

Daniel B. Larremore

Contact Information

BioFrontiers Institute
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[Google Scholar](#)

Education

University of Colorado Boulder Ph.D, Applied Mathematics	2012
University of Colorado Boulder M.S., Applied Mathematics	2009
Washington University in St. Louis B.S., Chemical Engineering, <i>cum laude</i>	2005

Academic Positions

University of Colorado Boulder Associate Chair for Research, Department of Computer Science Associate Professor, Department of Computer Science Assistant Professor, Department of Computer Science Core Faculty, BioFrontiers Institute Affiliate Faculty, Department of Applied Mathematics	Boulder, CO 2025 - Present 2023 - Present 2017 - 2023 2017 - Present 2020 - Present
Harvard T.H. Chan School of Public Health External Faculty, Center for Communicable Disease Dynamics Postdoctoral Fellow, Center for Communicable Disease Dynamics	Boston, MA 2020 - 2024 2012 - 2015
Santa Fe Institute External Faculty Omidyar Fellow	Santa Fe, NM 2023 - Present 2015 - 2017

Industry Positions

Darwin BioSciences Scientific Advisory Board	Boulder, CO 2020 - Present
BranchLab Scientific Advisory Board	Boulder, CO 2025 - Present
Cevian Labs, Inc Co-Founder and Co-CEO	Boulder, CO 2025 - Present

Awards

Erdős–Rényi Prize, Network Science Society	2023
Alan T. Waterman Award, National Science Foundation	2022
Brilliant 10, <i>Popular Science</i>	2022
Robert L. Stearns Award, University of Colorado Boulder	2021
Provost's Faculty Achievement Award, University of Colorado Boulder	2021
Research & Innovation Office Faculty Fellow, Univ. Colorado Boulder	2020
Best Poster, Genetic Epidemiology of Malaria, Sanger Institute	2018
Best Poster, NetSci 2014, Berkeley, CA	2014
Best Poster, Dynamics Days 2010, Evanston, IL	2010

Peer-Reviewed Publications

* equal contribution

† alphabetical author order

★ advised student coauthor

Peer-Reviewed Journal Articles and Conference Proceedings

1. **Integrating viral kinetics into routine outbreak surveillance: challenges, opportunities, and lessons from COVID-19**
James A. Hay, Daniel B. Larremore, Aishani V. Aastresh, Stephen Kissler
To appear in *Philosophical Transactions B* (2025)
2. **Statistical Methods for Estimating the Protective Effects of Immune Markers Using Test-Negative Designs**
★ Casey E. Middleton and Daniel B. Larremore
To appear in the *American Journal of Epidemiology* (2026)
<https://doi.org/10.1101/2025.04.05.25325304>
3. **A fundamental limit to the effectiveness of traveller screening with molecular tests**
★ Kate Bubar, ★ Casey Middleton, Daniel B. Larremore*, and Katelyn Gostic*
Epidemiology and Infection, 153: e95, (2025)
<https://doi.org/10.1017/S0950268825100381>
4. **Misère Connect Four is Solved**
★ Robert Steele, Daniel B. Larremore
ICGA Journal, 13896911251342484, (2025)
<https://doi.org/10.48550/arXiv.2410.05551> [preferred]
<https://doi.org/10.1177/13896911251342484>
5. **Model for efficient dynamical ranking in networks**
Andrea Della Vecchia, Kibidi Neocosmos, Daniel B. Larremore, Cristopher Moore, Caterina De Bacco.
Physical Review E, 110, 034110 (2024).
<https://doi.org/10.1103/PhysRevE.110.034310>
6. **Infectious disease surveillance needs for the United States: lessons from COVID-19**
Marc Lipsitch, Mary T. Bassett, John S. Brownstein, Paul Elliott, David Eyre, M. Kate Grabowski, James A. Hay, Michael Johansson, Stephen M. Kissler, Daniel B. Larremore, Jennifer Layden, Justin Lessler, Ruth Lynfield, Duncan MacCannell, Lawrence C. Madoff, C. Jessica E. Metcalf, Lauren A. Meyers, Sylvia K. Ofori, Celia Quinn, Ana I. Ramos Bento, Nicholas G. Reich, Steven Riley, Roni Rosenfeld, Matthew H. Samore, Rangarajan Sampath, Rachel B. Slayton, David L. Swerdlow, Shaun Truelove, Jay K. Varma, Yonatan H. Grad.
Frontiers in Public Health, 12, 1408193 (2024).
<https://doi.org/10.3389/fpubh.2024.1408193>
7. **Modeling the transmission mitigation impact of testing for infectious diseases**
★ Casey Middleton, Daniel B. Larremore.
Science Advances, 10, eadk5108 (2024).
<https://doi.org/10.1126/sciadv.adk5108>
8. **Gendered hiring and attrition on the path to parity for academic faculty**
★ Nicholas LaBerge, ★ K. Hunter Wapman, Aaron Clauset, Daniel B. Larremore.
eLife, 13:RP93755 (2024).
<https://doi.org/10.7554/eLife.93755.3>

9. **Human mRNA in saliva can correctly identify individuals harboring acute infection**
 Qing Yang, Nicholas R. Meyerson, Camille L. Paige, James H. Morrison, Stephen K. Clark, Will T. Fattor, Carolyn J. Decker, Halley R. Steiner, Elena Lian, Daniel B. Larremore, Rushika Perera, Eric M. Poeschla, Roy Parker, Robin D. Dowell, Sara L. Sawyer.
mBio, e01712-23 (2023).
<https://doi.org/10.1128/mbio.01712-23>
10. **Gender and retention patterns among U.S. faculty**
 ★ Katie Spoon, ★ Nicholas LaBerge, ★ K. Hunter Wapman, ★ Sam Zhang, Allison C. Morgan, Mirta Galesic, Bailey K. Fosdick, Daniel B. Larremore, Aaron Clauset.
Science Advances 9 (42), eadi220 (2023)
<https://doi.org/10.1126/sciadv.adi2205>
11. **Community-based seroprevalence of SARS CoV-2 in an urban district of Karachi, Pakistan**
 Muhammad Imran Nisar, Mashal Amin, Nadia Ansari, Farah Khalid, Najeeb Rehman, Aneeta Hotwani, Usma Mehmood, Arslan Memon, Junaid Iqbal, Ali Faisal Saleem, Daniel B. Larremore, Bailey Fosdick, Fyezah Jehan
Journal of Global Health Reports, 7:e2023051 (2023)
<https://doi.org/10.29392/001c.84241>
12. **An Open-Source Cultural Consensus Approach to Name-Based Gender Classification**
 ★ Ian Van Buskirk, Aaron Clauset, Daniel B. Larremore
Proceedings of the International Conference on Web and Social Media (AAAI ICWSM), (2023)
<https://doi.org/10.1609/icwsml.v17i1.22195>
13. **Field-Specific Ability Beliefs as an Explanation for Gender Differences in Academics' Career Trajectories: Evidence From Public Profiles on ORCID.org**
 Aniko Hannak*, Kenneth Joseph*, Daniel B. Larremore*, Andrei Cimpian*
Journal of Personality and Social Psychology: Attitudes and Social Cognition, (2023)
<https://doi.org/10.1037/pspa0000348>
14. **Geographically skewed recruitment and COVID-19 seroprevalence estimates: A cross-sectional serosurveillance study and mathematical modeling analysis**
 Tyler Brown, Pablo Martinez de Salazar Munoz, Abhishek Bhatia, Bridget Bunda, Ellen K. Williams, David Bor, James S. Miller, Amir Mohareb, Julia Thierauf, Wenxin Yang, Julian Villalba, Vivek Naranbai, Wilfredo Garcia Beltran, Tyler E. Miller, Doug Kress, Kristen Stelljes, Keith Johnson, Daniel B. Larremore, Jochen Lennerz, A. John Iafrate, Satchit Balsari, Caroline O. Buckee, Yonatan H. Grad
BMJ Open, 13:e061840, (2023)
<http://doi.org/10.1136/bmjopen-2022-061840>
15. **Evolution of *Plasmodium falciparum* var repertoires by sexual recombination sustains disease transmission after an outbreak in Ecuador**
 Shazia Ruybal-Pesántez, Fabian E. Sáenz, Samantha Deed, ★ Erik K. Johnson, Daniel B. Larremore, Claudia A. Vera-Arias, Kathryn E. Tiedje, Karen P. Day
Frontiers in Tropical Diseases, 4, (2023)
<https://doi.org/10.3389/fitd.2023.1085862>
16. **Labor advantages drive the greater productivity of faculty at elite universities**
 ★ Sam Zhang, ★ K. Hunter Wapman, Daniel B. Larremore, Aaron Clauset
Science Advances, 8 (46), eabq7056, (2022)
<https://doi.org/10.1126/sciadv.abq7056>
17. **Subfield Prestige and Gender Inequality in Computing**
 ★ Nicholas LaBerge, ★ K. Hunter Wapman, Allison C. Morgan, ★ Sam Zhang, Daniel B. Larremore, Aaron Clauset
Communications of the ACM, 65 (12), 46-55, (2022)

