

Curriculum Vitae

Daniel B. Larremore

Omidyar Fellow, Santa Fe Institute

larremore@santafe.edu

Contact Information

The Santa Fe Institute
1399 Hyde Park Rd.
Santa Fe, NM 87501, USA
+1-505-946-2795

Website: danlarremore.com
Twitter: [@danlarremore](https://twitter.com/danlarremore)
Google Scholar: [here](#)
Github: [here](#)

Research Interests

- Network science (dynamics, structure, inference, applications)
- Recombinant genetics and evolution of the malaria parasite *P. falciparum*.
- Formation and evolution of hierarchy and inequality in the structures of academic science.
- Dynamics on excitable networks, particularly with applications to neuroscience.

Education

- University of Colorado at Boulder, Department of Applied Mathematics** May, 2012
Ph.D in Applied Mathematics. Advisor: Juan G. Restrepo
“Critical Dynamics in Complex Excitable Networks”
- University of Colorado at Boulder, Department of Applied Mathematics** December, 2009
M.S. in Applied Mathematics
- Washington University in St. Louis, School of Engineering and Applied Science** May, 2005
B.S. in Chemical Engineering, *cum laude*

Academic Positions

- University of Colorado** **Boulder, CO**
Assistant Professor, Computer Science Fall 2017
Assistant Professor, BioFrontiers Institute Fall 2017
- Santa Fe Institute** **Santa Fe, NM**
Omidyar Fellow 2015 - Present
- Center for Communicable Disease Dynamics, Harvard School of Public Health** **Boston, MA**
Postdoctoral Fellow with Caroline Buckee (HSPH) and Aaron Clauset (Colorado) 2012 - 2015
- University of Colorado** **Boulder, CO**
Research Assistant with advisor Juan G. Restrepo (Colorado) 2009 - 2012
- University of Colorado** **Boulder, CO**
Research Assistant and Mentor, MCTP Program - NSF DMS-060228 June 2010 - May 2011

Industry Experience

Gambro Blood Component Technologies

Research and Development Engineer
Engineering Intern II
Engineering Intern I

Lakewood, CO

2005 - 2007
Summer 2005
Summer 2004

Barry Z. Cynamon Consulting

Scientific and Technical Consultant

San Francisco, CA

2016 - present

Peer-Reviewed Publications

1. **D. B. Larremore***, L. Peel*, A. Clauset. "The ground truth about metadata and community detection in networks." *Science Advances* **3**(5) e1602548 (2017).
2. C. De Bacco, E. A. Power, **D. B. Larremore**, C. Moore. "Community detection, link prediction, and layer interdependence in multilayer networks." *Physical Review E* **95** 042317 (2017).
3. S. F. Way, **D. B. Larremore**, A. Clauset. "Gender, Productivity, and Prestige in Computer Science Faculty Hiring Networks." *Proceedings of the 2016 World Wide Web Conference (WWW)* 1169-1179, (2016).
4. **D. B. Larremore**, S. A. Sundararaman, W. Liu, W. R. Proto, A. Clauset, D. E. Loy, S. Speede, L. J. Plenderleith, P. M. Sharp, B. H. Hahn, J. C. Rayner*, and C. O. Buckee*. "Ape origins of human malaria virulence genes." *Nature Communications*, **6**, 8368 (2015).
5. A. Clauset, S. Arbesman, **D. B. Larremore**, "Systematic inequality and hierarchy in faculty hiring networks." *Science Advances*, **1**, e1400005 (2015).
6. A. K. Bei, A. Diouf, K. Miura, **D. B. Larremore**, U. Ribacke, G. Tullo, E. L. Moss, D. E. Neafsey, R. F. Daniels, A. E. Zeituni, I. Nosamiefan, S. K. Volkman, A. D. Ahouidi, D. Ndiaye, T. Dieye, S. Mboup, C. O. Buckee, C. Long, and D. F. Wirth., "Immune characterization of *P. falciparum* parasites with a shared genetic signature in a region of decreasing transmission." *Infection and Immunity*, **83**(1), 276 (2014).
7. **D. B. Larremore**, A. Clauset, and A. Z. Jacobs, "Efficiently inferring community structure in bipartite networks." *Physical Review E*, **90**(1), 012805 (2014).
8. **D. B. Larremore**, W. L. Shew, E. Ott, F. Sorrentino, and J. G. Restrepo, "Inhibition causes ceaseless dynamics in networks of excitable nodes" *Physical Review Letters*, **112**, 138103 (2014).
9. **D. B. Larremore**, A. Clauset, and C. O. Buckee, "A network approach to analyzing highly recombinant malaria parasite genes." *PLOS Computational Biology* **9**(10) e1003268 (2013).
10. **D. B. Larremore*** and D. Taylor*, "Social Climber attachment in forming networks produces phase transition in a measure of connectivity." *Physical Review E* **86** 031140 (2012).
11. **D. B. Larremore**, M. Y. Carpenter, E. Ott, and J. G. Restrepo, "Statistical properties of avalanches in networks." *Physical Review E* **85**, 066131 (2012).
12. **D. B. Larremore**, W. L. Shew, E. Ott, and J. G. Restrepo, "Effects of network topology, transmission delays, and refractoriness on the response of coupled excitable systems to a stochastic stimulus." *Chaos* **21**, 025117 (2011).
13. **D. B. Larremore**, W. L. Shew, J. G. Restrepo, "Predicting criticality and dynamic range in complex networks: effects of topology." *Physical Review Letters* **106**, 058101 (2011).

