., and **Beery, S.**, *Wildbook for Elephants with the Mara Elephant Project*, Microsoft AI for Earth Grant, awarded May 2020, $10,000 in-kind

Beery, S., *A Network of 100 Camera Traps to Estimate Grevy's Zebra Population in Comparison to the Great Grevy's Rally*, Google AI for Nature and Society Grant, awarded January 2020, $15,000 + $5,000 in-kind

Kulits, P., **Beery, S.**, Van Horn, G., Young, E., and Perona, P. *Automated Salmonid Counting in Sonar Data*, Amazon AWS Grant, awarded July 2019, $80,000 + $30,000 in-kind

Beery, S., *The Microsoft MegaDetector - Robust Animal Detection in Global Camera Trap Data*, Microsoft AI for Earth Grant, awarded August 2018, $10,000 in-kind

Beery, S., National Science Foundation Graduate Research Fellowship, awarded April 2016, $138,000

Mentorship

Summer 2021 | High School Research Mentor
Summer Research Connection, Caltech

Mentored a team of four minoritized high school students in their first exposure to research. Facilitated their successful curation of a gold-standard evaluation dataset for our Mpala Camera Trap data.

Fall 2020-Present | Postbac Research Mentor
Building efficient methods for generalizing computer vision models to new regions of the world, Caltech

Curating and efficiently labeling over a year of data collected from our network of cameras at Mpala Research Centre using model distillation, domain adaptation, and active learning.

Fall 2020-Spring 2021 | Graduate Research Mentor
Improving generalization with synthetic data, TU Delft

Co-advised 4 TU Delft computer vision masters students alongside Prof. Jan van Gemert. We are investigated several extensions to my 2020 WACV paper using synthetic data to improve generalization for rare classes. These included training GANs to encourgae more overlap between the synthetic and real data in feature space, performing panoptic segmentation on the camera trap data and augmenting with PanDA, and testing data-efficient GANs to directly synthesize new imagery, as opposed to relying on a graphics engine. First paper accepted to CV4Animals at CVPR 2021, next paper in submission to WACV 2021.

Summer 2020-Present | Graduate Research Mentor
Context-based weakly-supervised object segmentation in static cameras, Caltech

Mentoring an incoming PhD student in her first research project at Caltech. We are investigating using temporal context and bounding boxes as weak supervision to train accurate segmentation models for camera trap data.

Summer 2020-Present | Undergraduate Research Mentor
Building an automated Elephant Re-Identification database, Caltech

Developed a joint project between Mara Elephant Project, Vulcan AI Center for Impact, and WildMe to build the first WildBook for Elephants with API-to-API support for Vulcan's EarthRanger. Hired an excellent, motivated undergrad and mentored him through the software development and the computer vision research for automated re-identification based on ear curvature and attributes. First paper accepted to ACM COMPASS 2021.

Summer 2019-Present | Undergraduate & Graduate Research Mentor
Automating salmonid escapement estimation from sonar data, Caltech

Co-developed a joint project between Trout Unlimited and the Alaska Department of Fish and Game to build a detection, tracking, and length estimation system for salmonid species in ARIS sonar imagery. Co-mentored two undergraduate students, a postbac student, and a first-year graduate student in the development of a prototype system. First paper accepted to Climate Change AI at NeurIPS 2020.

Summer 2020 | Undergraduate Research Mentor
Freshman Summer Research Institute, Caltech

Mentored an incoming Caltech freshman through her first research project. Designed and managed a conservation-focused computer vision research project on the effect of image quality on accuracy.

January 2017 to Present | Undergraduate Academic Mentor
Caltech Women Mentoring Women, Caltech

Mentoring 1-2 undergraduate women in computer science per year, helping them to navigate their academic careers.

Professional Experience

May 2019 to Present | Research Intern, Student Researcher, Wildlife Insights AI Team
Google Research, Seattle, WA & Los Angeles, CA
Context-aware Object Detection
Building a weakly-supervised multimodal approach for monitoring the urban forest. Developing context-aware object detection architectures for object detection in static cameras, with work published at CVPR 2020 and the Ecological Society of America Meeting 2020. Working with the Wildlife Insights AI team towards developing a fully automated species detector for camera traps in order to enable widespread, scalable wildlife monitoring.