<https://dx.doi.org/10.1145/3535510>

18. **Bayesian estimation of population size and overlap from random subsamples**
★ Erik K. Johnson, Daniel B. Larremore
PLOS Computational Biology, 18 (9), e1010451, (2022)
<https://doi.org/10.1371/journal.pcbi.1010451>
19. **Optimizing prevalence estimates for a novel pathogen by reducing uncertainty in test characteristics**
Daniel B. Larremore*, Bailey K. Fosdick*, ★ Sam Zhang, Yonatan H. Grad
Epidemics, 41, 100634, (2022)
<https://doi.org/10.1016/j.epidem.2022.100634>
20. **Quantifying hierarchy and dynamics in U.S. faculty hiring and retention**
★ K. Hunter Wapman, ★ Sam Zhang, Aaron Clauset, Daniel B. Larremore.
Nature, 610, 120-127, (2022).
<https://doi.org/10.1038/s41586-022-05222-x>
21. **Socioeconomic Roots of Academic Faculty**
Allison C. Morgan, ★ Nicholas LaBerge, Daniel B. Larremore, Mirta Galesic, Jennie E. Brand, Aaron Clauset.
Nature Human Behaviour, (2022)
<https://doi.org/10.1038/s41562-022-01425-4>
22. **Ethnoracial Disparities in SARS-CoV-2 Seroprevalence in a Large Cohort of Individuals in Central North Carolina from April to December 2020.**
Cesar A. Lopez, Clark H. Cunningham, Sierra Pugh, Katerina Brandt, Usaphea P. Vanna, Matthew J. Delacruz, Quique Guerra, Samuel Jacob Goldstein, Yixuan Jacob Hou, Margaret Gearhart, Christine Wiethorn, Candace Pope, Carolyn Amditis, Kathryn Pruitt, Cinthia Newberry-Dillon, John Schmitz, Lakshmanane Premkumar, Adaora A. Adimora, Michael Emch, Ross Boyce, Allison E. Aiello, Bailey K. Fosdick, Daniel B. Larremore, Aravinda M. de Silva, Jonathan J. Juliano, Alena J. Markmann
mSphere, e00841-21, (2022)
<https://doi.org/10.1128/msphere.00841-21>
23. **SARS-CoV-2 Transmission and Impacts of Unvaccinated-Only Screening in Populations of Mixed Vaccination Status**
★ Kate M. Bubar*, ★ Casey E. Middleton*, Kristen K. Bjorkman, Roy Parker, Daniel B. Larremore.
Nature Communications, 13, 2777, (2022)
<https://doi.org/10.1038/s41467-022-30144-7>
24. **The Dynamics of Faculty Hiring Networks**
★ Eun Lee, Daniel B. Larremore, Aaron Clauset
EPJ Data Science, 10, 48, (2021)
<https://doi.org/10.1140/epjds/s13688-021-00303-9>
25. **A guide to choosing and implementing reference models for social network analysis**
Elizabeth Hobson, Matthew Silk, Nina Fefferman, Daniel B. Larremore, Puck Rombach, Saray Shai, Noa Pinter-Wollman
Biological Reviews, 96 (6), (2021)
<https://doi.org/10.1111/brv.12775>
26. **Higher viral load drives infrequent SARS-CoV-2 transmission between asymptomatic residence hall roommates**
Kristen K. Bjorkman, Tassa K. Saldi, Erika Lasda, Leisha Connors Bauer, Jennifer Kovarik, Patrick K. Gonzales, Morgan R. Fink, Kimngan L. Tat, Cole R. Hager, Jack C. Davis, Christopher D. Ozerooff, Gloria R. Brisson, Daniel B. Larremore, Leslie A. Leinwand, Matthew B. McQueen, Roy Parker

Journal of Infectious Diseases, jia386, (2021)
<https://doi.org/10.1093/infdis/jia386>

27. **Modeling the effectiveness of olfactory testing to limit SARS-CoV-2 transmission**
Daniel B. Larremore, Derek Toomre, Roy Parker
Nature Communications, 12, 3664, (2021)
<https://doi.org/10.1038/s41467-021-23315-5>
28. **Emergence of hierarchy in networked endorsement dynamics**
Mari Kawakatsu*, Philip S. Chodrow*, Nicole Eikmeier*, Daniel B. Larremore
Proceedings of National Academy of Sciences USA, 118(16) e2015188118, (2021)
<https://doi.org/10.1073/pnas.2015188118>
29. **Serial population-based serosurvey for COVID-19 in two neighborhoods of Karachi, Pakistan**
Muhammad Imran Nisar, Nadia Ansari, Farah Khalid, Mashal Amin, Hamna Shahbaz, Aneeta Hotwani, Najeel Rehman, Sierra Pugh, Usma Mehmood, Arjumand Rizvi, Arslan Memon, Zahoor Ahmed, Ashfaq Ahmed, Junaid Iqbal, Ali Faisal Saleem, Uzma Bashir Aamir, Daniel B. Larremore, Bailey K. Fosdick, Fyezah Jehan.
International Journal of Infectious Diseases, 106, 176-182, (2021).
<https://doi.org/10.1016/j.ijid.2021.03.040>
30. **Estimating SARS-CoV-2 seroprevalence and epidemiological parameters with uncertainty from serological surveys**
Daniel B. Larremore, Bailey K. Fosdick, ★ Kate M. Bubar, ★ Sam Zhang, Stephen M. Kissler, C. Jessica E. Metcalf, Caroline O. Buckee, Yonatan H. Grad
eLife, 10:e64206, (2021)
<https://doi.org/10.7554/eLife.64206>
31. **The Unequal Impact of Parenthood in Academia**
Allison C. Morgan, Samuel F. Way, Michael J. D. Hoefer, Daniel B. Larremore, Mirta Galesic, Aaron Clauset
Science Advances, 7 (9), eabd1996, (2021)
<https://doi.org/10.1126/sciadv.abd1996>
32. **Model-informed COVID-19 vaccine prioritization strategies by age and serostatus**
★ Kate M. Bubar, ★ Kyle Reinholt, Stephen M. Kissler, Marc Lipsitch, Sarah Cobey, Yonatan H. Grad, Daniel B. Larremore
Science, 371 (6532), 916-921, (2021)
<https://doi.org/10.1126/science.abe6959>
33. **Risk Factors of SARS-CoV-2 Antibodies in Arapahoe County First Responders - the COVID-19 Arapahoe Serosurveillance Study (CASES) Project**
Katherine R. Sabourin, Jonathan Schultz, Joshua Romero, Molly M. Lamb, Daniel B. Larremore, Thomas E. Morrison, Ashley Frazer, Shanta Zimmer, Ross M. Kedl, Thomas Jaenisch, Rosemary Rochford
Journal of Occupational and Environmental Medicine, 63 (3) 191-198, (2020)
<https://doi.org/10.1097/JOM.0000000000002099>
34. **Test sensitivity is secondary to frequency and turnaround time for COVID-19 screening**
Daniel B. Larremore, Bryan Wilder, Evan Lester, Soraya Shehata, James M. Burke, James A. Hay, Milind Tambe, Michael J. Mina, Roy Parker
Science Advances, 7 (1), eabd5393, (2020)
<https://doi.org/10.1126/sciadv.abd5393>
35. **Choices In Networks: A Research Framework**
Fred Feinberg, Elizabeth Bruch, Michael Braun, Brett Hemenway Falk, Nina Fefferman, Elea McDonnell Feit, John Helveston, Daniel B. Larremore, Blakely B. McShane, Mario Small, Alice Patania.

