LAUREN E. GILLESPIE

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POSITIONS

Assistant Professor — University of Michigan   Ann Arbor, MI
School for Environment and Sustainability   Incoming Fall 2026
- Geospatial Data Sciences Interests: Remote Sensing Foundation Models
- Conservation & Restoration Interests: Citizen Science & Field-Based Approaches
- Ecosystem Science & Management Interests: Rapid Environmental Change

Postdoctoral Associate — Massachusetts Institute of Technology   Cambridge, MA
Schwarzman College of Computing   2025 - 2026
- Advisor: Prof. Sara Beery — MIT, Electrical Engineering & Computer Science
- Co-Advisor: Prof. Sherrie Wang — MIT, Mechanical Engineering
- Research Interests: Vegetation Change Monitoring, Multimodal Foundation Models

Visiting Researcher — Federal University of Minas Gerais   Belo Horizonte, Brazil
Department of Vegetation Biology   2024
- Fulbright research grant recipient - 2023-2024 Cohort
- Advisor: Prof. Danilo Neves — Federal University of Minas Gerais, Plant Biology
- Research Interests: Ecoinformatics, Community Ecology, Neotropical Ecology

EDUCATION

Doctor of Philosophy — Stanford University   Stanford, CA
Computer Science, Stanford Artificial Intelligence Laboratory   2019 - 2025
- Advisor: Prof. Moises Exposito Alonso — UC, Berkeley, Integrative Biology
- Co-Advisor: Prof. Noah Goodman — Stanford University, Computer Science
- Research Interests: Computer Vision for Ecology, AI for Sustainability

Bachelor of Science — Southwestern University   Georgetown, TX
Computer Science & Chemistry, Data Science Minor   2015 - 2019
- Advisor: Prof. Jacob Schrum — Southwestern University Computer Science
- Phi Beta Kappa, Alpha Chi, and Upslion Pi Epsilon inductee
- GPA: 3.954 / 4.00, Summa Cum Laude

PUBLICATIONS

1. Elena Sierra*[†], **Lauren E. Gillespie***, Salim Soltani, Moises Exposito-Alonso, Teja Kattenborn. DivShift: Exploring Domain-Specific Distribution Shift in Large-Scale, Volunteer-Collected Biodiversity Datasets. *Proceedings of the 39th AAAI Conference on Artificial Intelligence, AI for Social Impact Track*, April 2025. **Best Paper Award, AAAI-AISI Track** out of 382 papers. (* denotes first authors; [†] denotes student mentee)

2. Andy Huynh*[†], **Lauren E. Gillespie***, Jael Lopez-Saucedo[†], Claire Tang[†], Rohan Sikand[†], Moises Exposito-Alonso. Contrastive ground-level image and remote sensing pre-training improves representation learning for natural world imagery. *Proceedings of the European Conference on Computer Vision*, October 2024. Poster Presentation, ∼28.% selection rate (2,395 / 8,585 papers) (* denotes first authors; [†] denotes student mentee)

3. **Lauren E. Gillespie**, Megan Ruffley, Moises Exposito-Alonso. Deep learning models map rapid plant species changes from citizen science and remote sensing data. *Proceedings of the National Academy of Sciences*, September 2024.

4. Ruth Y. Oliver, Melissa Chapman, Nathan Emery, **Lauren E. Gillespie**, Natasha Gownaris, Sophia Leiker, Anna C. Nisi, David Ayers, Ian Breckheimer, Hannah Blondin, Ava M. Hoffman, Camille Pagniello, Megan Raisle, Naupaka Zimmerman. Opening a conversation on responsible environmental data science in the age of large language models. *Environmental Data Science*, January 2024.

5. Daniel Kunin, Javier Sagastuy-Brena, **Lauren E. Gillespie**, Eshed Margalit, Hidenori Tanaka, Surya Ganguli, Daniel LK Yamins. The Limiting Dynamics of SGD: Modified Loss, Phase-Space Oscillations, and Anomalous Diffusion. *Neural Computation*, December 2023.

PUBLICATIONS (CONTINUED)

6. Moises Exposito-Alonso, Tom A Booker, Lucas Czech, **Lauren E. Gillespie**, Shannon Hateley, Christopher C Kyriazis, Patricia Lang, Laura Leventhal, David Nogues-Bravo, Veronica Pagowski, Megan Ruffley, Jeffrey P Spence, Seba Toro Arana, Clemens Weiss, Erin Zess. Genetic diversity loss in the Anthropocene. *Science*, September 2022.

