Ekaterina Landgren

Contact Information

Cooperative Institute for Research in Environmental Sciences ekaterina.landgren@colorado.edu University of Colorado at Boulder kathlandgren.com Boulder, CO 80309, USA

Research interests

Complex social systems — opinion dynamics, socio-environmental systems, polarization Mathematics of climate — conceptual climate models, exoplanetary atmosphere dynamics

Education

Cornell University	2022
Ph.D., Applied Mathematics	
"Models of Varying Complexity from Voter Networks to Extrasolar Planets"	
Advisor: Steven H. Strogatz	
Cornell University	2020
M.S., Applied Mathematics	
Brown University	2017
B.S., Applied Mathematics, B.A., Philosophy	
Cum Laude, Phi Beta Kappa, Sigma Xi	
"Modeling Evacuation Dynamics in a Crowded Room"	

Advisor: Bjorn Sandstede

Professional Experience University of Colorado Boulder 2023-present Cooperative Institute for Research in Environmental Sciences Postdoctoral Visiting Fellow

Awards and Fellowships

Best Oral Presentation by an Early-Career Researcher, Honorable Mention	2024
Awarded at International School and Conference on Network Science (NetSci2024).	
SIAM Science Policy Fellowship	2024
Awarded annually to 5 early-career mathematicians to gain in-depth knowledge of scien	ce policy.
Collaborate@ICERM	2024
Awarded to a team of 5 mathematicians to spend a week collaborating on the project	
"Modeling and Analysis of Candidate Momentum in U.S. Primary Elections."	
Zonta International Amelia Earhart Fellowship	2021
Awarded annually to up to 35 women around the globe pursuing a PhD in space science	es.
SIAM Student Chapter Certificate of Recognition	2021
Awarded for outstanding service and contributions to the SIAM student chapter.	
Undergraduate Research and Teaching Award	2015, 2016
Awarded to Brown students collaborating with faculty on research projects.	

Mathematical Contest in Modeling, Honorable Mention	2016
In an undergraduate team, created, analyzed, and wrote a report on a model of fluid dyna	mics.
Brown Mathematical Contest for Modeling, Outstanding Winner	2015
In an undergraduate team, created, analyzed, and wrote a report on a model of Hantavirus	s spread.
Travel awards	

Dynamics Days 2025 Travel Award	2025
AWM Travel Grant	2024
Postdoctoral Association of Colorado Travel Award	2024
yrCSS Scholarship for Events on Complex Systems	2024
SIAM Early Career Travel Award	2024
CIRES Early Career Travel Award	2024
Dynamics Days 2024 Travel Award	2024
SIAM Student Travel Award	2019

Manuscripts in Preparation

- Optimal ambition in business, politics, and life 0 Ekaterina Landgren, Ryan Langendorf, Matthew Burgess
- The publication preferences of academics 0 Ian Van Buskirk, Ekaterina Landgren, Marilena Hohmann, Johan Ugander, Aaron Clauset, **Daniel Larremore**

Manuscripts Under Review

Why does the U.S. public underestimate climate policy support? 0 Ekaterina Landgren, Jeremiah Osborne-Gowey, Joshua Garland, Maxwell Boykoff, Matthew Burgess

Peer-Reviewed Publications

Alphabetical author order indicated by +

- 1. A Shallow-water Model Exploration of Atmospheric Circulation on Sub-Neptunes: Effects of **Radiative Forcing and Rotation Period** Ekaterina Landgren, Alice Nadeau, Nikole Lewis, Tiffany Kataria, Peter Hitchcock Planetary Science Journal, 4(6), 106. (2023). DOI: 10.3847/PSJ/acd551
- 2. SWAMPE: A Shallow-Water Atmospheric Model in Python for Exoplanets Ekaterina Landgren, Alice Nadeau Journal of Open Source Software 7 (80), 4872 (2022). DOI: 10.21105/joss.04872
- 3. Comparison of Two Analytic Energy Balance Models Shows Stable Partial Ice Cover Possible for Any Obliguity

Ekaterina Landgren, Alice Nadeau Planetary Science Journal 3.79 (2022). DOI: 10.3847/PSJ/ac603d

- How a minority can win: Unrepresentative outcomes in a simple model of voter turnout Ekaterina Landgren, Jonas L. Juul, Steven H. Strogatz Physical Review E 104.5 (2021): 054307. DOI: 10.1103/PhysRevE.104.054307
- 5. Fractal Behavior of the Fibonomial Triangle Modulo Prime p, Where the Rank of Apparition of p is p + 1.
 - ✦ Michael DeBellevue, Ekaterina Kryuchkova (Landgren) Fibonacci Quarterly 56 (2018): 113-120.