Marketing Letters, 1-11, (2020)
<https://doi.org/10.1007/s11002-020-09541-9>

36. **Community Detection in Bipartite Networks with Stochastic Blockmodels**
★ Tzu-Chi Yen, Daniel B. Larremore
Physical Review E, 102, 032309, (2020)
<https://doi.org/10.1103/PhysRevE.102.032309>
37. **Control of excitable systems is optimal near criticality**
Kathleen Finlinson, Woodrow L. Shew, Daniel B. Larremore, Juan G. Restrepo
Physical Review Research, 2, 033450, (2020)
<https://doi.org/10.1103/PhysRevResearch.2.033450>
38. **Reductions in commuting mobility correlate with geographic differences in SARS-CoV-2 prevalence in New York City**
Stephen M. Kissler*, Nishant Kishore*, Malavika Prabhu*, Dena Goffman*, Yaakov Beilin*, Ruth Landau, Cynthia Gyamfi-Bannerman, Brian T. Bateman, Daniel Katz, Jonathan Gal, Angela Bianco, Joanne Stone, Daniel B. Larremore, Caroline O. Buckee, Yonatan H. Grad
Nature Communications, 11, 4674, (2020)
<https://doi.org/10.1038/s41467-020-18271-5>
39. **Implications of test characteristics and population seroprevalence on 'immune passport' strategies**
Daniel B. Larremore, ★ Kate M. Bubar, Yonatan H. Grad
Clinical Infectious Diseases, ciaa1019, (2020)
<https://doi.org/10.1093/cid/ciaa1019>
40. **Longitudinal analysis of naturally acquired antibodies to PfEMP1 CIDR domain variants and their association with malaria protection**
Nyamekye Obeng-Adjei*, Daniel B. Larremore*, Louise Turner, Aissata Ongoiba, Shanping Li, Safiatou Doumbo, Takele B. Yazew, Ogobara K. Doumbo, Kassoum Kayentao, Louis H. Miller, Boubacar Traore, Susan K. Pierce, Caroline O. Buckee, Thomas Lavstsen, Peter D. Crompton, Tuan M. Tran
JCI Insight, 5 (12), e137262, (2020)
<https://doi.org/10.1172/jci.insight.137262>
41. **Dynamics of Beneficial Epidemics**
Andrew Berdahl*, Christa Brelsford*, Caterina De Bacco*, Marion Dumas*, Vanessa Ferdinand*, Joshua A. Grochow*, Laurent Hébert-Dufresne*, Yoav Kallus*, Christopher P. Kempes*, Artemy Kolchinsky*, Daniel B. Larremore*, Eric Libby*, Eleanor A. Power*, Caitlin A. Stern*, Brendan D. Tracey*
Nature Scientific Reports, 9 (15093), (2019)
<https://doi.org/10.1038/s41598-019-50039-w>
42. **webweb: a tool for creating, displaying, and sharing interactive network visualizations on the web**
★ K. Hunter Wapman, Daniel B. Larremore
Journal of Open Source Software, 4 (40), 1458, (2019)
<https://doi.org/10.21105/joss.01458>
43. **Productivity, prominence, and the effects of academic environment**
Samuel F. Way, Allison C. Morgan, Daniel B. Larremore*, Aaron Clauset*
Proceedings of National Academy of Sciences USA, 116 (18), (2019)
<https://doi.org/10.1073/pnas.1817431116>
44. **Bayes-optimal estimation of overlap between populations of fixed size**
Daniel B. Larremore
PLoS Computational Biology, 15(3) e1006898, (2019)

<https://doi.org/10.1371/journal.pcbi.1006898>

45. **Robust information capacity requires strong and balanced excitatory and inhibitory synapses**
Vidit Agrawal, Andrew B. Cowley, Woodrow L. Shew, Daniel B. Larremore, Juan G. Restrepo, Qusay Alfaori
Chaos, 28 103115, (2018)
<https://doi.org/10.1063/1.5043429>
46. **A physical model for efficient ranking in networks**
Caterina De Bacco*, Daniel B. Larremore*, Cristopher Moore.
Science Advances, 4(7) eaar8260, (2018).
<https://doi.org/10.1126/sciadv.aar8260>
47. **Configuring random graph models with fixed degree sequences**
† Bailey K. Fosdick*, Daniel B. Larremore*, Joel Nishimura*, Johan Ugander*
SIAM Review, 60 (2) 315-355, (2018)
<https://doi.org/10.1137/16M1087175>
48. **The misleading narrative of the canonical faculty productivity trajectory**
Samuel F. Way, Allison C. Morgan, Aaron Clauset*, Daniel B. Larremore*
Proceedings of the National Academy of Sciences USA, 114 (44) E9216-E9223, (2017)
<https://doi.org/10.1073/pnas.1702121114>
49. **The ground truth about metadata and community detection in networks**
Leto Peel*, Daniel B. Larremore*, Aaron Clauset
Science Advances, 3 (5) e1602548, (2017)
<https://doi.org/10.1126/sciadv.1602548>
50. **Community detection, link prediction, and layer interdependence in multilayer networks**
Caterina De Bacco, Eleanor A. Power, Daniel B. Larremore, Cristopher Moore
Physical Review E, 95 042317, (2017)
<https://doi.org/10.1103/PhysRevE.95.042317>
51. **Gender, Productivity, and Prestige in Computer Science Faculty Hiring Networks**
Samuel F. Way, Daniel B. Larremore, Aaron Clauset
Proc. 2016 World Wide Web Conference (WWW), 1169-1179, (2016)
<https://doi.org/10.1145/2872427.2883073>
52. **Ape parasite origins of human malaria virulence genes**
Daniel B. Larremore, Sesh A. Sundararaman, Weimin Liu, William R. Proto, Aaron Clauset, Dorothy E. Loy, Sheri Speede, Lindsey J. Plenderleith, Paul M. Sharp, Beatrice H. Hahn, Julian C. Rayner*, Caroline O. Buckee*
Nature Communications, 6, 8368, (2015)
<https://doi.org/10.1038/ncomms9368>
53. **Systematic inequality and hierarchy in faculty hiring networks**
Aaron Clauset, Samuel Arbesman, Daniel B. Larremore
Science Advances, 1, e1400005, (2015)
<https://doi.org/10.1126/sciadv.1400005>
54. **Immune characterization of *P. falciparum* parasites with a shared genetic signature in a region of decreasing transmission**
Amy K. Bei, Ababacar Diouf, Kazutoyo Miura, Daniel B. Larremore, Ulf Ribacke, Gregory Tullo, Eli L. Moss, Daniel E. Neafsey, Rachel F. Daniels, Amir E. Zeituni, Iguosadolo Nosamiefan, Sarah K. Volkman, Ambroise D. Ahouidi, Daouda Ndiaye, Tandakha Dieye, Souleymane Mboup, Caroline O. Buckee, Carole A. Long, Dyann F. Wirth

Infection and Immunity, 83 (1), 276, (2015)
<https://doi.org/10.1128/iai.01979-14>

55. **Efficiently inferring community structure in bipartite networks**
Daniel B. Larremore, Aaron Clauset, Abigail Z. Jacobs
Physical Review E, 90 (1), 012805, (2014)
<https://doi.org/10.1103/PhysRevE.90.012805>
56. **Inhibition Causes Ceaseless Dynamics in Networks of Excitable Nodes**
Daniel B. Larremore, Woodrow L. Shew, Edward Ott, Francesco Sorrentino, Juan G. Restrepo
Physical Review Letters, 112, 138103, (2014)
<https://doi.org/10.1103/PhysRevLett.112.138103>
57. **A network approach to analyzing highly recombinant malaria parasite genes**
Daniel B. Larremore, Aaron Clauset, Caroline O. Buckee
PLoS Computational Biology, 9 (10), e1003268, (2013)
<https://doi.org/10.1371/journal.pcbi.1003268>
58. **Social Climber attachment in forming networks produces phase transition in a measure of connectivity**
Dane Taylor*, Daniel B. Larremore*
Physical Review E, 86, 031140, (2012)
<https://doi.org/10.1103/PhysRevE.86.031140>
59. **Statistical properties of avalanches in networks**
Daniel B. Larremore, Marshall Y. Carpenter, Edward Ott, Juan G. Restrepo
Physical Review E, 85, 066131, (2012)
<https://doi.org/10.1103/PhysRevE.85.066131>
60. **Effects of network topology, transmission delays, and refractoriness on the response of coupled excitable systems to a stochastic stimulus**
Daniel B. Larremore, Woodrow L. Shew, Edward Ott, Juan G. Restrepo
Chaos, 21, 025117, (2011)
<https://doi.org/10.1063/1.3600760>
61. **Predicting criticality and dynamic range in complex networks: effects of topology**
Daniel B. Larremore, Woodrow L. Shew, Juan G. Restrepo
Physical Review Letters, 106, 058101, (2011)
<https://doi.org/10.1103/PhysRevLett.106.058101>

Peer-Reviewed Workshop Papers

62. **If the data do not speak for themselves, how ought we to speak for the data?**
Ian Van Buskirk, Brian Zaharatos, Aaron Clauset, Daniel B. Larremore
DARE Workshop Proceedings, AAAI ICWSM (2023).
<https://doi.org/10.36190/2023.12>
63. **Case Study: Using Facebook Data to Monitor Adherence to Stay-at-home Orders in Colorado and Utah**
Ryan M. Layer, Bailey K. Fosdick, Michael Bradshaw, Daniel B. Larremore, Paul Doherty
ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Workshop on Humanitarian Data Mapping, (2020)
<https://doi.org/10.1101/2020.06.04.20122093>

Peer-Reviewed Book Chapters

64. **Network models for malaria: antigens, dynamics, and evolution over space and time.**

Lauren Childs, Daniel B. Larremore.

Systems Medicine: Integrative Qualitative and Computational Approaches, (2019).

