Ekaterina Landgren

Center for Applied Mathematics
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Education

Cornell University, Ithaca, NY
Ph.D. Candidate in Applied Mathematics — Expected May 2022
M.Sc. in Applied Mathematics — May 2020
Advisor: Steven Strogatz

Brown University, Providence, RI — May 2017
Sc.B. in Applied Mathematics, A.B. in Philosophy
Cum Laude, Phi Beta Kappa, Sigma Xi
Honors thesis: Modeling Evacuation Dynamics in a Crowded Room
Advisor: Bjorn Sandstede

Research Interests

Dynamical systems and their applications, energy balance models, conceptual climate models, planetary atmosphere dynamics.

Preprints

Landgren and Nadeau. Stable Partial Ice Cover Possible for Any Obliquity. Under review in *Planetary Science Journal*, Aug. 2020. On arXiv: `https://arxiv.org/abs/2008.08671`

Publications

*DeBellevue and Kryuchkova (Landgren). Fractal Behavior of the Fibonomial Triangle Modulo Prime p, Where the Rank of Apparition of p is $p+1$. *Fibonacci Quarterly* 56 (2018): 113-120.

*Alphabetical order indicated by *.*

Presentations

Invited talks

"Noisy El Niño: A Case Study of Conceptual Climate Models" — March 2021
Math and Statistics Tea, Mt. Holyoke College

"When Can Minority Win? A Simple Model of Voter Turnout." — February 2021
Women in Network Science Seminar, University of Washington

"Snowball Planets: Effects of Obliquity, Albedo, and Heat Transport on Ice Cover." — October 2020
Jet Propulsion Laboratory Exoplanet Journal Club

Contributed talks

"Effects of Obliquity on the Snowball State"** — June 2020
SIAM Conference on Mathematics of Planet Earth

Seminars

"Impacts of Noise on a Dynamical Systems Model of El Niño" — June 2020
Applied Dynamical Systems Student Seminar, Cornell University

"Effects of Obliquity on the Snowball State" — March 2020
Applied Dynamical Systems Student Seminar, Cornell University

*Cancelled due to Covid-19 indicated by ***

Awards

SIAM Student Travel Award 2019

Undergraduate Research and Teaching Award 2015, 2016

Awarded to Brown students collaborating with Brown faculty on research projects.

2016 Mathematical Contest in Modeling, *Honorable Mention* 2016

In an undergraduate team created, analyzed, and wrote a report on a model of fluid dynamics.

Brown Mathematical Contest for Modeling, *Outstanding Winner* 2015

In an undergraduate team created, analyzed, and wrote a report on a model of Hanta virus spread.

Undergraduate Research Mentorship

"Wind farm layout optimization" Spring 2021

Anna Asch. Mentored jointly with Shriya Nagpal and Alice Nadeau.

"Mathematics and Climate" Fall 2020

Anna Asch. Directed Reading Program

"Applying the Budyko Model to Martian Obliquity" Summer 2020, Fall 2020

Anushka Naranyan. Mentored jointly with Alice Nadeau

Teaching Experience

MIT ESP (Educational Studies Program), *Instructor* Online, Summer 2020

M14095: Mathematical Models and How to Build One,

Designed and taught a six-session class in mathematical modeling for high school students.

Cornell University

Teaching Assistant

MATH 4210: Nonlinear Dynamics and Chaos Spring 2020

MATH 3610: Mathematical Modeling Fall 2019

MATH 2930: Differential Equations for Engineers Spring 2019

Brown University

Teaching Assistant

APMA 1650: Statistical Inference I Fall 2015, Spring 2017

Industrial Experience

IMA Math-to-Industry Bootcamp III Minneapolis, MN, Summer 2018

Six-week coding and research program at Institute for Mathematics and its Applications

Hewlett-Packard Customer Operations, *Summer Intern* Moscow, Russia, Summer 2014

Service and Leadership

Cornell University

SIAM Graduate Student Chapter, *President* 2018-Present

Organize SIAM-sponsored events for student chapter members.

Center for Applied Math Anti-Racism Reading Group, *Co-organizer* Fall 2020

Moderate a biweekly graduate student discussion focusing on anti-racism and DEI topics.

ZigZag Mentorship Program, *Mentor* AY 2017, AY 2019

Mentored undergraduate students on course selection and career development.

Expanding Your Horizons Conference, *Math Workshop Volunteer* 2018, 2019

Led a mathematics workshop for middle school girls.

Brown University

Applied Mathematics Department Undergraduate Group, *President* AY 2015, AY 2016

Organized events for undergraduates interested in applied mathematics.

Technology House, *President* AY 2016

Led a sixty person, communal living group for students interested in STEM topics.

New Scientist Program, *Mentor* AY 2015

Mentored and advised a first generation college student.

Professional Memberships

Society for Industrial and Applied Mathematics, *Member*
American Mathematical Society, *Member*
Mathematics of Climate Research Network, *Member*

Languages

- Fluent: Russian, English
- Advanced: Spanish, German
- Intermediate: Korean
- Beginner: Swedish

Skills

Programming languages: Python, R, HTML
Software: MATLAB, Mathematica, Maple