Presentations

Invited presentations

1.	Modeling misperception of public support for climate policy	November 2024
	University of Millinesota, School of Mathematics, Millineapolis, Mil	
2.	Exoplanets in 1D and 2D: from ice cover to atmospheric circulation	November 2024
	University of Minnesota, Mathematics of Climate Seminar, Minneapolis, MN	
3.	Modeling misperception of public support for climate policy	October 2024
	Stanford University, Climate Cognition and Sustainability and Social Change Lab	
4.	Modeling misperception of public support for climate policy	April 2024
	National Ecological Observatory Network (NEON), Science Seminar	·
5.	Modeling misperception of public support for climate policy	March 2024
	University of Vermont, Complex Systems Center, Burlington, VT	
6.	Modeling misperception of public support for climate policy	Februarv 2024
-	University of Colorado Boulder, Dynamical Systems Seminar, Boulder, CO	, , , , , , , , , , , , , , , , , , ,
7.	Modeling misperception of public support for climate policy	February 2024
	University of Minnesota, Mathematics of Climate Seminar	
8.	Modeling misperception of public support for climate policy	December 2023
	University of Colorado Boulder, Mathematical Biology Seminar	
9.	A Shallow Water Model of Atmospheric Circulation on Sub-Neptunes	November 2023
	Max Planck Institute for Astronomy, Exocoffee	
10.	Misperception of public support for climate policy: A Networks Perspective	October 2023
	University of Cambridge Centre for Climate Repair, Cambridge, UK	
11.	Beyond Echo Chambers: Misperception of Public Support for Climate Policy	September 2023
	Brown University, LCDS Seminar, Providence, RI	
12.	Modeling Misperception of Public Support for Climate Policy	May 2023
	SIAM Conference on Applied Dynamical Systems, Portland, OR	
13.	A Shallow-Water Model Exploration of Atmospheric Circulation on Sub-Neptunes	April 2023
	Southwest Research Institute, Boulder, CO	
14.	How Can Minority Win?	February 2023
	University of Colorado Boulder, Seminar, Clauset & Larremore lab group	

15.	Introduction to Research Cornell Chapter of Association for Women in Mathematics. Ithaca. NY	February 2022
16.	Effects of Network Structure on Undemocratic Outcomes Clarkson University, Graduate Student Seminar	August 2021
17.	Effects of Network Structure on Undemocratic Outcomes SIAM Conference on Applied Dynamical Systems	May 2021
18.	Noisy El Niño: A Case Study of Conceptual Climate Models Mt. Holyoke College, Math and Statistics Tea	March 2021
19.	When Can Minority Win? A Simple Model of Voter Turnout Women in Network Science Seminar, University of Washington	February 2021
20.	Snowball Planets: Effects of Obliquity, Albedo, and Heat Transport on Ice Cover Jet Propulsion Laboratory, Exoplanet Journal Club	October 2020
Cor	tributed presentations	
0	Modeling misperception of public support for climate policy International School and Conference on Network Science, Québec City, Canada	June 2024
0	Modeling misperception of public support for climate policy SIAM Conference on Mathematics of Planet Earth, Portland, OR	June 2024
0	Modeling misperception of public support for climate policy Network Inequality Seminar. Complexity Science Hub, Vienna	April 2024
0	Modeling misperception of public support for climate policy Dynamics Days 2024. University of California, Davis	January 2024
0	<i>Climate policy is more popular than most people think</i> Social and Environmental Futures Workshop, University of Colorado Boulder	October 2023
0	How can minority win? Contagion on Complex Social Systems Workshop, University of Colorado Boulder	August 2022
0	Introducing SWAMP-E: Shallow Water Atmosphere Model in Python for Exoplanets Emerging Researchers in Exoplanet Science Conference	s May 2021
Pos	ter presentations	
0	Optimal Ambition in Business, Politics, and Life Dynamics Days 2025. Denver, CO	January 2025
0	Climate policy is more popular than you think! STEM Poster Day at the Colorado State Capitol Project Bridge, University of Colorado Anschutz	March 2024
0	Exploring the Interaction of Rotation Rate and Stellar Irradiation on Synchronously Rotating Sub-Neptunes	December 2022
	American Geophysical Union Fail Meeting. Unicago, IL	4-
0	Introducing SWAMP-E: Shallow-Water Atmospheric Model in Python for Exoplane American Geophysical Union Fall Meeting	December 2021
0	Introducing SWAMP-E: Shallow-Water Atmospheric Model in Python for Exoplanet	ts
	Emerging Researchers in Exoplanet Science Conference	May 2021