<https://doi.org/10.1016/B978-0-12-801238-3.11512-0>

65. **Critical Dynamics in Complex Networks**

Daniel B. Larremore, Woodrow L. Shew, Juan G. Restrepo

Criticality in Neural Systems, Wiley, 365-392, (2014)

ISBN: 978-3-527-41104-7

Peer-Reviewed Perspectives and Essays

66. **Concerns about SARS-CoV-2 evolution should not hold back efforts to expand vaccination**

Sarah Cobey, Daniel B. Larremore, Yonatan H. Grad, Marc Lipsitch

Nature Reviews Immunology (2021)

<https://doi.org/10.1038/s41577-021-00544-9>

67. **Rethinking Covid-19 Test Sensitivity — A Strategy for Containment**

Michael J. Mina, Roy Parker, Daniel B. Larremore

The New England Journal of Medicine, 383 (22), e120, (2020)

<https://doi.org/10.1056/NEJMp2025631>

68. **Data-driven predictions in the science of science**

Aaron Clauset, Daniel B. Larremore, Roberta Sinatra

Science, 355, 477-480 (2017)

<https://doi.org/10.1126/science.aal4217>

Other Publications or Preprints

69. **Test negative designs with uncertainty, sensitivity, and specificity**

★ Erik K. Johnson, Rebecca Kahn, Yonatan H. Grad, Marc Lipsitch, Daniel B. Larremore

medRxiv (2021)

<https://doi.org/10.1101/2021.06.24.21259495>

70. ***Plasmodium falciparum* population genetic complexity influences transcriptional profile and immune recognition of highly related genotypic clusters**

Amy K. Bei, Daniel B. Larremore, Kazutoyo Miura, Ababacar Diouf, Nicholas K. Baro, Rachel F. Daniels,

Allison Griggs, Eli L. Moss, Daniel E. Neafsey, Awa B. Deme, Mouhamad Sy, Stephen Schaffner,

Ambroise D. Ahouidi, Daouda Ndiaye, Tandakha Dieye, Souleymane Mboup, Caroline O. Buckee, Sarah

K. Volkman, Carole A. Long, Dyann F. Wirth

bioRxiv (2020)

<https://doi.org/10.1101/2020.01.03.894220>

71. **On the records**

Andrew Berdahl, Uttam Bhat, Vanessa Ferdinand, Joshua Garland, Keyan Ghazi-Zahedi, Justin Grana,

Joshua A. Grochow, Elizabeth Hobson, Yoav Kallus, Christopher P. Kempes, Artemy Kolchinsky, Daniel

B. Larremore, Eric Libby, Eleanor A. Power, Brendan D. Tracey

arXiv (2017)

<https://doi.org/10.48550/arXiv.1705.04353>

72. **Progress is Infectious**

Daniel E. Geer Jr., Daniel B. Larremore
IEEE Security & Privacy 10(6) 94-95 (2012)
<https://doi.org/10.1109/MSP.2012.151>

Funding

1. **Quantitative design of effective testing-based policies through infection trajectory modeling** **2025-2027**
 Co-PI, SES-2420950, with PI Stephen Kissler (University of Colorado Boulder)
 \$968,765 to University of Colorado Boulder
 National Science Foundation: Division of Mathematical Sciences
 National Science Foundation: Social, Behavioral, and Economic Sciences
 Centers for Disease Control and Prevention: Coronavirus and Other Respiratory Viruses Division
2. **The impact of socioeconomic heterogeneity on science and innovation** **2024-2026**
 Co-PI, SES-2420950, with PI Aaron Clauset and Co-PI Daniel Acuña (University of Colorado Boulder)
 \$400,000 to University of Colorado Boulder
 National Science Foundation: Social, Behavioral, and Economic Sciences
3. **Center for Implementation in Outbreak Analytics and Disease Modeling: Multi-Scale Outbreak Decision- Support Tools (epiENGAGE)** **2024-2028**
 Co-I, SES-2420950, with PI Lauren Meyers (University of Texas at Austin) PI Nicholas Reich (University of Massachusetts), and many other
 \$2,076,681 to University of Colorado Boulder
 Centers for Disease Control and Prevention
4. **CS Subfield Diversity: Developing the Research Basis to Inform Intervention Strategies** **2023-2025**
 Co-PI, SES-2219609, with PI Lecia Barker and Co-PI Lucinda Sanders (University of Colorado Boulder)
 \$299,181 to University of Colorado Boulder
 National Science Foundation: Broadening Participation in Computing
5. **Assessing Bias and Idiosyncrasies in Elite Scientific Peer Review** **2022-2025**
 Co-PI, SES-2219609, with PI Aaron Clauset (University of Colorado Boulder)
 \$501,890 to University of Colorado Boulder
 National Science Foundation: Social, Behavioral, and Economic Sciences
6. **Alan T. Waterman Award** **2022-2027**
 PI, SMA-2226343
 \$1,000,000 to Larremore
7. **Model-informed vaccine prioritization strategies** **2020-2022**
 PI, 3U24GM132013-02S2
 \$140,000 to Larremore
 via MIDAS Coordination Center (MIDASNI2020-2)
 National Institutes of Health: National Institute of General Medical Science
8. **Integrated Data Science (Int dS): Teams for Advancing Bioscience Discovery** **2020-2025**
 Core Faculty, with PI Tom Cech and Co-PIs Manuel Lladser, Aaron Clauset, Robin Dowell, and Eric Vance (University of Colorado Boulder)
 \$0 to Larremore, \$3,000,000 to University of Colorado Boulder
 This is a training grant and its funds support the graduate training program, not individual PIs.
 National Science Foundation: Research Traineeship Program
9. **Causal, Statistical, and Mathematical Modeling with Serologic Data** **2020-2023**
 Co-PI via subcontract to University of Colorado Boulder, U01-CA261277, with PIs Marc Lipsitch and Michael Mina (Harvard T. H. Chan School of Public Health)

\$179,565 to University of Colorado Boulder. (\$4,584,395 total funded.)
National Institutes of Health: National Cancer Institute

10. **Mapping the Structure and Dynamics of the Scientific Ecosystem** **2019-2023**
PI, 19RT0301, with Co-Is Aaron Clauset (University of Colorado Boulder), Mirta Galesic (Santa Fe Institute), and Jennifer Dunne (Santa Fe Institute)
\$2,426,815 to University of Colorado Boulder. (\$2,565,505 total funded.)
Department of Defense: Minerva Program
Air Force Office of Scientific Research
11. **Academic hiring networks and scientific productivity across disciplines** **2016-2020**
PI, SMA-1633747, with Co-PI Mirta Galesic (Santa Fe Institute) and PI Aaron Clauset (University of Colorado Boulder)
\$517,058 to University of Colorado Boulder. (\$550,000 total funded.)
National Science Foundation: Social, Behavioral and Economic Sciences
REU Supplement, 2018, \$5000
REU Supplement, 2019, \$6000
12. **Network Assortativity** **2014**
Proposer, with co-proposers Bailey Fosdick (Colorado State University), Joel Nishimura (Arizona State University), and Johan Ugander (Microsoft Research)
\$2,250
American Mathematical Society Mathematical Research Communities: collaboration grant

Industry Experience and Advising

Darwin BioSciences
Scientific Advisory Board

Boulder, CO
2020 - Present

Gambro Blood Component Technologies
Research and Development Engineer
Engineering Intern II
Engineering Intern I

Lakewood, CO
2005 - 2007
Summer, 2005
Summer, 2004

Invited Talks, Briefings, and Panels

1. **Linear Hierarchies in Directed Networks**
Lawrence Berkeley National Lab, Networks for Science Workshop. November 6, 2025.
2. **Editorial and peer review dynamics at elite general science journals**
American Association for the Advancement of Science, *Science* Editorial Retreat. October 22, 2025.
3. **Patterns & Determinants of Faculty Mid-Career Moves**
University of Chicago, Computational Social Science Seminar. April 17, 2025.
4. **Countermeasures for Infectious Diseases**
US Air Force Academy, Mathematics Colloquium. March 4, 2025.
5. **Networks**
Santa Fe Institute Action Network Meeting. November 8, 2024.
6. **Improving equity in academic retention:
What we learned from in-depth surveys and 10 years of data**
Kickoff Speaker, Academic Leaders Institute, University of Colorado Boulder. August 16, 2024.
7. **Infectious Disease Countermeasures**
Keynote, SIAM Front Range Applied Mathematics Student Conference. March 9, 2024.
8. **Modeling the Mitigation Impact of Testing for Infectious Diseases**
Penn State University, Center for Infectious Disease Dynamics. February 15, 2024.
9. **Linear Hierarchies in Complex Networks**
2023 Erdős–Rényi Prize Lecture, NetSci, Vienna, Austria. July 14, 2023.
10. **The Preeminence of Prestige**

