

## Aaron Clauset

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CONTACT INFORMATION	Department of Computer Science University of Colorado at Boulder 430 UCB Boulder CO, 80309-0430 USA	<i>voice:</i> 303-492-6643 <i>fax:</i> 303-492-2844 <i>email:</i> <a href="mailto:aaron.clauset@colorado.edu">aaron.clauset@colorado.edu</a> <i>web:</i> <a href="http://www.santafe.edu/~aaronc">www.santafe.edu/~aaronc</a>
RESEARCH INTERESTS	Network science (methods, theories, applications); Data science, statistical inference, machine learning; Models and simulations; Collective dynamics and complex systems; Rare events, power laws and forecasting; Computational social science; Computational biology and biological computation.	
EDUCATION	Ph.D. Computer Science, University of New Mexico (with distinction) 2002 – 2006 B.S. Physics, Haverford College (with honors and concentration in Computer Science) 1997 – 2001	
ACADEMIC POSITIONS	Associate Professor, Computer Science Dept., <i>University of Colorado, Boulder</i> 2018 – present Core Faculty, BioFrontiers Institute, <i>University of Colorado, Boulder</i> 2010 – present External Faculty, <i>Santa Fe Institute</i> 2012 – present Affiliated Faculty, Ecology & Evo. Biology Dept., <i>University of Colorado, Boulder</i> 2011 – present Affiliated Faculty, Applied Mathematics Dept., <i>University of Colorado, Boulder</i> 2012 – present Affiliated Faculty, Information Dept., <i>University of Colorado, Boulder</i> 2015 – present Assistant Professor, Computer Science Dept., <i>University of Colorado, Boulder</i> 2010 – 2018 Omidyar Fellow, <i>Santa Fe Institute</i> 2006 – 2010	
EDITORIAL POSITIONS	Deputy Editor, <i>Science Advances</i> , AAAS 2017 – present Associate Editor, <i>Science Advances</i> , AAAS 2014 – 2017 Associate Editor, <i>Journal of Complex Networks</i> , Oxford University Press 2012 – 2017	
HONORS & AWARDS (SELECTED)	Top 20 Teachers, College of Engineering, U. Colorado, Boulder 2016 Erdős-Rényi Prize in Network Science 2016 NSF CAREER Award 2015 – 2020 Kavli Fellow 2014 Santa Fe Institute Public Lecture Series ( <a href="http://bit.ly/I6t9gf">http://bit.ly/I6t9gf</a> ) 2010 Graduation Speaker, U. New Mexico School of Engineering Convocation 2006 Outstanding Graduate Student Award, U. New Mexico School of Engineering 2006	
GOOGLE SCHOLAR	<a href="https://scholar.google.com/citations?user=e7VI_HcAAAAJ">scholar.google.com/citations?user=e7VI_HcAAAAJ</a>	
	* indicates an undergraduate coauthor; ° indicates equal contribution	
MANUSCRIPTS UNDER REVIEW	A. C. Morgan°, D. Economou°, S. F. Way and <b>A. Clauset</b> , “Prestige drives epistemic inequality in the diffusion of scientific ideas.” Submitted (2018).  A. D. Broido and <b>A. Clauset</b> , “Scale-free networks are rare.” Submitted (2018). (Preprint at <a href="http://arxiv.org/abs/1801.03400">http://arxiv.org/abs/1801.03400</a> )  A. C. Morgan, S. F. Way and <b>A. Clauset</b> , “Automatically assembling a full census of an academic field.” Submitted (2018). (Preprint at <a href="https://arxiv.org/abs/1804.02760">https://arxiv.org/abs/1804.02760</a> )  A. Ghasemian, H. Hosseinmardi, and <b>A. Clauset</b> , “Evaluating overfit and underfit in models of network community structure.” Submitted (2018). (Preprint at <a href="http://arxiv.org/abs/1802.10582">http://arxiv.org/abs/1802.10582</a> )  L. Fortunato and <b>A. Clauset</b> , “Revisiting the effect of red on competition in humans.” Submitted (2016). (Preprint at <a href="http://dx.doi.org/10.1101/086710">http://dx.doi.org/10.1101/086710</a> )	

R. C. Tilquist, L. Shoemaker, K. B. Knight, and **A. Clauset**, “The evolution of primate body size: Left-skewness, maximum size, and Copes rule.” Submitted (2016).  
(Preprint at <http://dx.doi.org/10.1101/092866>)

PUBLICATIONS  
(REFEREED)

**A. Clauset**, “Trends and fluctuations in the severity of interstate wars.” *Science Advances* **4**(2), eaao3580 (2018).