*equal contribution

† alphabetical author order

Submitted or In-Press Publications

1. S. F. Way, A. C. Morgan, A. Clauset, **D. B. Larremore**. "The misleading narrative of the canonical faculty productivity trajectory." *Submitted* (2017). Available [here](#) via arXiv.org. Also accepted at ICWSM 2017, social science track (non-archival)]

2. † A. Berdahl*, C. Brelsford*, C. De Bacco*, M. Dumas*, V. Ferdinand*, J. A. Grochow*, L. Hébert-Dufresne*, Y. Kallus*, C. P. Kempes*, A. Kolchinsky*, **D. B. Larremore***, E. Libby*, E. A. Power*, C. A. Stern*, B. D. Tracey*. “Dynamics of beneficial epidemics.” *In Review* (2017). Available [here](#) via arXiv.org.
3. † Bailey K. Fosdick*, **D. B. Larremore***, Joel Nishimura*, Johan Ugander*. “Configuring random graph models with fixed degree sequences.” *In Press at SIAM Review* (2016). Available [here](#) via arXiv.org.
4. A. K. Bei, K. Miura, **D. B. Larremore**, A. Diouf, N. K. Baro, R. F. Daniels, A. Griggs, E. L. Moss, D. E. Neafsey, A. B. Deme, M. Sy, S. Schaffner, A. D. Ahouidi, D. Ndiaye, T. Dieye, S. Mboup, C. O. Buckee, S. K. Volkman, C. A. Long, D. F. Wirth, “Plasmodium falciparum population genetic complexity influences expression dynamics and immune recognition among highly related genotypic clusters.” *In Review* (2016).
5. † A. Berdahl*, U. Bhat*, V. Ferdinand*, J. Garland*, K. Ghazi-Zahedi*, J. Grana*, J. A. Grochow*, E. Hobson*, Y. Kallus*, C. P. Kempes*, A. Kolchinsky*, **D. B. Larremore***, E. Libby*, E. A. Power*, B. D. Tracey*. “On the records.” (2017) Available [here](#) via arXiv.org.

* equal contribution

† alphabetical author order

Perspectives, Essays, and Other Publications

1. **D. B. Larremore**, A. Clauset. “Why predicting the future is more than just horseplay.” *The Christian Science Monitor*, 24 April, 2017. [contributed essay][[link](#)]
2. A. Clauset, **D. B. Larremore**, R. Sinatra. “Data-driven predictions in the science of science.” *Science* **355**, 477-480 (2017). [invited perspective piece]
3. D. E. Geer Jr. and **D. B. Larremore**, “Progress is Infectious.” *IEEE Security & Privacy* **10**(6) p. 94-95 (2012). [monthly column of D. E. Geer Jr.]

Book Chapters

D. B. Larremore, W. L. Shew, J. G. Restrepo, “Critical Dynamics in Complex Networks” *Criticality in Neural Systems*. Ed. Dietmar Plenz & Ernst Niebur. NY: Wiley, 365-392, 2014.