- Briefing. National Academies of Science, Engineering, and Mathematics. Committee on Pathways to Doctoral Degrees in Computing. Washington D.C. May 9, 2023
11. **Toward evidence-based strategies for improving diversity, equity, and inclusion in science**
Panel Moderator. Metascience. Washington D.C. May 9, 2023
 12. **Quantifying hierarchy and dynamics in U.S. faculty hiring and retention**
Harvard University. Opportunity Insights. Cambridge, MA. May 3, 2023
 13. **Data Dreams: U.S. faculty hiring and retention**
Panelist. National Science Foundation Data & Analytics Symposium, February 27, 2023.
 14. **Quantifying hierarchy and dynamics in U.S. faculty hiring and retention**
Stanford University. Research on Algorithms & Incentives in Networks (RAIN) Seminar. Stanford, CA. February 8, 2023
 15. **Quantifying hierarchy and dynamics in U.S. faculty hiring and retention**
Rochester Institute of Technology. Science & Math Education Research Collaboration (SMERC) Seminar. Rochester, NY, January 30, 2023
 16. **Trends in US faculty hiring & retention from 10 years of data: a study of prestige, diversity & inequality**
Santa Fe Institute Year In Review, Santa Fe Institute, Santa Fe, NM. December 15, 2022
 17. **Trends in US faculty hiring & retention from 10 years of data: a study of prestige, diversity & inequality**
University of Colorado Boulder. Information Science Colloquium. Boulder, CO. November 30, 2022
 18. **Trends in US faculty hiring & retention from 10 years of data: a study of prestige, diversity & inequality**
North Carolina State University. The Long View: Academic Big Data. November 28, 2022
 19. **Estimating the Mitigation Potential of Screening Programs for Infectious Diseases**
Keynote, American Statistical Association Fall Meeting CO/WY Chapter, Denver, CO. November 11, 2022
 20. **Estimating the Mitigation Potential of Screening Programs for Infectious Diseases**
Purdue University. Department of Biological Sciences Seminar, West Lafayette, IN. November 2, 2022
 21. **Quantifying hierarchy and dynamics in U.S. faculty hiring and retention**
Academic Analytics Research Center. Research Webinar. October 21, 2022
 22. **Trends in US faculty hiring & retention from 10 years of data: a study of prestige, diversity & inequality**
2022 Waterman Lecture, National Science Foundation. September 28, 2022
 23. **Quantifying hierarchy & dynamics in U.S. faculty hiring and retention**
University of Colorado Boulder. Computer Science Colloquium. Boulder, CO. September 22, 2022
 24. **Estimating the Mitigation Potential of Screening Programs for Infectious Diseases**
University of Colorado Boulder. Applied Math Colloquium. Boulder, CO. September 2, 2022
 25. **Estimating the Mitigation Potential of Screening Programs for Infectious Diseases**
Contagion on Complex Social Systems 2022. Boulder, CO. August 11, 2022
 26. **Quantifying hierarchy & dynamics in U.S. faculty hiring and retention**
Science of Science Summer School, Syracuse University. Syracuse, NY. August 8, 2022.
 27. **Optimal control of excitable systems near criticality**
Physical Review Journal Club. December 7, 2021
 28. **Mathematical Models for Disease Mitigation via Testing**
Ohio State University. Mathematical Biology and Applied Dynamics Seminar. October 28, 2021.
 29. **Vaccination Strategies: Prioritization, Dose Sparing, and Decision Making Under Uncertainty & Inequity**
Society for Mathematical Biology, COVID-19 Vaccination Minisymposium. June 16, 2021
 30. **Modeling COVID-19 Testing Strategies: Mitigation vs Information**
Yale School of Medicine. Laboratory Medicine Research Conference. June 2, 2021
 31. **Vaccination Strategies: Prioritization, Dose Sparing, and Decision Making Under Uncertainty & Inequity**
University of Colorado Boulder. Computing Advisory Board, Department of Computer Science. April 15, 2021
 32. **Vaccination Strategies: Prioritization, Dose Sparing, and Decision Making Under Uncertainty & Inequity**
Santa Fe Institute. Colloquium. March 17, 2021
 33. **Model-informed COVID-19 vaccine prioritization and dose-sparing strategies by age and serostatus**
Grand Rounds. University of Colorado Anschutz School of Medicine. Division of Infectious Diseases. March 3, 2021
 34. **Model-informed COVID-19 vaccine prioritization strategies by age & serostatus**
University of Colorado Boulder. Applied Mathematics Dynamics Seminar. January 28, 2021
 35. **COVID-19 Testing Strategies: Mitigation vs Information**
University of British Columbia. BC COVID-19 Modeling Group. December 16, 2020

36. **COVID-19 Testing Strategies: Mitigation vs Information**
MIT Media Lab. Trust in Pandemic Tech Seminar. December 4, 2020
37. **Model-informed COVID-19 Vaccine Prioritization by Age and Serostatus**
Models of Infectious Disease Agent Study (MIDAS) Network seminar. November 20, 2020
38. **Estimating SARS-CoV-2 seroprevalence & epidemiological parameters with uncertainty from serological surveys**
World Health Organization. Solidarity II Sero-Epidemiology Meeting. November 5, 2020
39. **Model-informed COVID-19 Vaccine Prioritization by Age and Serostatus**
EU/EEA National Immunisation Technical Advisory Group. October 15, 2020
40. **Surveillance Testing of SARS-CoV-2**
University of Texas at Austin. UT Austin COVID-19 Modeling Consortium. September 23, 2020
41. **Surveillance Testing of SARS-CoV-2**
McGill University. McGill Genome Center. August 13, 2020
42. **COVID-19 Briefing on Testing**
Panelist. Ergo COVID-19 Intelligence Forum, New York City. August 11, 2020
43. **Surveillance Testing of SARS-CoV-2**
New York Genome Center. COVID-19 Genomics Research Network Meeting, August 3, 2020
44. **Modeling the impacts of test sensitivity, frequency, and turnaround time for COVID-19 surveillance**
University of Florida College of Medicine. CSQUID/CIDID Seminar. Gainesville, FL. July 29, 2020
45. **SARS-CoV-2 Seroprevalence Estimation, Study Design, and Modeling**
University of Colorado Medical School. BioStatistics Seminar. June 17, 2020
46. **Explaining Gender Differences in Academics' Career Trajectories**
Webinar, Computational Social Science Society of the Americas. May 6, 2020
47. **How do Infectious Disease Models Work?**
University of Colorado Boulder. Collabeeration, BioFrontiers Institute. April 1, 2020
48. **Complex networks and P. falciparum: from evolution to epidemiology**
University of Colorado Medical School. Computational BioSciences Seminar. Mar 9, 2020
49. **Complex networks, math, and malaria: from evolution to epidemiology**
University of Colorado Boulder. Applied Mathematics Colloquium,. January 17, 2020
50. **Complex networks and P. falciparum: from evolution to epidemiology**
Colorado School of Mines. Applied Math & Statistics Colloquium. Nov 8, 2019
51. **Development of Trustworthy AI**
University of Colorado Boulder. Panelist. Mozilla Foundation & CU Data Science Team. October 8, 2019
52. **Complex networks and P. falciparum: from evolution to epidemiology**
Harvard T. H. Chan School of Public Health. Infectious Disease Epidemiology Seminar. May 9, 2019
53. **Which community detection method is best?**
HHMI Janelia. Analysis and Interpretation of Connectomes. May 22, 2018
54. **A physical model for efficient ranking in networks**
UNC Chapel Hill. Applied Mathematics Seminar. Apr 11, 2018
55. **A physical model for efficient ranking in networks**
Duke University. Duke Network Analysis Center Seminar. Apr 10, 2018
56. **Paper Unwind: The misleading narrative of the canonical faculty productivity trajectory**
CompleNet, Boston, MA. March 4, 2018
57. **Gender, prestige, and productivity in academic hiring networks and career trajectories**
University of Pennsylvania. Annenberg School of Communication. Feb 13, 2018
58. **A physical model for efficient ranking in networks**
Joint Mathematics Meeting, San Diego, CA. Special Session: Network Science. Jan 12, 2018
59. **Estimating the entropy of activity in excitable networks**
Joint Mathematics Meeting, San Diego, CA. Special Session: Emergent Phenomena in Discrete Models. Jan 12, 2018
60. **The ground truth about metadata and community detection in networks**
Joint Mathematics Meeting, San Diego, CA. Special Session: Theory, Practice, and Applications of Graph Clustering. Jan 11, 2018
61. **Large-scale structures in networks: hidden communities and latent hierarchies**
NetSciX, Network Science School, Hangzhou, China. Jan 5, 2018
62. **The assembly of prestige and status in networks**