Student Mentorship

News Transcript Annotation Team	2023–2024
Team of undergraduate and master's students at the University of Colorado Bould	er
Callie Blaseg, Kai Elznic, Lucas Gauthier, Katherine Konecny, Piper Nilsen, Vraj Pa	tel, Trishala Thakur
Led twice-weekly intercoder reliability meetings and supervised news transcript an	notations.
Mentored jointly with Jeremiah Osborne-Gowey.	
Project title: "Misperception of public support for climate policy"	
Ashley Dancer	2023
Ph.D. Student in Environmental Studies at the University of Colorado Boulder	
Mentored jointly with Matt Burgess.	
Project title: "Agent-Based Model of Fertility"	
Thomas Mitchell	2022
Undergraduate Student in Astronomy at Cornell University	
Mentored jointly with Nikole Lewis.	
Project title: "Energy Balance Model for HAT-P-2b"	
Anna Asch	2021
Undergraduate Student in Mathematics at Cornell University	
Mentored jointly with Shriya Nagpal and Alice Nadeau.	
Project title: "Wind farm layout optimization"	
Anna Asch	2020
Undergraduate Student in Mathematics at Cornell University	
Directed Reading Program	
Project title: "Mathematics and Climate"	
Anushka Naranyan	2020
Undergraduate Student in Mathematics at Cornell University	
Mentored jointly with Alice Nadeau.	
Project title: "Applying the Budyko Model to Martian Obliquity"	
Teaching Experience	
MIT Educational Studies Program	
Instructor	
M14095: Mathematical Models and How to Build One, Online	Summer 2020
Designed and taught a six-session class in mathematical modeling for high school	l students.
Cornell University	
Teaching Assistant	
MATH 4210: Nonlinear Dynamics and Chaos	Spring 2020
MATH 3610: Mathematical Modeling	Eall 2010
MATH 2020: Differential Equations for Engineers	Fall 2019
WATH 2950. Differential Equations for Engineers	Spring 2019

Brown University

Teaching Assistant APMA 1650: Statistical Inference I

Fall 2015, Spring 2017

Industry experience

IMA Math-to-Industry Bootcamp III	Summer 2018
Six-week coding and research program. Minneapolis, MN	
Hewlett-Packard Customer Operations	Summer 2014
Summer intern. Moscow, Russia	

Service and Leadership

Conference Session Organizer

0	Human behavior in climate opinion, policy, and environmental systems at SIAM DS25	5 May 2025
	Co-organizer	
0	AMS Special Session on Complex Social Systems at JMM	January 2024
	Co-organizer	
0	Dynamics of Influence and Representation in Social Systems at SIAM DS21	May 2021
	Co-organizer	
Uni	versity of Colorado Boulder	
0	Postdoctoral Mentoring Program	2024
	Mentor	
0	Women in Network Science Society	2023-present
	Communications team: write a monthly newsletter, organize conference meet-ups.	
0	Mathematics of Climate Research Network Mentoring Program	2024
	Mentor	
0	Kent Denver School Gender Advancements in STEM Career Panel	January 2023
	Panelist	
Cor	mell University	
0	Expanding Your Horizons Conference	2021
	Logistics chair, organized a campus-wide STEM outreach event for 500 middle-school	ol girls.
0	Write a Researcher	2021
	Corresponded with a high school student about mathematics research.	
0	Center for Applied Mathematics First-Year Mentoring Program	2019, 2021
	Mentored a first-year PhD student.	
0	SIAM Graduate Student Chapter	2018–2021
	President. Organized SIAM-sponsored events for student chapter members.	
0	Center for Applied Math Anti-Racism Reading Group	2020
	Co-organizer. Moderated a biweekly graduate student discussion focusing on DEI to	pics.
0	ZigZag Mentorship Program	2017, 2019
	Mentored undergraduate students on course selection and career development.	

Brown University

0	Applied Mathematics Department Undergraduate Group	2015, 2016
	President. Organized events for undergraduates interested in applied mathematics.	
0	Technology House	2016
	President. Led a sixty-person, communal living group for students interested in STEM to	opics.
0	New Scientist Program	2015
	Mentored and advised a first generation college student.	
Rev	viewer for	
	Journal of Open Source Software, npj Complexity, Scientific Reports, Europhysics Lette Physica D: Nonlinear Phenomena	rs,

Other Professional Activities

Workshops attended

0	Social and Environmental Futures Workshop, Boulder, CO	October 2023
0	Mathematics Research Communities: Complex Social Systems, Buffalo, NY	June 2023
0	Contagion on Complex Social Systems, Boulder, CO	August 2022
0	Science Communication Workshop, Ithaca, NY	October 2021
Membership in professional organizations		

- Society for Industrial and Applied Mathematics
- American Mathematical Society
- Network Science Society
- Mathematics of Climate Research Network
- Women in Network Science Society

Media features

0	Featured in "2024 SIAM Science Policy Fellows" in SIAM news (link)	March 2024
0	SIAM DS23 presentation featured in SIAM News Blog (link)	May 2023
0	Amelia Earhart Fellowship Spotlight in the Cornell Chronicle (link)	May 2021