L. R. Thompson, J. G. Sanders, [et al. including **A. Clauset**], “A communal catalogue reveals Earth’s multiscale microbial diversity.” *Nature* **551**, 457–463 (2017).

S. F. Way, A. C. Morgan, **A. Clauset**<sup>o</sup>, and D. B. Larremore<sup>o</sup>, “The misleading narrative of the canonical faculty productivity trajectory.” *Proc. Natl. Acad. Sci. USA* **114**(44), E9216–E9223 (2017). (Preprint at [arxiv:1612.08228](https://arxiv.org/abs/1612.08228)) [Also accepted at *ICWSM* 2017, social science track (non-archival)]

N. Connor, A. Barbaran and **A. Clauset**, “Using null models to infer microbial co-occurrence networks.” *PLOS ONE* **12**(5), e0176751 (2017). (Preprint at <http://dx.doi.org/10.1101/070789>)

L. Peel, D. B. Larremore, and **A. Clauset**, “The ground truth about metadata and community detection in networks.” *Science Advances* **3**(5), e1602548 (2017). (Preprint at [arxiv:1608.05878](https://arxiv.org/abs/1608.05878))

D. Taylor, S. A. Myers, **A. Clauset**, M. A. Porter, P. J. Mucha, “Eigenvector-based centrality measures for temporal networks.” *Multiscale Modeling and Simulation* **15**(1), 537–574 (2017). (Preprint at [arxiv:1507.01266](https://arxiv.org/abs/1507.01266))

A. Ghasemian, P. Zhang, **A. Clauset**, C. Moore, and L. Peel, “Detectability thresholds and optimal algorithms for community structure in dynamic networks.” *Physical Review X* **6**, 031005 (2016). (Preprint at [arxiv:1506.06179](https://arxiv.org/abs/1506.06179))

M. E. J. Newman and **A. Clauset**, “Structure and inference in annotated networks.” *Nature Communications* **7**, 11863 (2016). (Preprint at [arxiv:1507.04001](https://arxiv.org/abs/1507.04001))  
[Included by *Nat. Comms.* in a special collection of papers on “Network structure and dynamics”]

S. F. Way, D. B. Larremore, and **A. Clauset**, “Gender, productivity, and prestige in computer science faculty hiring networks.” *Proc. 25th International Conference on World Wide Web (WWW)*, 1169–1179 (2016). (Preprint at [arxiv:1602.00795](https://arxiv.org/abs/1602.00795))

L. Peel and **A. Clauset**, “Predicting sports scoring dynamics with restoration and anti-persistence.” *Proc. 2015 IEEE International Conference on Data Mining (ICDM)*, 339–348 (2015). (Preprint at [arxiv:1504.05872](https://arxiv.org/abs/1504.05872))

D. B. Larremore, S. A. Sundararaman, W. Liu, W. R. Proto, **A. Clauset**, D. E. Loy, S. Speede, 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).

A. Z. Jacobs, S. F. Way, J. Ugander and **A. Clauset**, “Assembling thefacebook: Using heterogeneity to understand online social network assembly.” *Proc. ACM Web Science Conference (WebSci 2015)*, article 18 (Preprint at [arxiv:1503.06772](https://arxiv.org/abs/1503.06772))

**A. Clauset**, M. Kogan and S. Redner, “Safe leads and lead changes in competitive team sports.” *Physical Review E* **91**, 062815 (2015). (Preprint at [arxiv:1503.03509](https://arxiv.org/abs/1503.03509))  
[Chosen as an “Editors’ Suggestion”]