Santa Fe Institute. Omidyar Network Applied Complexity Meeting. Dec 12, 2017

63. **A physical model for efficient ranking in networks**
University of Arkansas, Fayetteville. Physics Colloquium. Nov 17, 2017
64. **A physical model for efficient ranking in networks**
University of Michigan. Center for the Study of Complex Systems Seminar. Nov 9, 2017
65. **Gender, prestige, and productivity in academic hiring networks and career trajectories**
NSF-FAST: Machine Learning for Discovery Science, Yerevan, Armenia. Oct 20, 2017
66. **The dynamics of beneficial epidemics**
NetSci 2017. Dynamics of/on Complex Networks Satellite Symposium, Indianapolis, IN. June 20, 2017
67. **Gender, prestige, and productivity in academic hiring networks and career trajectories**
Workshop on Gendered Creative Teams, Central European Univ., Budapest, Hungary. May 25, 2017
68. **Gender, prestige, and productivity in academic hiring networks and career trajectories**
UC Berkeley. Seminar, Berkeley Institute for Data Science. Mar 17, 2017
69. **The assembly of prestige and status in networks**
Influence, Complexity and Networks, Dialog Group, Austin, TX. Feb 23, 2017
70. **The ground truth about metadata and community detection in networks**
University of Houston. Networks Seminar. Oct 28, 2016
71. **Gender, prestige, and productivity in faculty hiring networks**
NetSci 2016. Quantifying Success Satellite Symposium, Seoul, Korea. June 1, 2016
72. **Networks and the evolution of malaria's virulence in humans and apes**
Northwestern University. Network Frontiers Workshop, Northwestern Institute of Complex Systems. Dec 7, 2015
73. **Networks in two acts: faculty hiring hierarchies and malaria's evolving virulence**
Clarkson University, Arts & Sciences Seminar, Potsdam, NY. Nov 13, 2015
74. **Networks and the evolution of malaria's virulence in humans and apes**
Clarkson University, Mathematics Colloquium, Potsdam, NY. Nov 12, 2015
75. **Networks, inference, and the evolution of malaria's virulence in humans and apes**
University of New Mexico. Mechanical Engineering Seminar. Nov 6, 2015
76. **A complex networks approach to malaria's genetic recombination dynamics**
SIAM Conference on Applications of Dynamical Systems (DS15), Minisymposium, Snowbird, UT. May 15, 2015
77. **Using networks to analyze rapid genetic recombination in malaria parasites**
University of Colorado Boulder. Dynamics & Complex Systems Seminar. April 9, 2015
78. **Complex networks, rapid genetic recombination, and tricky malaria antigens**
Western New England University. Mathematics Colloquium. Nov 7, 2014
79. **Efficiently inferring community structure in bipartite networks**
Brown University. Seminar at Network Science and Graph Algorithms Program, ICERM. Mar 4, 2014
80. **Ceaseless critical dynamics in excitable networks with inhibitory nodes**
NetSci 2014. Information, Self-Organizing Dynamics, and Synchronization on Complex Networks (ISODS) Satellite Symposium, Berkeley, CA. June 3, 2014
81. **Critical dynamics in balanced excitable networks: neuronal avalanches, dynamic range, and ceaseless activity**
University of Colorado Boulder. Dynamics & Complex Systems Seminar. Feb 28, 2013
82. **Critical dynamics in balanced excitable networks: neuronal avalanches, dynamic range, and ceaseless activity**
Northeastern University. Seminar, Center for Complex Network Research. Feb 5, 2013
83. **Predicting criticality and dynamic range in complex networks: effects of topology**
SIAM Conf. on Applications of Dynamical Systems (DS11). Minisymposium. Snowbird, UT, May 23, 2011

Contributed Talks, Briefings, and Panels

- Research Jam, Department of Computer Science, University of Colorado Boulder. November 10, 2025
- International Conference on the Science of Science and Innovation. Washington D.C. July 3, 2024
- NIH SeroNet Investigators Meeting. March 24, 2022
- Int'l Conf. on Computational Social Science (IC2S2), University of Amsterdam. July 19, 2019
- SIAM Network Science (SIAM NS19), Snowbird, UT. May 23, 2019

- BioFrontiers Institute Advisory Board, Boulder, CO. April 17, 2019
- ASTMH Annual Meeting, poster, New Orleans, LA. October 31, 2018
- d3.js Boulder Meetup, Boulder, CO. August 30, 2018
- Int'l Conf. on Computational Social Science (IC2S2), Northwestern University. July 14, 2018
- NetSci, Paris, France. June 15, 2018
- Genetic Epidemiology of Malaria – poster [best poster award], Sanger Institute, UK. June 13, 2018
- CompleNet, Network Science Institute at Northeastern University, Boston, MA. March 5, 2018
- Dynamical Systems Seminar, CU Boulder, Boulder, CO. Nov 2, 2017
- StatOptML Seminar, CU Boulder, Boulder, CO. Sept 12, 2017
- NetSci, Indianapolis, IN. June 21, 2017
- Complex Systems Summer School, Santa Fe Institute, Santa Fe, NM. June 14, 2017
- YConf, YCombinator Research, San Francisco, CA. June 10, 2017
- Santa Fe Science Writers' Workshop, Santa Fe Institute, Santa Fe, NM. May 2, 2017
- Outside In seminar, Santa Fe Institute, Santa Fe, NM. October 19, 2016
- Conference on Complex Systems (CCS), Amsterdam, NL September 22, 2016
- SIAM Network Science (SIAM NS16), Boston, MA July 15, 2016
- Int'l Conf. on Computational Social Science (IC2S2), Northwestern University. June 24, 2016
- NetSci, Seoul, Korea. June 2, 2016
- Int'l Conf. on the Science of Science, Library of Congress, Washington D.C. April 7, 2016
- Los Alamos Rotary Club, Los Alamos, NM. March 15, 2016
- NetSci, Zaragoza, Spain. June 3, 2015
- Freeman Symposium, Harvard T. H. Chan School of Public Health. April 10, 2015
- Boston Area Parasitology Symposium (BAPS), Boston, MA. December 8, 2014
- Defeating Malaria: from genes to the globe – poster Harvard School of Public Health. December 2, 2014
- ASTMH – poster, New Orleans, LA. November 4, 2014
- Harvard Channing Network Science Seminar, Boston, MA. October 31, 2014
- NetSci – poster [best poster award], Berkeley, CA. June 4, 2014
- BioMalPar/EVIMalar, EMBL, Heidelberg, Germany. May 13, 2014
- Network Frontiers Workshop, NICO, Northwestern University. December 6, 2013
- ASTMH – poster, Washington D.C. November 15, 2013
- Oxford Tropical Network, KEMRI, Kilifi, Oxford-Wellcome Trust, Kenya. October 1, 2013
- Networks Journal Club, OCIAM, Oxford University, UK. March 8, 2013
- Dynamics Days – poster, University of Colorado Boulder. January 3, 2013
- Freeman Symposium, Harvard School of Public Health. December 14, 2012
- Ph.D. Dissertation Defense, University of Colorado Boulder. April 5, 2012
- Front Range Applied Mathematics Student Conference, Univ. of Colorado Denver. March 3, 2012
- Dynamics Days – poster, University of Maryland. January 3, 2012
- Comprehensive Examination, University of Colorado Boulder. September 27, 2011
- Front Range Applied Mathematics Student Conference, Univ. of Colorado Denver. March 5, 2011
- Dynamics Days 2011, Duke University. January 6, 2011
- Complex and Dynamical Systems Seminar, University of Colorado Boulder. October 20, 2010
- Nonlinear Dynamics of Networks (NTD10) – poster, University of Maryland. April 4, 2010
- Complex and Dynamical Systems Seminar, University of Colorado Boulder. April 1, 2010
- Front Range Applied Mathematics Student Conference, Univ. of Colorado Denver. March 6, 2010
- Dynamics Days 2010 – poster, Northwestern University. January 3, 2010

Supported Workshops

- Model-Based Research and Reproducibility Workshop, Center for Open Science. Feb 4-5, 2020
- Network Null Models Working Group, NIMBIOS. Oct 23-26, 2019
- Decision Processes in Networks, Triennial Choice Symposium. May 29-June 2, 2019
- The Dynamics of Discovery: Is Science Slowing and Can We Speed It Up?. March 16-17, 2018

Affiliations and Accreditations

- Models of Infectious Disease Agent Study Network – Member 2020 - Present
- Network Science Society – Member 2014 - Present

• American Mathematical Society – Member	2014 - present
• American Society of Tropical Medicine and Hygiene – Member	2013 - present
• Society of Industrial and Applied Mathematics – Member	2008 - present
• Human Subjects Research (IRB) Certification	2016 - present
• National Postdoctoral Association – Member	2012 - 2015
• Arts and Sciences Dean's Teaching Assistant Fellow	Spring 2010

Advising

Postdocs

Dr. Ellen DeGennaro, Computer Science	2024 - 2026
Dr. Katherine Wootton, Computer Science	2021 - 2022
Dr. Eun Lee, Computer Science	2020 - 2022