August 2021 | Field Work
Mara Elephant Project, Mara North Conservancy, Kenya
Deploying ElephantBook
Trained a team of four rangers to use ElephantBook, our AI-assisted long-term elephant monitoring system, to collect daily elephant sightings in the field.

January 2020 | Field Work
Mpala Research Center, Laikipia, Kenya
Placing and managing a network of 100 camera traps
Planned, budgeted, raised funds ($25K), and executed field-based ecological data collection. This data will be used to investigate bias in camera trap placement and visual re-identification accuracy vs human ground truth (from the Great Grevy's Rally 2020).

Summer 2018 | Research Intern
Microsoft Research & AI for Earth, Seattle, WA
Computer Vision and Generalization
As one of Microsoft AI for Earth's first interns, I jump-started their camera trap workflow and built and open-sourced the MegaDetector, a globally-generalizeable class-agnostic animal detector for camera trap data. We also investigated the use of synthetic data to improve generalization for rare classes, leading to publications at BiodiversityNext 2019, DMAIC at KDD 2019, WACV 2020, and a journal paper in ME&E in January 2021.

June 2013 to June 2016 | Research Assistant
Seattle University, Seattle, WA
Image Processing and Computer Vision
Collaborated with Dr. Agnieszka Miguel on novel AI-based methods to identify snow leopards within sets of camera trap photos. Publication selected as an Oral at IEEE ICIP 2016

Summer 2016 | Summer Research Internship
MIT Lincoln Laboratory, Boston, MA
Advanced Undersea Systems and Tecnology
Worked on implementation of a sonar-based biomimetic ocean floor search procedure for UAVs. Results published in the 2016 Journal of the Accoustical Society of America

Summer 2015 | Machine Automation Engineering Co-Op
John Deere Intelligent Solutions Group, Des Moines, IA
Computer Vision-based Machine Automation
Developed two new systems for vision-based automation using computational geometry and motion tracking. Managed both projects: designed the algorithms and systems, coordinated camera and computing hardware, ordered prototype parts, scheduled testing time in the field, verified the algorithm to 12mm using a Total Station. Patent awarded as Primary Inventor.

Summer 2014 | Electronic Hardware Design Intern
John Deere Electronic Solutions, Fargo, ND
Electronic Hardware Design
Supported the Field Connect Wireless verification process through RF and battery testing.

Datasets, Models, and Competitions

June 2021	iNat 2021 and NeWT iNat 2021 contains 2.7M images of 10,000 species collected from the iNaturalist community science platform. NeWT is a suite of challenging natural world binary classification tasks that go beyond standard species classification, such as age, sex, and counts. These two datasets allow us to explore questions related to large-scale representation and transfer learning in the context of fine-grained categories.
June 2021	The iWildCam 2021 Competition Fourth iWildCam competition, focused on counting individuals of 786 different species across sequences of imagery in novel camera trap deployments from 11 countries, with multi-modal data from iNaturalist and paired satellite imagery.
December 2020	WILDS Open sourced domain adaptation benchmark dataset, captures real-world distribution shifts across diverse applications including camera trap imagery.
June 2020	Context R-CNN Open sourced object detection architecture released in the Tensorflow Object Detection API, uses attention to aggregate information across long time horizons.
June 2019	The iWildCam 2020 Competition Third iWildCam competition, focused on classification of 786 different species in novel camera trap deployments from 11 countries, with multi-modal data from iNaturalist and paired satellite imagery.
June 2019	The iWildCam 2019 Competition Second iWildCam competition, focused on open-set classification of species in camera trap images in Idaho, with training data from camera traps in the American Southwest and multi-modal data from iNaturalist and Microsoft AirSim.
January 2019	The MegaDetector (v1-v5) Open sourced models trained to detect animals, humans, and vehicles in camera trap data released in the Microsoft AI for Earth CameraTrap GitHub repository and used in the data processing workflows of over 30 conservation organizations globally.
August 2018	The Caltech Camera Traps Dataset Publicly released camera trap dataset covering locations and species from the American Southwest with species and bounding box labels, curated from data provided by the USGS and NPS and hosted on LILA.science.
June 2018	The iWildCam 2018 Competition First iWildCam competition, focused on classifying animal/blank images in novel camera trap deployments.

