Daniel B. Larremore

Contact Information

BioFrontiers Institute
3415 Colorado Ave.
Boulder, CO 80303, USA

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Google Scholar

Education

University of Colorado Boulder **2012**
Ph.D, Applied Mathematics
"Critical Dynamics in Complex Excitable Networks"
Advisor: Juan G. Restrepo

University of Colorado Boulder **2009**
M.S., Applied Mathematics

Washington University in St. Louis **2005**
B.S., Chemical Engineering, *cum laude*

Academic Positions

University of Colorado Boulder **Boulder, CO**
Associate Chair for Research, Department of Computer Science 2025 - Present
Associate Professor, Department of Computer Science 2023 - Present
Assistant Professor, Department of Computer Science 2017 - 2023
Core Faculty, BioFrontiers Institute 2017 - Present
Affiliate Faculty, Department of Applied Mathematics 2020 - Present

Harvard T.H. Chan School of Public Health **Boston, MA**
External Faculty, Center for Communicable Disease Dynamics 2020 - 2024
Postdoctoral Fellow, Center for Communicable Disease Dynamics 2012 - 2015
Advisors: Caroline Buckee (HSPH), Aaron Clauset (Colorado)

Santa Fe Institute **Santa Fe, NM**
External Faculty 2023 - Present
Omidyar Fellow 2015 - 2017

Other Positions

PLOS Computational Biology **San Francisco, CA**
Academic Editor 2022 - 2024

Darwin BioSciences **Boulder, CO**
Scientific Advisory Board 2020 - Present

Awards

Erdős–Rényi Prize, Network Science Society 2023
Alan T. Waterman Award, National Science Foundation 2022
Brilliant 10, *Popular Science* 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. **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

2. **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

3. **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

4. **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

5. **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

6. **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

7. **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

8. **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

9. **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/icwsm.v17i1.22195

10. **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

11. **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

12. **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

13. **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

14. **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

15. **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

16. **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

17. **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

18. **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

19. **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

20. **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

21. **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

22. **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

23. **Higher viral load drives infrequent SARS-CoV-2 transmission between asymptomatic residence hall roommates**
Kristen K. Bjorkman, Tassa K. Saldi, Erika Lasda, Leisha Conners Bauer, Jennifer Kovarik, Patrick K. Gonzales, Morgan R. Fink, Kimngan L. Tat, Cole R. Hager, Jack C. Davis, Christopher D. Ozeroff, Gloria R. Brisson, Daniel B. Larremore, Leslie A. Leinwand, Matthew B. McQueen, Roy Parker
Journal of Infectious Diseases, jiab386, (2021)
https://doi.org/10.1093/infdis/jiab386

24. **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

25. **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

26. **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, Najeeb Rehman, Sierra Pugh, Usma Mehmood, Arjumand Rizvi, Arslan Memon, Zahoor Ahmed,

Ashfaque 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

27. **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

28. **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

29. **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

30. **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

31. **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

32. **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

33. **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

34. **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

35. **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

36. **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

37. **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

38. **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

39. **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

40. **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

41. **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

42. **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

43. **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

44. **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

45. **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

46. **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

47. **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

48. **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

49. **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

50. **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

51. **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

52. **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

53. **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

54. **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

55. **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

56. **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

57. **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

58. **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

59. **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

60. **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

61. **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

62. **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

63. **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

64. **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

65. **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

66. **Statistical Methods for Estimating the Protective Effects of Immune Markers Using Test-Negative Designs**
★ Casey E. Middleton and Daniel B. Larremore
medRxiv (2025)
https://doi.org/10.1101/2025.04.05.25325304

67. **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
2025

68. **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

69. ***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

70. **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

71. **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	**Boulder, CO**
Scientific Advisory Board	2020 - Present
Gambro Blood Component Technologies	**Lakewood, CO**
Research and Development Engineer	2005 - 2007
Engineering Intern II	Summer, 2005
Engineering Intern I	Summer, 2004