Funding

“Academic hiring networks and scientific productivity across disciplines.” 2016-2019
PI, with Mirta Galesic (co-PI; Santa Fe Institute) and Aaron Clauset (PI; Colorado)
 NSF SBE, \$550,000

“Models of Infections Disease Agents Study Center for Communicable Disease Dynamics”
Consultant, with Marc Lipsitch (PI; Harvard School of Public Health).
 NIH NIGMS, \$11,279,771 2015-2019

“Network Assortativity” collaboration grant
Proposer, with Bailey Fosdick (Colorado State), Joel Nishimura (Arizona State), and
 Johan Ugander (Microsoft Research)
 Amer. Mathematical Soc. (AMS) Mathematical Research Communities, \$2,250 2014

Software

- **webweb**, a free set of MATLAB, d3, and javascript code allowing for interactive visualization of complex networks a web browser. danlarremore.com/webweb.
- **PercoVIS**, a free tool for visualizing percolation on networks. danlarremore.com/PercoVIS.html. Cited in: Daniel E. Geer’s “Power. Law.” *IEEE Security and Privacy*, **10**(1), 94 (2012) - “a lovely visualization tool.” Franco Landriscina, *Simulation and Learning*, Springer (2013).

Invited Talks

- “Gender, prestige, and productivity in academic hiring networks and career trajectories.”
Workshop on Gendered Creative Teams, *Central European University*, Budapest, Hungary May 25, 2017
- “Gender, prestige, and productivity in academic hiring networks and career trajectories.”
Seminar, Berkeley Institute for Data Science, *UC Berkeley*, Berkeley, CA March 17, 2017
- “The assembly of prestige and status in networks.”
Influence, Complexity and Networks, *Dialog Group*, Austin, TX Feb 23, 2017
- “The ground truth about metadata and community detection in networks.”
Networks Seminar, *University of Houston*, Houston, TX Oct 28, 2016
- “Gender, prestige, and productivity in faculty hiring networks.”
Quantifying Success Satellite Symposium, *NetSci 2016*, Seoul, Korea June 1, 2016
- “Networks and the evolution of malaria's virulence in humans and apes.”
Network Frontiers Workshop, *Northwestern Univ. Inst. of Complex Systems*, Evanston, IL Dec 7, 2015
- “Networks in two acts: faculty hiring hierarchies and malaria's evolving virulence.”
Arts & Sciences Seminar, *Clarkson University*, Potsdam, NY Nov 13, 2015
- “Networks and the evolution of malaria's virulence in humans and apes.”
Mathematics Colloquium, *Clarkson University*, Potsdam, NY Nov 12, 2015
- “Networks, inference, and the evolution of malaria's virulence in humans and apes.”
Mechanical Engr. Seminar, *University of New Mexico*, Albuquerque, NM Nov 6, 2015
- “A complex networks approach to malaria's genetic recombination dynamics.”
Minisymposium, *SIAM Conf. on Applications of Dynamical Systems (DS15)*, Snowbird, UT May 15, 2015
- “Using networks to analyze rapid genetic recombination in malaria parasites.”
Dynamics & Complex Systems Seminar, *Applied Math, University of Colorado at Boulder* April 9, 2015
- “Using complex networks to understand rapid genetic recombination in wily malaria parasites.”
Invited Talk, *Santa Fe Institute* January 29, 2015
- “Complex networks, rapid genetic recombination, and tricky malaria antigens.”
Mathematics Colloquium, *Western New England University* November 7, 2014
- “Ceaseless critical dynamics in excitable networks with inhibitory nodes.”
Information, Self-Organizing Dynamics, and Synchronization on Complex Networks,
(ISODS) Satellite Symposium, *NetSci 2014*, Berkeley, CA June 3, 2014
- “Efficiently inferring community structure in bipartite networks.”
Seminar at Network Science and Graph Algorithms Program, *ICERM, Brown University* March 4, 2014
- “Critical dynamics in balanced excitable networks: neuronal avalanches, dynamic range, and ceaseless activity.”
Dynamics & Complex Systems Seminar, *Applied Math, University of Colorado at Boulder* February 28, 2013
- “Critical dynamics in balanced excitable networks: neuronal avalanches, dynamic range, and ceaseless activity.”
Seminar, *Center for Complex Network Research, Northeastern University* February 5, 2013
- “Predicting criticality and dynamic range in complex networks: effects of topology.”
Minisymposium, *SIAM Conf. on Applications of Dynamical Systems (DS11)*, Snowbird, UT May 23, 2011