PhD Students

Violet Ross, Computer Science	2025 - Present
Gabrielle Gionet, Molec., Cell., and Dev. Biology (co-adv: Sara Sawyer)	2024 - Present
Ben Aoki-Sherwood, Computer Science	2024 - Present
Kate Barnes, Computer Science (co-adv: Aaron Clauset)	2024 - Present
Dr. Katherine Spoon, Computer Science (co-adv: Aaron Clauset)	2020 - 2025
<i>Quantifying Systemic Inequities in the Training and Retention of Professors</i>	
Dr. Casey Middleton, Computer Science	2021 - 2025
<i>Multi-scale Infectious Disease Dynamics: Linking Epidemiology and Testing for Outbreak Neutralization</i>	
Dr. Ian van Buskirk, Computer Science (co-adv: Aaron Clauset)	2019 - 2024
<i>Datasets and Software for Estimating Consensus in Social Systems</i>	
Dr. Nicholas LaBerge, Computer Science (co-adv: Aaron Clauset)	2019 - 2024
<i>Gender Inequalities and Peer Review Disparities in the Academic Workforce</i>	
Dr. Shimian (Sam) Zhang, Applied Mathematics (co-adv: Aaron Clauset)	2019 - 2024
<i>Statistical Models of Scientific Careers and Decision-Making</i>	
Dr. Kate Bubar, Computer Science	2020 - 2024
<i>Quantifying the Effectiveness of Infectious Disease Interventions in Heterogeneous Populations</i>	
Dr. Tzu-Chi Yen, Computer Science (co-adv: Josh Grochow)	2018 - 2023
<i>Structure, Inference, and Optimization in Complex Networks</i>	
Dr. Kenneth Hunter Wapman, Computer Science	2019 - 2023
<i>Hierarchy and Structure in Academic and Romantic Markets</i>	
Dr. Erik Johnson, Applied Mathematics	2019 - 2021
<i>Measuring image resolution in super-resolution microscopy and Bayesian estimation of population size and overlap and vaccine effectiveness</i>	

PhD Rotation Students

Oliver Kipp, Molec., Cell., and Dev. Biology	2025
Gabrielle Gionet, IQ Biology	2024
Vanessa Maybruck, IQ Biology	2022
Casey Middleton, IQ Biology	2021
Sharon Wu, IQ Biology	2020
Elise Tate, IQ Biology	2019
Kate Bubar, IQ Biology	2019
Sierra Jech, IQ Biology	2019
Phillip Benson, IQ Biology	2019
Dieu My Nguyen, IQ Biology	2018
Michael Smallegan, IQ Biology	2018

Masters Students

Chethan Kavaraganahalli Prasanna, M.S. Computer Science, Colorado	2025
Upasana Dutta, M.S. Computer Science, Colorado	2022
Aaron Aeng, M.S. Computer Science, Colorado	2020

Thesis: Matchbox: Adaptive Comparison Graphs for Restricted Tournaments

Undergraduate Students

Aloha Churchill, University of Colorado Boulder	2020 - 2021
Suchita Lulla, University of Colorado Boulder	2018 - 2021
Thesis: Understanding primer bias and its impacts on the study of <i>var</i> genes in <i>P. falciparum</i>	
Aparajithan Venkateswaran, University of Colorado Boulder	2018 - 2020
Thesis: Understanding SpringRank through Random Utility Models, Identifiability, and Online Updates	
Mark Wilmes, Computer Science	2019
Thesis: Using Machine Learning to Identify Files on Disk that Contain Sensitive Information	
Suyog Soti, University of Colorado Boulder	2018 - 2019
Katie Younglove, University of Colorado Boulder	2018 - 2019
Robert Steele, University of Colorado Boulder	2018
Phuc Nguyen, Macalester College via the Santa Fe Institute	2017
Maya Banks, Carleton College via the Santa Fe Institute	2017

High School Students

William McKinnon, High School Student, Santa Fe Institute	2016
Kat Wicks, High School Student, Santa Fe Institute	2015 - 2016

Teaching

University of Colorado Boulder

• CSCI 4897/5897 (Comp. and Math. Modeling of Infectious Dis.)	Fall 2025
• CSCI 4830/7000 (Comp. and Math. Modeling of Infectious Dis.)	Spring 2024
• CSCI 4830/7000 (Comp. and Math. Modeling of Infectious Dis.) [new course]	Spring 2023
• CSCI 2897 (Calculating Biological Quantities)	Fall 2022
• CSCI 2897 (Calculating Biological Quantities)	Fall 2021
• CSCI 2897 (Calculating Biological Quantities) [new course]	Spring 2021
• CSCI 5352 (Network Analysis and Modeling)	Fall 2020
• CSCI 5352 (Network Analysis and Modeling)	Fall 2019
• CSCI 4802/5802 (Data Science Team)	Fall 2019
• CSCI 4802/5802 (Data Science Team)	Spring 2019
• CSCI 5352 (Network Analysis and Modeling)	Fall 2018
• CSCI 3022 (Intro to Data Science with Probability and Statistics)	Fall 2018
• CSCI 3022 (Intro to Data Science with Probability and Statistics)	Spring 2018
• CSCI 3022 (Intro to Data Science with Probability and Statistics) [new course]	Fall 2017

How to Science (Series)

- Data Visualization
- Giving a Talk
- Clean Code
- Peer Review
- LaTeX

Complex Networks Winter Workshop

• Networks and Hierarchies	Quebec City, Quebec Jan 6, 2021
• Large-scale structures in networks: Hidden communities and latent hierarchies	Dec 15, 2019

NetSci 2019 International Conference on Network Science

• Large-scale structures in networks: Hidden communities and latent hierarchies	Burlington, VT, USA May 27, 2019
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Santa Fe Institute - Complex Systems Summer School

• Networks & Hierarchies	Santa Fe, NM, USA June 24-25, 2019
• Networks & Hierarchies	June 25-26, 2018

- **University of Michigan**
Communities, hierarchies: large-scale network structure
- **Harvard School of Public Health**
Introduction to Modeling Infectious Disease (networks)
- **Kenya Medical Research Institute (KEMRI)**
TDMoNet Modeling Workshop (networks in genetics & epidemiology)
- **University of Colorado - Predoctoral** **Boulder, CO, USA**
Instructor of Record – APPM 2350, Calculus III (Multivariable Calculus)
Instructor of Record – APPM 2350, Calculus III (Multivariable Calculus)
Lead Teaching Asst. – Applied Mathematics
Teaching Asst. – APPM 1360, Calculus II
Teaching Asst. – APPM 2360, Ordinary Differential Equations
Teaching Asst. – APPM 2350, Calculus III (Multivariable Calculus)
Teaching Asst. – APPM 2350, Calculus III (Multivariable Calculus)
Teaching Asst. – APPM 2360, Ordinary Differential Equations
Teaching Asst. – APPM 2350, Calculus III (Multivariable Calculus)
- **Ann Arbor, MI, USA**
Nov 10, 2017
- **Boston, MA, USA**
July 24 & 27, 2014
- **Kilifi, Kenya**
October 3, 2013
- Spring 2012
Fall 2011
2009 - 2010
Fall 2009
Spring 2009
Fall 2008
Summer 2008
Spring 2008
Fall 2007

Editorial and Referee Work

- **PLOS Computational Biology**
Academic Editor
- **San Francisco, CA**
2022 - 2024
- **Guest Editing**
PLOS Biology
- 2018
- **Grant Review**
NSF - Science of Science: Discovery, Communication and Impact (SBE)
NSF - Science of Science and Information Policy (SBE)
NSF - Dynamical Systems (DMS)
NSF/NIH - Science of Science: Discovery, Communication, Impact & SCISIPBIO (SBE)
Santa Fe Institute
Sloan Foundation
- **Journal Review**
ACM Transactions on Knowledge Discovery from Data (TKDD)
Acta Informatica
American Journal of Epidemiology
Communications of the ACM
Europhysics Letters (EPL)
ICGA Journal
IEEE Security and Privacy
Journal of the Association for Information Science and Technology (JASIST)
Journal of Complex Networks
Journal of Infectious Diseases
Journal of Machine Learning Research (JMLR)
Journal of Statistical Mechanics: theory and experiment (JSTAT)
Journal of Theoretical Biology
Malaria Journal
Methods in Ecology and Evolution
Nature
Nature Communications
Nature Human Behaviour
Nature Scientific Reports
Nature Microbiology
New England Journal of Medicine
NPJ Complexity

- Physical Review Letters (PRL)
- Physical Review X (PRX)
- Physical Review E (PRE)
- Physical Review Research (PRR)
- Physica A
- PLOS Biology
- PLOS Computational Biology
- PLOS Neglected Tropical Diseases
- PLOS ONE
- Proceedings of the National Academy of Sciences of the USA (PNAS)
- Proceedings of the Royal Society A (Proc A)
- Proceedings of the Royal Society B (Proc B)
- Research Policy
- Science
- Science Advances
- Science Translational Medicine
- SIAM Journal on Mathematics of Data Science (SIMODS)
- Vaccines
- Wellcome Open Research