Selected Media

Leveraging Temporal Context for Object Detection, Google AI Blog, June 2020

CNNs Catch Animals in the Wild, Communications of the ACM, April 2020

The Big Picture, Caltech Breakthrough Campaign, November 2018

Internships Ahoy! with Kirsten Bray, Wei Dai and Sara Beery, Microsoft Research Podcast, September 2018

Academic Service

June 2021	Co-organizer and Competition Chair The 8th Fine-Grained Visual Categorization Workshop CVPR 2021, Nashville, TN
September 2020 to Present	Community of Practice Co-Leader Remote Sensing/Machine Learning for Wildlife Surveys U.S. Fish and Wildlife Service Branch of Migratory Bird Surveys
March 2020 to Present	Steering Committee Member Resnick Sustainability Institute Quantitative Ecology Initiative Caltech, Pasadena, CA
March 2020	Co-organizer AI for Animal Re-ID Workshop WACV 2020, Aspen, CO
February 2020	Co-organizer Visipedia Research Group Yearly Meeting New York, NY
June 2019	Organizing Committee Member Seventh Fine Grained Visual Categorization Workshop CVPR 2020, Virtual
November 2019	Organizing Committee Member Camera Trap Technology Symposium Mountain View, CA
June 2019	Organizing Committee Member Sixth Fine Grained Visual Categorization Workshop CVPR 2019, Salt Lake City, Utah
February 2019	Co-organizer Visipedia Research Group Yearly Meeting San Diego, CA
June 2018	Organizing Committee Member Fifth Fine Grained Visual Categorization Workshop CVPR 2018, Long Beach, CA
February 2018	Co-organizer Visipedia Research Group Yearly Meeting Pasadena, CA

Program Committees

Fine Grained Visual Categorization Workshop, CVPR 2018, 2019, 2020, 2021
CV4Animals Workshop, CVPR 2021
EarthVision: Large Scale Computer Vision for Remote Sensing Imagery, CVPR 2021
Webly-Supervised Fine-Grained Workshop, ACCV 2020
AI for Social Good Workshop, 2020, Harvard Center for Research on Computation and Society
Emerging Track on AI for Social Impact, AAAI 2020
Computer Vision for Wildlife Conservation Workshop, ICCV 2019
Data Mining and AI for Conservation Workshop, KDD 2019
AI for Wildlife Conservation Workshop, IJCAI 2018

Editing and Grant Reviews

Guest Member of the Editorial Board for the AI for Sustainability Special Issue of IEEE Latin America Transactions
Guest Subject Matter Editor for Ecological Applications
Meta-Reviewer for the Climate Change AI Innovation Grants Program
Reviewer for the Google AI for Social Good Workshop & Grants Program

Reviewing

NeurIPS
ICLR
ICML
WACV
Special Track on AI for Social Impact, AAAI
ISPRS Journal of Photogrammetry and Remote Sensing
Methods in Ecology and Evolution
Journal of Mammalogy
Mammalian Biology
Ethology
Remote Sensing in Ecology and Conservation
ISPRS Journal of Photogrammetry and Remote Sensing
Ecosphere
Ecological Informatics
PeerJ Computer Science
European Journal of Wildlife Research

Teaching

August 2021 | Director
Summer School on Computer Vision Methods for Ecology
Designed and secured funding ($402K) for an intensive, three-week program will teach applied computer vision methods to senior ecology graduate students and postdocs, to be hosted yearly at Caltech starting Summer 2022. Students will develop hands-on computer vision systems to help answer their own ecological research questions, using their own data.

March 2021 | Co-Instructor
Caltech EE 148
Advanced Topics in Computer Vision: Conservation and Sustainability
Co-designed and led a course in computer vision with a focus on building solutions to real-world problems in conservation and sustainability

October 2020 | Invited Lecture
Georgia Tech VIP-4601 VVS
HumaniTech
"Towards global-scale biodiversity monitoring: scaling geospatial and taxonomic coverage using contextual clues"

October 2020 | Invited Lecture
Georgia Tech VIP-4601 VWE
GaTech4Wildlife
"Towards global-scale biodiversity monitoring: scaling geospatial and taxonomic coverage using contextual clues"

October 2020 | Invited Tutorial
CompSust Doctoral Consortium
"Building models for static sensors: the good, the bad, and the ugly"

April 2020 | Invited Tutorial
WILDLABS Tech Tutor Talk Series
"How do I get started using machine learning for my camera traps?"