Other Talks and Presentations

- 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
- 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, *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, *OCLAM, Oxford University, UK* March 8, 2013
- Dynamics Days – poster, *University of Colorado at Boulder* January 3, 2013
- Freeman Symposium, *Harvard School of Public Health* December 14, 2012
- Ph.D. Dissertation Defense, *University of Colorado at Boulder* April 5, 2012
- Front Range Applied Mathematics Student Conference, *Univ. of Colorado at Denver* March 3, 2012
- Dynamics Days – poster, *University of Maryland* January 3, 2012
- Comprehensive Examination, *University of Colorado at Boulder* September 27, 2011
- Front Range Applied Mathematics Student Conference, *Univ. of Colorado at Denver* March 5, 2011
- Dynamics Days 2011, *Duke University* January 6, 2011
- Complex and Dynamical Systems Seminar, *University of Colorado at Boulder* October 20, 2010
- Nonlinear Dynamics of Networks (NTD10) – poster, *University of Maryland* April 4, 2010
- Complex and Dynamical Systems Seminar, *University of Colorado at Boulder* April 1, 2010
- Front Range Applied Mathematics Student Conference, *Univ. of Colorado at Denver* March 6, 2010
- Dynamics Days 2010 – poster, *Northwestern University* January 3, 2010

Awards, Affiliations, Accreditations

- NIH “Protecting Human Research Participants” – certification June, 2016
- Network Science Society – Member 2014 - present
- American Mathematical Society – Member 2014 - present
- American Society of Tropical Medicine and Hygiene – Member 2013 - present
- National Postdoctoral Association – Member 2012 - present
- Society of Industrial and Applied Mathematics – Member 2008 - present
- NetSci 2014 – Best Poster June, 2014
- “Inhibition causes ceaseless...” – *Physical Review Letters* Editors’ Suggestion April, 2014
- Arts and Sciences Dean’s Teaching Assistant Fellowship Spring, 2010
- Dynamics Days 2010 – Best Poster January, 2010
- Lead Teaching Assistant, Dept. of Applied Mathematics 2009 - 2010

Advising

- **William McKinnon, High School Student**, Santa Fe Institute July & August, 2016
Three week project to introduce 11th grade student to scientific research, coding, and communication.
Frequencies and periods: how punctuation rates change over time.
- **Kat Wicks, High School Student**, Santa Fe Institute 2015 - 2016
One year project to introduce 11-12th grade student to scientific research, coding, and communication.
- **Marshall Y. Carpenter, M.S.**, University of Colorado at Boulder 2012
Co-advised with Juan G. Restrepo under NSF MCTP.

Teaching

Harvard School of Public Health

- *Lecturer – CB399 Introduction to Modeling Infectious Disease* (networks)

Kenya Medical Research Institute (KEMRI)

Boston, MA, USA

July 24 & 27, 2014

Kilifi, Kenya

- *Lecturer* – TModNet Modeling Workshop (networks in genetics & epidemiology) October 3, 2013
University of Colorado Boulder, CO, USA
- *Guest Lecturer* – CSCI5352 (Network Analysis and Modeling) October 9, 2014
- *Guest Lecturer* – PHYS7810/CHEM6711/MCDB6400 (Foundations of Quant. Bio.) November 5-7, 2013
- *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

Referee Work

Grant Review

- National Science Foundation - SciSIP

Journals

- Europhysics Letters (EPL)
- IEEE Security and Privacy
- Journal of Statistical Mechanics: theory and experiment (JSTAT)
- Journal of the Association for Information Science and Technology (JASIST)
- Malaria Journal
- Methods in Ecology and Evolution
- Nature Scientific Reports
- Physical Review Letters (PRL)
- Physical Review X (PRX)
- Physical Review E (PRE)
- Physica A
- PLoS Biology
- PLoS Computational Biology
- PLoS Neglected Tropical Diseases
- PLoS ONE