7. On the opportunities and risks of foundation models. Rishi Bommasani, ... **Lauren E. Gillespie**... + 112 more authors. Environment, Ethics of Scale sections. *arXiv*, August 2021.

8. Isabel Tweraser, **Lauren E. Gillespie**, Jacob Schrum. Querying across time to interactively evolve animations. *Proceedings of the Genetic and Evolutionary Computation Conference*, August 2018.

9. **Lauren E. Gillespie**, Gabriela R. Gonzalez, and Jacob Schrum. Comparing Direct and Indirect Encodings using both Raw and Hand-Designed Features in Tetris. *Proceedings of the Genetic and Evolutionary Computation Conference*, August 2017.

UNDER REVIEW

1. Nicole Bison[‡], Marcella Cross[‡], Brian J. Enquist[‡], Michelle Greve[‡], Aud H. Halbritter[‡], Julia Kemppinen[‡], Brian Maitner[‡], Sean T. Michaletz[‡], Jocelyn Navarro[‡], Pekka Niittynen[‡], Peter C. le Roux[‡], Vigdis Vandvik[‡], Joe White[‡], Bezawit Yilma Abebe, Nadine Michaela Arzt, Ludwig Baldaszti, Lina Aragón, Samuel Beale, Kristine Birkeli, Anya Palm Courtenay, Hilary Rose Dawson, Liliya Kirilova Draganova, **Lauren Gillespie**, Kaleb Goff, Anna Gowera, Axel Gualdoni-Becerra, Onalenna Gwate, Liyenne Wu Chen Hagenberg, Priya Hansda, Becca Harris, Olivia Jones, Joshua Lee, Michelle Louw, Aino-Maija Määttänen, Nathan Malamud, Lesago Malekana, Bridgette Mc Millan, Nasser Mohammed, Michael Mustri, Samson Mekasha, Sara Shemsu Nasir, Bismark Ofosu-Bamfo, Akuonani Zakeyo Phiri, Morgan Raath-Kruger, Eline Sterre Rentier, Carmen Vazquez Ribera, Grecia Rivas, Francisco Navarro-Rosales, Tin Widyani Satriawan, Imke Smit, Paul Abayomi, Sobowale Soremi, Ragnhild Svensen Stokka, Jiri Subrt, Jonas Trepel, Jakub Wieczorkowski. Plant traits and associated data from an elevation gradient in the Drakensberg, South Africa. *Under review at Scientific Data*. ([‡] denotes lead authors)

2. Salim Soltani, **Lauren Gillespie**, Moises Exposito-Alonso, Olga Ferlian, Nico Eisenhauer, Hannes Feilhauer, Teja Kattenborn. From Ground Photos to Aerial Insights: Automating Citizen Science Labeling for Tree Species Segmentation in UAV Images. *Under review at Biogeosciences*.

INVITED TALKS

- 3rd Workshop on Imageomics at NeurIPS 2025 — *Keynote Speaker*   2025.12
- University of Michigan Human-Centered AI Symposium — *Keynote Speaker*   2025.10
- LifeCLEF 2025 Workshop at ImageCLEF — *Keynote Speaker*   2025.09
- California Biodiversity Network — *Working Group Seminar*   2025.06
- University of California, Berkeley — *Ecolunch Seminar, ESPM*   2025.05
- University of Texas, Austin — *Department Seminar, Integrative Biology*   2025.04
- University of California, Berkeley — *Jepson Herbarium Seminar*   2025.03
- University of California, Berkeley — *Working Group Seminar, DSE Initiative*   2025.01
- University of Michigan, Ann Arbor — *SEAS Department Seminar*   2025.01
- Federal University of Minas Gerais — *Department Seminar, Plant Biology*   2024.11
- University of Freiburg — *Department Seminar, Remote Sensing*   2024.11
- Stanford Spatial Biology workshop — *Invited Lecture*   2023.08
- University of Tokyo Waves in AI Panel — *Invited Lecture*   2023.03
- UC Davis Environmental Data Science Course — *Invited Lecture*   2022.05
- Carnegie Science — *Department Seminar, Global Ecology*   2021.11
- Muskingum University — *Department Seminar, Computer Science*   2021.10
- UC Davis Environmental Data Science Course — *Invited Lecture*   2021.09
- NASA Jet Propulsion Lab — *Department Seminar, Carbon Cycling*   2021.01