April 2020 | Invited Lecture
Caltech EE/CNS/CS 148
Selected Topics in Computational Vision
"Computer Vision for Conservation"

January 2015 to April 2015 | MATLAB Teaching Assistant
Seattle University Electrical and Computer Engineering, Seattle, WA
Teaching and Tutoring Introductory Coding

March 2014 to April 2015 | Facilitated Study Group Coordinator
Seattle University Mathematics Dept., Seattle, WA
Led a once-weekly study group, worked directly with professors, and ran oral exam reviews.

January 2014 to April 2015 | Learning Assistant
Seattle University Math Lab and Learning Commons, Seattle, WA
Drop-in mathematics and physics tutor for subjects through differential equations

October 2012 to January 2014 | STEM Teaching Assistant
University Tutors for Seattle Schools, Seattle, WA
Classroom assistant and one-on-one tutor at a low-income public middle school. Focused on inspiring ELL and special needs students to succeed in STEM.

Leadership, Diversity, Inclusion, and Equity

October 2020 to Present	Member Caltech CMS DEI Steering Committee, Pasadena, CA
June 2020	Co-Lead and Organizer Caltech CMS Town Hall on Removing Racism in Academia, Pasadena, CA
January 2019 to Present	Member Caltech Women's Engagement Board, Pasadena, CA
January 2017 to Present	Founder and Chair Caltech Graduate Women in CMS, Pasadena, CA
January 2017 to Present	Member Caltech EAS Division Graduate Council, Pasadena, CA
January 2017 to Present	Member Caltech CMS Department Graduate Council, Pasadena, CA
June 2015 to June 2016	Regional Collegiate Communications Editor SWE Region J, Seattle, WA
June 2015 to June 2016	Chapter President Alpha Sigma Nu, Seattle, WA *Jesuit Honors Society for Scholarship and Service*
June 2015 to June 2016	Vice President SWE Seattle University Section, Seattle, WA
June 2013 to June 2014	President IEEE Seattle University Branch, Seattle, WA
June 2013 to 2014	SWE Future Leader SWE Seattle University Section, Seattle, WA
June 2013 to June 2014	Outreach Coordinator SWE Seattle University Section, Seattle, WA
September 2012 to June 2014	Student Advisory Board Member Seattle University, Seattle, WA
September 2012 to June 2013	Fundraising Chair SWE Seattle University Section, Seattle, WA

Professional Dance

July 2010 to September 2012
Company Dancer and Assistant Rehearsal Director
Armitage Gone! Dance, New York, NY
Contemporary Choreography and Investigation
Toured internationally as part of an 11-person company. Performed throughout the USA, as well as in Italy, Germany, and the U.K. Directed rehearsals with 16 Italian dancers in preparation for a performance in Milan, working to communicate through language and cultural barriers.

June 2009 to September 2009
Original Workshop Dancer
gloATL, Atlanta,GA
Contemporary Improvization
Explored dance as a performance art in public spaces with this ground-braking Atlanta-based contemporary company.

June 2007 to July 2010
Professional Dancer
Atlanta Ballet, Atlanta,GA
Classical Ballet, Contemporary Choregraphy
Performed and trained with the Atlanta Ballet, taking featured roles such as the Evil Queen in *Snow White*, The Widow in *Dracula*, Princess in *Swan Lake*, and Navigator in *Mozart's Magic Flute*. Originated roles in Victor Quihahda's *Impending Savour Assessment*, John McFall's *Cinderella* and *The Nutcracker*, and Lauri Stalling's *big*. Toured to Monterrey, Mexico to perform *Swan Lake*.

References

Pietro Perona
Allen E. Puckett Professor of Electrical Engineering at Caltech
Lead of the Computational Vision Lab
perona@caltech.edu

Serge Belongie
Professor of Computer Science at the University of Copenhagen
Director of the Pioneer Centre for AI
email

Tanya Berger-Wolf
Professor of Computer Science Engineering, Electrical and Computer Engineering, as well as Evolution, Ecology, and Organismal Biology at the Ohio State University
Director of the Translational Data Analytics Institute
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Jonathan Huang
Research Scientist, Google Research
Lead of Object Detection Team
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Dan Morris
Principal Scientist and Lead, Microsoft AI for Earth and the Microsoft Planetary Computer
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Dan Rubenstein
Class of 1877 Professor of Zoology, Princeton
Behavioral Ecology and Conservation
dir@princeton.edu

Jake Wall
Director of Research and Conservation at the Mara Elephant Project
jake@maraelephantproject.org