Conferences

- Program Committee, 3rd Int'l Conf. on Computational Social Science (IC2S2 2017)
- Program Committee, NetSci 2017
- Program Committee, 26th Int'l World Wide Web Conf. (WWW17)
- Program Committee, SIAM Network Science 2016, 2017 (NS16, NS17)
- 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)

- *Statistical Inference for Network Models* June 19, 2017
Indianapolis, Indiana, Satellite Symposium of NetSci 2017.
Organized with Tamara Broderick, Bailey Fosdick, and Aaron Clauset.
- *Slice of Science* April, 2016 -
Santa Fe, NM. Ongoing Santa Fe Institute talk series.
Organizer

- *Statistical Inference for Network Models* May 31, 2016
Seoul, Korea, Satellite Symposium of NetSci 2016.
Organized with Bailey Fosdick, Abigail Z. Jacobs, and Aaron Clauset.
- *Statistical Inference for Network Models* June 1, 2015
Zaragoza, Spain, Satellite Symposium of NetSci 2015.
Organized with Leto Peel, Abigail Z. Jacobs, and Aaron Clauset.
- *Applied Network Science at Longwood Seminar Series, at Harvard School of Public Health.* 2014 - 2015
Boston, MA, monthly seminar for network research with biological, public health, or medical application.
Conceived and organized with John Platis.
- *Statistical Inference for Network Models* June 2, 2014
Berkeley, CA, Satellite Symposium of NetSci 2014
Organized with Leto Peel, Abigail Z. Jacobs, and Aaron Clauset.
- *Harvard School of Public Health Infectious Disease Epidemiology Seminar Series* 2014
Boston, MA
Organized with William Hanage.
- *Mathematics Research Community Workshop on Network Science* June 24-30, 2014
Snowbird, UT
Assisting Aaron Clauset, Mason Porter, & David Kempe.
- *TDMoNet Modeling Workshop (networks in genetics & epidemiology)* Oct 3, 2013
Kenya Medical Research Institute (KEMRI), Kilifi, Kenya.
Organized with Caroline O. Buckee
- *Front Range Applied Mathematics Student Conference* March 14, 2009
University of Colorado at Denver.
Organized with Daniel N. Kaslovsky, Anne Dougherty, *et al.*
- *SLAM Graduate Student Chapter Speaker Series* Spring 2009
University of Colorado at Boulder.
Co-organized with Daniel N. Kaslovsky.

Institutional Committees

- Complex Systems Summer School Applicant Review, *Santa Fe Institute* 2016, 2017
- Omidyar Fellowship Applicant Review & Selection Committee, *Santa Fe Institute* 2015, 2016
- Office of Discrimination and Harassment Review Committee, *Univ. Colorado Boulder* 2010 - 2012
- SIAM Graduate Student Chapter, *University of Colorado at Boulder* 2008 - 2010

Outreach

- “What it is to be a Scientist” May 4, 2016
Santa Fe Institute
Keynote, SFI High School Prize for Scientific Excellence

Other Service & Outreach

March for Science - Santa Fe

Lead Organizer

- Live radio appearance - Honey Harris - KBAC 98.1 Santa Fe, NM April 22, 2017
- Live radio appearance - Ira Gordon - KBAC 98.1 Santa Fe, NM March 21, 2017
- Live radio appearance - Ira Gordon - KBAC 98.1 Santa Fe, NM March 24, 2017
- Recorded radio appearance - Gillian Sutton - KRSN 107.1/1490 Los Alamos, NM April 18, 2017
- Live radio appearance - Rita Daniels - KNCE 93.5 Taos, NM April 19, 2017
- Live radio appearance - Richard Eeds - KVSF 101.5 Santa Fe, NM April 19, 2017
- Live Radio appearance - Honey Harris - KBAC 98.1 Santa Fe, NM April 20, 2017
- Recorded radio appearance - KSFR 101.1 public radio, Santa Fe, NM April 24, 2017

New Mexico Corrections / Penitentiary of New Mexico

Santa Fe, NM

Volunteer math teacher and tutor

January 2016 - May 2017

Santa Fe Alliance for Science

Science fair judge

Santa Fe, NM

2015 - 2017

Greater University Service Foundation, Inc.

Director

Co-founder and Secretary

St. Louis, MO

2008 - present

2006 - 2008

The Boulder County AIDS Project

Volunteer math tutor; grocery packing and delivery.

Boulder, CO

2005 - 2011