Invited Talks, Briefings, and Panels

1. **Countermeasures for Infectious Diseases**
US Air Force Academy, Mathematics Colloquium. March 4, 2025.
2. **Networks**
Santa Fe Institute Action Network Meeting. November 8, 2024.
3. **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.
4. **Infectious Disease Countermeasures**
Keynote, SIAM Front Range Applied Mathematics Student Conference. March 9, 2024.
5. **Modeling the Mitigation Impact of Testing for Infectious Diseases**
Penn State University, Center for Infectious Disease Dynamics. February 15, 2024.
6. **Linear Hierarchies in Complex Networks**
2023 Erdős–Rényi Prize Lecture, NetSci, Vienna, Austria. July 14, 2023.
7. **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
8. **Toward evidence-based strategies for improving diversity, equity, and inclusion in science**
Panel Moderator. Metascience. Washington D.C. May 9, 2023
9. **Quantifying hierarchy and dynamics in U.S. faculty hiring and retention**
Harvard University. Opportunity Insights. Cambridge, MA. May 3, 2023

10. **Data Dreams: U.S. faculty hiring and retention**
    Panelist. National Science Foundation Data & Analytics Symposium, February 27, 2023.
11. **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
12. **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
13. **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
14. **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
15. **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
16. **Estimating the Mitigation Potential of Screening Programs for Infectious Diseases**
    Keynote, American Statistical Association Fall Meeting CO/WY Chapter, Denver, CO. November 11, 2022
17. **Estimating the Mitigation Potential of Screening Programs for Infectious Diseases**
    Purdue University. Department of Biological Sciences Seminar, West Lafayette, IN. November 2, 2022
18. **Quantifying hierarchy and dynamics in U.S. faculty hiring and retention**
    Academic Analytics Research Center. Research Webinar. October 21, 2022
19. **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
20. **Quantifying hierarchy & dynamics in U.S. faculty hiring and retention**
    University of Colorado Boulder. Computer Science Colloquium. Boulder, CO. September 22, 2022
21. **Estimating the Mitigation Potential of Screening Programs for Infectious Diseases**
    University of Colorado Boulder. Applied Math Colloquium. Boulder, CO. September 2, 2022
22. **Estimating the Mitigation Potential of Screening Programs for Infectious Diseases**
    Contagion on Complex Social Systems 2022. Boulder, CO. August 11, 2022
23. **Quantifying hierarchy & dynamics in U.S. faculty hiring and retention**
    Science of Science Summer School, Syracuse University. Syracuse, NY. August 8, 2022.
24. **Optimal control of excitable systems near criticality**
    Physical Review Journal Club. December 7, 2021
25. **Mathematical Models for Disease Mitigation via Testing**
    Ohio State University. Mathematical Biology and Applied Dynamics Seminar. October 28, 2021.
26. **Vaccination Strategies: Prioritization, Dose Sparing, and Decision Making Under Uncertainty & Inequity**
    Society for Mathematical Biology, COVID-19 Vaccination Minisymposium. June 16, 2021
27. **Modeling COVID-19 Testing Strategies: Mitigation vs Information**
    Yale School of Medicine. Laboratory Medicine Research Conference. June 2, 2021
28. **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
29. **Vaccination Strategies: Prioritization, Dose Sparing, and Decision Making Under Uncertainty & Inequity**
    Santa Fe Institute. Colloquium. March 17, 2021
30. **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
31. **Model-informed COVID-19 vaccine prioritization strategies by age & serostatus**
    University of Colorado Boulder. Applied Mathematics Dynamics Seminar. January 28, 2021
32. **COVID-19 Testing Strategies: Mitigation vs Information**
    University of British Columbia. BC COVID-19 Modeling Group. December 16, 2020
33. **COVID-19 Testing Strategies: Mitigation vs Information**
    MIT Media Lab. Trust in Pandemic Tech Seminar. December 4, 2020
34. **Model-informed COVID-19 Vaccine Prioritization by Age and Serostatus**
    Models of Infectious Disease Agent Study (MIDAS) Network seminar. November 20, 2020
35. **Estimating SARS-CoV-2 seroprevalence & epidemiological parameters with uncertainty from serological surveys**

World Health Organization. Solidarity II Sero-Epidemiology Meeting. November 5, 2020