**A. Clauset**, S. Arbesman and D. B. Larremore, “Systematic inequality and hierarchy in faculty

- hiring networks.” *Science Advances* **1**(1), e1400005 (2015). [One of “Top Ten” *Science Advances* articles of 2015.] [One of the top 100 articles of 2015, by almetrics.com.]
- L. Peel and **A. Clauset**, “Detecting change points in the large-scale structure of evolving networks.” *Proc. 29th Conference on Artificial Intelligence (AAAI)*, 2914–2920 (2015). (Preprint at [arxiv:1403.0989](https://arxiv.org/abs/1403.0989))
- C. Aicher\*, A. Z. Jacobs and **A. Clauset**, “Learning latent block structure in weighted networks.” *Journal of Complex Networks* **3**(2), 221–248 (2015). (Preprint at [arxiv:1404.0431](https://arxiv.org/abs/1404.0431))
- A. Scharpf, G. Schneider, A. Nöh and **A. Clauset**, “Forecasting of the risk of extreme massacres in Syria.” *European Review of International Studies* **1**(2), 50–68 (2014).
- D. B. Larremore, **A. Clauset** and A. Z. Jacobs, “Efficiently inferring community structure in bipartite networks.” *Physical Review E* **90**, 012805 (2014). (Preprint at [arxiv:1403.2933](https://arxiv.org/abs/1403.2933)) [Best Poster award at NetSci 2014]
- P. Sah, L.O. Singh, **A. Clauset** and S. Bansal, “Exploring community structure in biological networks with random graphs.” *BMC Bioinformatics* **14**, 220 (2014). (Preprint at [biorxiv.org/content/early/2013/12/22/001545](https://www.biorxiv.org/content/early/2013/12/22/001545)) [Highly accessed paper]
- S. Merritt and **A. Clauset**, “Scoring dynamics across professional team sports: tempo, balance and predictability.” *EPJ Data Science* **3**, 4 (2014). (Preprint at [arxiv:1310.4461](https://arxiv.org/abs/1310.4461)) [Highly accessed paper]
- Y. Virkar and **A. Clauset**, “Power-law distributions in binned empirical data.” *Annals of Applied Statistics* **8**(1), 89–119 (2014). (Preprint at [arxiv:1208.3524](https://arxiv.org/abs/1208.3524))
- L. Shoemaker and **A. Clauset**, “Body mass evolution and diversification within horses (family Equidae).” *Ecology Letters* **17**(2), 211–220 (2014).
- A. Clauset** and R. Woodard, “Estimating the historical and future probabilities of large terrorist events.” *Annals of Applied Statistics* **7**(4), 1838–1865 (2013). (Preprint at [arxiv:1209.0089](https://arxiv.org/abs/1209.0089)) [Subject of a special session at ASA Joint Statistical Meetings, Montreal Canada, 5 August 2013]
- 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). (Preprint at [arxiv:1308.5254](https://arxiv.org/abs/1308.5254))
- S. Merritt and **A. Clauset**, “Environmental structure and competitive scoring advantages in team competitions.” *Scientific Reports* **3**, 3067 (2013). (Preprint at [arxiv:1304.1039](https://arxiv.org/abs/1304.1039))
- A. Scharpf, G. Schneider, A. Nöh and **A. Clauset**, “The blood trail of the veto: A forecast of the risk of extreme massacres in Syria.” *Zeitschrift für Friedens – und Konfliktforschung* **2**(1), 6–31 (2013). [In German]
- S. Merritt, A. Z. Jacobs, W. Mason and **A. Clauset**, “Detecting friendship within dynamic online interaction networks.” *Proc. of the 7th International AAAI Conference on Weblogs and Social Media (ICWSM)*, 380–389 (2013). (Preprint at [arxiv:1303.6372](https://arxiv.org/abs/1303.6372))
- B. J. Mills, J. J. Clark, M. Peeples, W. R. Haas Jr., J. M. Roberts Jr., B. Hill, D. L. Huntley, L. Borck, R. L. Breiger, **A. Clauset**, and M. S. Shackley, “Transformation of social networks in the late Prehispanic U.S. Southwest.” *Proc. Natl. Acad. Sci. USA* **110**(15): 5785–5790 (2013).