Conference Review

- Program Committee, Atlanta Conference on Science and Innovation, ATLC 2023
- MIDAS Network Annual Meeting, 2022, 2023, 2025
- Program Committee, Int'l Conf. on Computational Social Science (IC2S2) 2017-2021, 2023, 2024
- Program Committee, NetSci 2017, 2019, 2020, 2022, 2023, 2024
- Program Committee, ICWSM Workshop: Beyond Online Data: Tackling Challenging Social Science Questions, 2018
- Program Committee, 9th Int'l Conf. on Complex Networks (CompleNet) 2018
- Program Committee, NetSciX 2018, 2020
- Program Committee, Int'l World Wide Web Conf. (WWW) 2017, 2018
- Program Committee, SIAM Network Science 2016 - 2019
- Program Committee, 9th Int'l Conf. on Web Search and Data Mining (WSDM) 2016
- Subreviewer, AAAI Conference on Artificial Learning (AAAI) 2014

University and Professional Service

Conferences, Workshops, Speaker Series (Organizer or co-organizer)

- International Conference on the Science of Science and Innovation
Program Committee Chair, National Academy of Sciences, Washington D.C. June 7-9, 2022
Co-Chair, National Academy of Sciences, Washington D.C. 2024
Co-Chair, National Academy of Sciences, Washington D.C. 2026
- A New Synthesis for the Science of Science May 4-6, 2022
Co-Organizer (with A. Clauset, M. Galesic)
Santa Fe Institute
- Statistical Inference for Network Models - A Satellite Symposium of the NetSci Conference
Creator and Organizer
Rome, Italy (with T. Peixoto, T. Eliassi-Rad, B. Fosdick, and A. Clauset) June, 2020
Burlington, Vermont (with T. Eliassi-Rad, B. Fosdick, and A. Clauset) May 27, 2019
Paris, France (with T. Eliassi-Rad, B. Fosdick, and A. Clauset) June 11, 2018
Indianapolis, Indiana (with T. Broderick, B. Fosdick, and A. Clauset) June 19, 2017
Seoul, Korea (with B. Fosdick, A. Z. Jacobs, and A. Clauset) May 31, 2016
Zaragoza, Spain (with L. Peel, A. Z. Jacobs, and A. Clauset) June 1, 2015
Berkeley, California (with L. Peel, A. Z. Jacobs, and A. Clauset) June 2, 2014
- Slice of Science 2016 - 2017
Organizer
Santa Fe, NM. Ongoing Santa Fe Institute talk series.
- Applied Network Science at Longwood Seminar Series 2014 - 2015

Conceived and organized with John Platig
Harvard School of Public Health.

Monthly seminar for network research with biological, public health, or medical application

- Harvard School of Public Health Infectious Disease Epidemiology Seminar Series 2014
Organized with William Hanage
- Mathematics Research Community Workshop on Network Science June 24-30, 2014
Assisting Aaron Clauset, Mason Porter, & David Kempe
American Mathematical Society, Snowbird, UT
- TDMoNet Modeling Workshop (networks in genetics & epidemiology) Oct 3, 2013
Organized with Caroline O. Buckee
Kenya Medical Research Institute (KEMRI), Kilifi, Kenya
- Front Range Applied Mathematics Student Conference March 14, 2009
Organized with Daniel N. Kaslovsky, Anne Dougherty, et al.
University of Colorado Denver
- SIAM Graduate Student Chapter Speaker Series Spring 2009
Co-organized with Daniel N. Kaslovsky
University of Colorado Boulder

PhD Thesis Committees

- William Mo, Biomedical Engineering, Adv: Chris Myers Expected 2026
- Nolan Bonnie, Computer Science, Adv: Orit Peleg Expected 2026
- Inayat Bhardwaj, Université de Montpellier. Adv: Antoine Claessens Expected 2025
- Owen Martin, Computer Science. Adv: Orit Peleg Expected 2025
- Meghan Childs, Mathematics, Rochester Inst. of Technology, Adv: Tony Wong 2025
- Zach Maas, Molecular, Cellular, and Developmental Biology. Adv: Robin Dowell 2024
- Behzad Vahedi Torghabeh, Geography. Adv: Morteza Karimzadeh 2024
- Golnar Gharooni Fard, Computer Science. Adv: Orit Peleg 2024
- David Greenblott, Chemical and Biological Engineering. Adv: Ted Randolph 2024
- Lucy van Kleunen, Computer Science. Adv: Laura Dee 2024
- Michael Bradshaw, Computer Science. Adv: Ryan Layer 2024
- Lucas Hayne, Computer Science. Adv: McKell Carsten 2023
- Aislyn Keyes, Ecology & Evolutionary Biology. Adv: Laura Dee 2023
- Graham Kesler O'Connor, Applied Mathematics. Adv: Manuel Lladser 2022
- Nicholas Landry, Applied Mathematics. Adv: Juan G. Restrepo 2022
- Samantha Molnar, Computer Science. Adv: Elizabeth Bradley 2021
- Allison Morgan, Computer Science. Adv: Aaron Clauset 2021
- Ignacio Tripodi, Computer Science. Adv: Robin Dowell 2020
- Antony Pearson, Applied Mathematics, Adv: Manuel Lladser 2020
- Lee Korshoj, Chem. & Biol. Engr. Adv: Anushree Chatterjee, Prashant Nagpal 2020
- Richard Carter Tillquist, Applied Mathematics, Adv: Manuel Lladser 2020
- Anna Broido, Computer Science. Adv: Aaron Clauset 2019
- Amir Ghasemian, Computer Science. Adv: Aaron Clauset 2018
- Jean-Gabriel Young, Physics, Université Laval, Adv: Louis Dube 2018

Undergraduate Thesis Committees

- Nikhil Gupta, BioChemistry. 2024
- Megan Hupka, Molecular, Cellular, and Dev. Biol. Adv: Luis Zea, Louis Stodeick 2023
- Kieran Zylstra, Computer Science, Adv: Ryan Layer 2022
- Maxwell Wenzel, Computer Science. Adv: James Martin 2020
- Ian Wilkins, Computer Science. Adv: James Martin 2020
- Maxine Hartnett, Computer Science. Adv: Elizabeth Bradley 2019
- Brandon Zink, Computer Science. Adv: Rhonda Hoenigman 2019

Institutional Committees, University of Colorado Boulder

Campus

- Web of Science Research Intelligence (WoSRI) 2024
- Provost's Faculty Achievement Awards Committee 2022 - 2023

• Vaccine Policy & Guidance Subcommittee	2021
• COVID-19 Scientific Advisory Committee	2020 - 2023
• Office of Discrimination and Harassment Review	2010 - 2012
College of Engineering and Applied Sciences	
• Dean's Search Committee	2022
Department of Computer Science	
• Chair, Faculty Search Committee, CEAS Open-Topic	2023, 2024
• Executive Committee	2022 - 2024
• Computational Biology Minor, Curriculum Committee	2019 - Present
• Faculty Search Committee, Machine Learning	2019 - 2020
• Pedagogy Committee	2021 - 2022
• Undergraduate Curriculum Committee	2018 - 2019
BioFrontiers Institute	
• BioFrontiers Computing Committee	2024 - Present
• EMPOWERS Oversight Committee	2020 - Present
• BioFrontiers Council	2017 - Present
• Social Committee (BioFunTiers)	2017 - 2018
Interdisciplinary Quantitative Biology Program (IQBio)	
• Academic Advising Committee	2018 - 2020
• Curriculum Committee	2017 - Present
• Graduate Admissions	2017 - 2018
Institutional Committees, Santa Fe Institute	
• Complex Systems Summer School Admissions	2016 - 2017
• Omidyar Fellowship Review & Selection	2015 - 2016
Outreach Talks and Lectures	
• What I know now that I wish I'd known as a postdoc Santa Fe Institute JSMF – SFI Postdocs in Complexity Conference IX	October 20, 2022
• Science of Science Summer School (S4), Syracuse University Mentor	August 8, 2022
• Prioritizing Vaccines: Who Should Get Them First and Why? BioFrontiers Institute Community COVID-19 Session III	November 20, 2020
• COVID-19 Surveillance Testing: A Way Out? College of Engineering & Applied Sciences CU Boulder COVID-19 Webinar	September 17, 2020
• How do infectious disease models work? BioFrontiers Institute Community COVID-19 Session I	April 13, 2020
• What it is to be a Scientist Santa Fe Institute Keynote, SFI High School Prize for Scientific Excellence	May 4, 2016
• What it is to be a Scientist Santa Fe Institute REU Program Mentorship	2016-2019

Other Service and Outreach

Faculty Sanity

A monthly, open, unstructured meetup for junior faculty at CU Boulder, all departments.

Founder, Organizer

Boulder, CO

2018 - 2021

March for Science - Santa Fe

Lead Organizer

Santa Fe, NM

April 22, 2017

New Mexico Corrections / Penitentiary of New Mexico

Volunteer math teacher and tutor

Santa Fe, NM

2016 - 2017

Santa Fe Alliance for Science

Science fair judge

Greater University Service Foundation, Inc.

Director

Co-founder and Secretary

The Boulder County AIDS Project

Volunteer math tutor; grocery packing and delivery.

Santa Fe, NM

2015 - 2017

St. Louis, MO

2008 - 2022

2006 - 2008

Boulder, CO

2005 - 2011