36. **Model-informed COVID-19 Vaccine Prioritization by Age and Serostatus**
    EU/EEA National Immunisation Technical Advisory Group. October 15, 2020
37. **Surveillance Testing of SARS-CoV-2**
    University of Texas at Austin. UT Austin COVID-19 Modeling Consortium. September 23, 2020
38. **Surveillance Testing of SARS-CoV-2**
    McGill University. McGill Genome Center. August 13, 2020
39. **COVID-19 Briefing on Testing**
    Panelist. Ergo COVID-19 Intelligence Forum, New York City. August 11, 2020
40. **Surveillance Testing of SARS-CoV-2**
    New York Genome Center. COVID-19 Genomics Research Network Meeting, August 3, 2020
41. **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
42. **SARS-CoV-2 Seroprevalence Estimation, Study Design, and Modeling**
    University of Colorado Medical School. BioStatistics Seminar. June 17, 2020
43. **Explaining Gender Differences in Academics' Career Trajectories**
    Webinar, Computational Social Science Society of the Americas. May 6, 2020
44. **How do Infectious Disease Models Work?**
    University of Colorado Boulder. Collabeeration, BioFrontiers Institute. April 1, 2020
45. **Complex networks and P. falciparum: from evolution to epidemiology**
    University of Colorado Medical School. Computational BioSciences Seminar. Mar 9, 2020
46. **Complex networks, math, and malaria: from evolution to epidemiology**
    University of Colorado Boulder. Applied Mathematics Colloquium,. January 17, 2020
47. **Complex networks and P. falciparum: from evolution to epidemiology**
    Colorado School of Mines. Applied Math & Statistics Colloquium. Nov 8, 2019
48. **Development of Trustworthy AI**
    University of Colorado Boulder. Panelist. Mozilla Foundation & CU Data Science Team. October 8, 2019
49. **Complex networks and P. falciparum: from evolution to epidemiology**
    Harvard T. H. Chan School of Public Health. Infectious Disease Epidemiology Seminar. May 9, 2019
50. **Which community detection method is best?**
    HHMI Janelia. Analysis and Interpretation of Connectomes. May 22, 2018
51. **A physical model for efficient ranking in networks**
    UNC Chapel Hill. Applied Mathematics Seminar. Apr 11, 2018
52. **A physical model for efficient ranking in networks**
    Duke University. Duke Network Analysis Center Seminar. Apr 10, 2018
53. **Paper Unwind: The misleading narrative of the canonical faculty productivity trajectory**
    CompleNet, Boston, MA. March 4, 2018
54. **Gender, prestige, and productivity in academic hiring networks and career trajectories**
    University of Pennsylvania. Annenberg School of Communication. Feb 13, 2018
55. **A physical model for efficient ranking in networks**
    Joint Mathematics Meeting, San Diego, CA. Special Session: Network Science. Jan 12, 2018
56. **Estimating the entropy of activity in excitable networks**
    Joint Mathematics Meeting, San Diego, CA. Special Session: Emergent Phenomena in Discrete Models. Jan 12, 2018
57. **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
58. **Large-scale structures in networks: hidden communities and latent hierarchies**
    NetSciX, Network Science School, Hangzhou, China. Jan 5, 2018
59. **The assembly of prestige and status in networks**
    Santa Fe Institute. Omidyar Network Applied Complexity Meeting. Dec 12, 2017
60. **A physical model for efficient ranking in networks**
    University of Arkansas, Fayetteville. Physics Colloquium. Nov 17, 2017
61. **A physical model for efficient ranking in networks**
    University of Michigan. Center for the Study of Complex Systems Seminar. Nov 9, 2017
62. **Gender, prestige, and productivity in academic hiring networks and career trajectories**

NSF-FAST: Machine Learning for Discovery Science, Yerevan, Armenia. Oct 20, 2017

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

- 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 - Present
Dr. Katherine Wootton, Computer Science	2021 - 2022
Dr. Eun Lee, Computer Science	2020 - 2022

PhD Students

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

PhD Rotation Students (IQ Biology)

Gabrielle Gionet	2024
Vanessa Maybruck	2022
Casey Middleton	2021
Sharon Wu	2020
Elise Tate	2019
Kate Bubar	2019
Sierra Jech	2019
Phillip Benson	2019
Dieu My Nguyen	2018
Michael Smallegan	2018

Masters Students

Chethan Kavaraganahalli Prasanna	2023 - Present
Upasana Dutta, M.S. Computer Science, Colorado	2022
Aaron Aaeng, 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 *var* genes in *P. falciparum*	
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 4830 (Computational and Mathematical Modeling of Infectious Diseases) Spring 2024
- CSCI 4830 (Computational and Mathematical Modeling of Infectious Diseases) 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 **Quebec City, Quebec**
- Networks and Hierarchies Jan 6, 2021
- Large-scale structures in networks: Hidden communities and latent hierarchies Dec 15, 2019