- A. Clauset**, “How large should whales be?” *PLOS ONE* **8**(1), e53967 (2013).  
(Preprint at [arxiv:1207.1478](https://arxiv.org/abs/1207.1478))
- W. Mason and **A. Clauset**, “Friends FTW! Friendship, collaboration and competition in *Halo: Reach*.” *Proc. of the 2013 Conference on Computer Supported Cooperative Work (CSCW)*, 375–386 (2013). (Preprint at [arxiv:1203.2268](https://arxiv.org/abs/1203.2268))
- A. Clauset** and K. S. Gleditsch, “The developmental dynamics of terrorist organizations.” *PLOS ONE* **7**(11), e48633 (2012). (Preprint at [arxiv:0906.3287](https://arxiv.org/abs/0906.3287))
- B. H. Good\*, Y.-A. de Montjoye and **A. Clauset**, “The performance of modularity maximization in practical contexts.” *Physical Review E* **81**, 046106 (2010). (Preprint at [arxiv:0910.0165](https://arxiv.org/abs/0910.0165))  
[Chosen as an “Editors’ Suggestion”]
- A. Clauset**, L. Heger, M. Young and K. S. Gleditsch, “The strategic calculus of terrorism: Substitution and competition in the Israel-Palestine conflict.” *Cooperation & Conflict* **46**(1), 6–33 (2010).
- A. Clauset** and F. W. Wiegel, “A generalized aggregation-disintegration model for the frequency of severe terrorist attacks.” *Journal of Conflict Resolution* **54**(1), 179–197 (2010).  
(Preprint at [arxiv:0902.0724](https://arxiv.org/abs/0902.0724))
- A. Clauset**, C. R. Shalizi and M. E. J. Newman, “Power-law distributions in empirical data.” *SIAM Review* **51**(4), 661–703 (2009). (Preprint at [arxiv:0706.1062](https://arxiv.org/abs/0706.1062))
- D. Achlioptas, **A. Clauset**, D. Kempe and C. Moore, “On the bias of traceroute sampling: Or, power-law degree distributions in regular graphs.” *Journal of the ACM* **56**(4), article 21, 28 pages (2009). (Preprint at [arxiv:cond-mat/0503087](https://arxiv.org/abs/cond-mat/0503087)) [journal version of STOC 2005 paper]
- N. Eagle, J. Quinn and **A. Clauset**, “Methodologies for continuous cellular tower data analysis.” *Proc. 7th International Conference on Pervasive Computing (Pervasive 2009)*, 342–353.
- A. Clauset** and S. Redner, “Evolutionary model of species body mass diversification.” *Physical Review Letters* **102**, 038103 (2009). (Preprint at [arxiv:0808.4014](https://arxiv.org/abs/0808.4014))
- A. Clauset**, D. J. Schwab and S. Redner, “How many species have mass  $M$ ?” *American Naturalist* **173**, 256–263 (2009). (Preprint at [arxiv:0808.3433](https://arxiv.org/abs/0808.3433))
- A. Clauset**, H. G. Tanner, C. T. Abdallah and R. H. Byrne, “Controlling across complex networks – Emerging links between networks and control.” *Annual Reviews in Control* **32**, 183–192 (2008).
- A. Clauset** and D. H. Erwin, “The evolution and distribution of species body size.” *Science* **321**, 399–401 (2008). (Preprint at [arxiv:0901.0251](https://arxiv.org/abs/0901.0251))
- A. Clauset**, C. Moore and M. E. J. Newman, “Hierarchical structure and the prediction of missing links in networks.” *Nature* **453**, 98–101 (2008). (Preprint at [arxiv:0811.0484](https://arxiv.org/abs/0811.0484))
- A. Clauset**, M. Young and K. S. Gleditsch, “On the frequency of severe terrorist attacks.” *Journal of Conflict Resolution* **51**(1), 58–88 (2007). (Preprint at [arxiv:physics/0606007](https://arxiv.org/abs/physics/0606007))
- V. Kalapala, V. Sanwalani, **A. Clauset** and C. Moore, “Scale invariance in road networks.” *Physical Review E* **73**, 026130 (2006). (Preprint at [arxiv:physics/0510198](https://arxiv.org/abs/physics/0510198))
- J. T. Ayers, **A. Clauset**, J. D. Schmitt, L. P. Dvoskin and P. A. Crooks, “Molecular modeling of mono- and bis-quaternary ammonium salts as ligands at the  $\alpha 4\beta 2$  nicotinic acetylcholine receptor

subtype using nonlinear techniques.” *American Association of Pharmaceutical Scientists Journal* **7**(3), E678–85 (2005).

Y. D. Xiao, **A. Clauset**, R. Harris, E. Bayram, P. Santiago II, and J. D. Schmitt, “Supervised self-organizing maps in QSAR I: Robust behavior with underdetermined datasets.” *Journal of Chemical Information and Modeling* **46**(6), 1749–1758 (2005).

**A. Clauset**, “Finding local community structure in networks.” *Physical Review E* **72**, 026132 (2005). (Preprint at [arxiv:physics/0503036](https://arxiv.org/abs/physics/0503036))

D. Achlioptas, **A. Clauset**, D. Kempe and C. Moore, “On the bias of traceroute sampling (or: Why almost every network looks like it has a power law).” *ACM Proc. 37th Symp. on Theory of Computing* (STOC 2005), 694–703.