CONFERENCE ABSTRACTS	• Living Data 2025 Joint Conference, *Poster*	2025.10
	• NeurIPS Tackling Climate Change with Machine Learning Workshop, *Poster*	2024.12
	• GEO-BON Conference on Monitoring Biodiversity for Action, *Oral Presentation*	2023.10
	• Ecological Society of America Annual Conference, *Inspire Presentation*	2023.08
	• Evolution Annual Meeting, *Oral Presentation*	2023.06
	• Ecological Society of America Annual Meeting, *Oral Presentation*	2022.08
	• American Geophysical Union Annual Meeting, *Oral Presentation*	2021.12
	• Biodiversity Information Science and Standards, *Oral Presentation*	2021.10
	• Ecological Society of America Annual Meeting, *Oral Presentation*	2021.08
	• American Geophysical Union Annual Meeting, *Oral Presentation*	2020.12
	• NeurIPS Women in Machine Learning Workshop, *Poster*	2020.12

TEACHING	**BOT818:** Using Artificial Intelligence for Botanical Studies *Federal University of Minas Gerais — Plant Biology Department*	**Instructor of Record** 2024.11 - 2024.12
	CS197: Computer Science Research *Stanford University — Computer Science Department*	**Instructor of Record** 2023.03 - 2023.06
	CS197C: Using Computer Science Research for CURIS *Stanford University — Computer Science Department*	**Instructor of Record** 2023.03 - 2023.06
	CS221: Artificial Intelligence: Principles and Techniques *Stanford University — Computer Science Department*	**Teaching Assistant** 2021.09 - 2021.12

FUNDING & AWARDS	**METEOR Fellowship**	Massachusetts Institute of Technology *Automating Anthropogenic Biodiversity Monitoring with Foundation Models*	2025.07 - 2026.08 **$127,200**
	Brazil Student Research Award	US Fulbright Program *Mapping Brazil's Plant Biodiversity from the Skies*	2024.02 - 2024.12 **$11,750**
	McCoy Family Center for Ethics in Tech Grant	Stanford University *Scenes from the Anthropocene*	2021.01 - 2024.12 **$20,000**
	AI Innovation Grant	Climate Change AI *ForestBench: Equitable Benchmarks for Monitoring, Reporting and Verification of Nature-Based Solutions with Machine Learning*	2022.01 - 2024.12 **$150,000**
	TomKat Fellowship for Translational Research	Stanford University *Monitoring the Sustainability + Resilience of California's Ecosystems from Space*	2021.07 - 2025.08 **$236,478**
	Graduate Research Fellowship	National Science Foundation *Improving Neuroevolution Using Biologically-Inspired Environmental Change*	2021.07 - 2025.08 **$313,813**

SUPERVISION	*Master's students*	
	Elena Sierra	Stanford University	Computer Science	2023.03 - 2025.06
	• Best Paper Award, AAAI-AISI 2025. • Co-authored machine learning conference publication. • Stanford Krupp Internship Program Grantee, Summer 2024.	
	Andy V. Huynh	Stanford University	Computer Science	2023.03 - 2024.10
	• Best presentation runner-up, Stanford Sustainability Data Science Conference 2024. • Co-authored machine learning conference publication. • Carnegie Science summer intern, Summer 2023.	
	Undergraduate students	
	Yan Lucas	Federal University of Minas Gerais	Biology	2024.04 - 2024.12
	• CNPq Scientific Initiation Scholarship Recipient.	
	Zouberou Sayibou	Stanford University	Computer Science	2022.09 - 2023.07
	• SACNAS 2023 Travel Award Winner.	

Academic Service	**Reviewer** | *Nature Sustainability*	2025.08 - Current
	Reviewer | *Scientific Reports*	2025.08 - Current
	Reviewer | Conference on Neural Information Processing Systems	2025.07 - Current
	Reviewer | Computer Vision for Ecology Workshop Series	2025.07 - Current
	Reviewer | Climate Change AI Workshop Series	2025.02 - Current
	Reviewer | Association for the Advancement of Artificial Intelligence	2024.08 - Current
	Main organizer | Inspire Session | Ecological Society of America	2023.08
	Co-organizer | Symposium Session | Ecological Society of America	2023.08
	Co-organizer | Data for Sustainability Conference | Stanford Data Science	2023.04
Outreach	**Member** | Graduate Student Council | Stanford Computer Science	2022.09 - 2023.09
	Co-organizer | Summer Research Grant Program | Black in AI	2021.04 - 2021.09
	Co-organizer | Inclusion in AI | Stanford Computer Science	2019.09 - 2022.09