NetSci 2019 International Conference on Network Science **Burlington, VT, USA**
- Large-scale structures in networks: Hidden communities and latent hierarchies May 27, 2019

Santa Fe Institute - Complex Systems Summer School **Santa Fe, NM, USA**
- Networks & Hierarchies June 24-25, 2019
- Networks & Hierarchies June 25-26, 2018

University of Michigan **Ann Arbor, MI, USA**
- Communities, hierarchies: large-scale network structure Nov 10, 2017

Harvard School of Public Health **Boston, MA, USA**
- Introduction to Modeling Infectious Disease (networks) July 24 & 27, 2014

Kenya Medical Research Institute (KEMRI) **Kilifi, Kenya**
- TDModNet Modeling Workshop (networks in genetics & epidemiology) October 3, 2013

University of Colorado - Predoctoral **Boulder, CO, USA**
- Instructor of Record – APPM 2350, Calculus III (Multivariable Calculus) Spring 2012
- Instructor of Record – APPM 2350, Calculus III (Multivariable Calculus) Fall 2011

- Lead Teaching Asst. – Applied Mathematics 2009 - 2010
- Teaching Asst. – APPM 1360, Calculus II Fall 2009
- Teaching Asst. – APPM 2360, Ordinary Differential Equations Spring 2009
- Teaching Asst. – APPM 2350, Calculus III (Multivariable Calculus) Fall 2008
- Teaching Asst. – APPM 2350, Calculus III (Multivariable Calculus) Summer 2008
- Teaching Asst. – APPM 2360, Ordinary Differential Equations Spring 2008
- Teaching Asst. – APPM 2350, Calculus III (Multivariable Calculus) Fall 2007

Editorial and Referee Work

PLOS Computational Biology **San Francisco, CA**
Academic Editor 2022 - Present

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)
- 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)
- 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 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
- Program Committee, Int'l Conf. on Computational Social Science (IC2S2) 2017-2021, 2023, 2024
- Program Committee, NetSci 2017, 2019, 2020, 2022, 2023
- 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
  - Chair, Program Committee, National Academy of Sciences, Washington D.C. June 7-9, 2022
  - Co-Director, National Academy of Sciences, Washington D.C. 2024
  - Co-Director, TBD 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
- TDModNet 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
- Bailey Zinger, Chemical and Biological Engineering. Adv: Kayla Sprenger — 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 Randoph — 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** — October 20, 2022
  Santa Fe Institute
  JSMF – SFI Postdocs in Complexity Conference IX
- Science of Science Summer School (S4), Syracuse University — August 8, 2022
  Mentor
- **Prioritizing Vaccines: Who Should Get Them First and Why?** — November 20, 2020
  BioFrontiers Institute Community COVID-19 Session III
- **COVID-19 Surveillance Testing: A Way Out?** — September 17, 2020
  College of Engineering & Applied Sciences CU Boulder COVID-19 Webinar
- **How do infectious disease models work?** — April 13, 2020
  BioFrontiers Institute Community COVID-19 Session I
- **What it is to be a Scientist** — May 4, 2016
  Santa Fe Institute
  Keynote, SFI High School Prize for Scientific Excellence
- **What it is to be a Scientist** — 2016-2019
  Santa Fe Institute
  REU Program Mentorship

Other Service and Outreach

Faculty Sanity — **Boulder, CO**
A monthly, open, unstructured meetup for junior faculty at CU Boulder, all departments.
Founder, Organizer — 2018 - 2021

March for Science - Santa Fe — **Santa Fe, NM**
Lead Organizer — April 22, 2017

New Mexico Corrections / Penitentiary of New Mexico — **Santa Fe, NM**
Volunteer math teacher and tutor — 2016 - 2017

Santa Fe Alliance for Science — **Santa Fe, NM**
Science fair judge — 2015 - 2017

Greater University Service Foundation, Inc. — **St. Louis, MO**
Director — 2008 - 2022
Co-founder and Secretary — 2006 - 2008

The Boulder County AIDS Project — **Boulder, CO**
Volunteer math tutor; grocery packing and delivery. — 2005 - 2011