**A. Clauset** and C. Moore, “Accuracy and scaling phenomena in Internet mapping.” *Physical Review Letters* **94**, 018701 (2005). (Preprint at [arxiv:cond-mat/0410059](https://arxiv.org/abs/cond-mat/0410059))

**A. Clauset**, M. E. J. Newman and C. Moore, “Finding community structure in very large networks.” *Physical Review E* **70**, 066111 (2004). (Preprint at [arxiv:cond-mat/0408187](https://arxiv.org/abs/cond-mat/0408187))

E. Bayram, P. Santiago II, R. Harris, Y. D. Xiao, **A. Clauset** and J. D. Schmitt, “Genetic algorithms and self-organizing maps: A powerful combination for modeling complex QSAR and QSPR problems.” *Journal of Computer-Aided Molecular Design* **18** (7-9), 483–493 (2004).

WORKSHOP  
PAPERS

A. Ghasemian, A. Galstyan, and **A. Clauset**, “Highly Accurate Link Prediction in Networks Using Stacked Generalization.” *WSDM International Workshop on Heterogeneous Networks Analysis and Mining* (HeteroNAM 2018).

A. Z. Jacobs and **A. Clauset**, “A unified view of generative models for networks: models, methods, opportunities, and challenges.” *NIPS Workshop on Networks: From Graphs to Rich Data* (2014). (Preprint at [arxiv:1411.4070](https://arxiv.org/abs/1411.4070))

L. Peel and **A. Clauset**, “Change-point detection in temporal networks using hierarchical random graphs.” *KDD Workshop on Outlier Detection & Description under Data Diversity* (2014).

S. Merritt and **A. Clauset**, “Social network dynamics in a massive online game: Network turnover, non-densification, and team engagement in Halo Reach.” *Eleventh Workshop on Mining and Learning with Graphs* (MLG) (2013). (Preprint at [arxiv:1306.4363](https://arxiv.org/abs/1306.4363))

C. Aicher\*, A. Z. Jacobs and **A. Clauset**, “Adapting the stochastic block model to edge-weighted networks.” *ICML Workshop on Structured Learning* (2013). (Preprint at [arxiv:1305.5782](https://arxiv.org/abs/1305.5782))

N. Eagle, **A. Clauset** and J. Quinn, “Location segmentation, inference and prediction for anticipatory computing.” *Proc. AAAI Spring Symposium*, 20–25 (2009).

**A. Clauset** and N. Eagle. “Persistence and periodicity in a dynamic proximity network.” *DIMACS Workshop on Computational Methods for Dynamic Interaction Networks* (Piscataway), 2007. (Preprint at [arxiv:1211.7343](https://arxiv.org/abs/1211.7343)).

**A. Clauset**, C. Moore and M. E. J. Newman, “Structural inference of hierarchies in networks.” *Proc. Workshop on Statistical Network Analysis, 23rd International Conference on Machine Learning* (ICML '06). E. M. Airoldi et al., Eds., *Lecture Notes in Computer Science* **4503**, 1–13 (2007). (Preprint at [arxiv:physics/0610051](https://arxiv.org/abs/physics/0610051))

- BOOK CHAPTERS K. S. Gleditsch and **A. Clauset**, “Trends in Conflict.” In A. Gheciu and W. C. Wohlforth (Eds.), *The Oxford Handbook of International Security* (pp 227–244) Oxford University Press (2018).
- OTHER PUBLICATIONS K. Ikehara and **A. Clauset**, “Characterizing the structural diversity of complex networks across domains.” Preprint, [arxiv:1710.11304](https://arxiv.org/abs/1710.11304) (2017)
- A. Clauset**, D. B. Larremore and R. Sinatra, “Data-driven predictions in the science of science.” *Science* **355**, 477–480 (2017). [Invited Perspective piece]
- A. Z. Jacobs, J. A. Dunne, C. Moore, and **A. Clauset**, “Untangling the roles of parasites in food webs with generative network models.” Preprint, [arxiv:1505.04741](https://arxiv.org/abs/1505.04741) (2015).
- R. T. Gill, A. L. Halweg-Edwards, S. F. Way and **A. Clauset**, “Synthesis aided design: The biological design-build-test engineering paradigm?” *Biotechnology and Bioengineering* **113**(1), 7–10 (2016).
- C. R. Shalizi, A. Z. Jacobs\*, K. L. Klinkner and **A. Clauset**, “Adapting to non-stationarity with growing expert ensembles.” Preprint, [arxiv:1103.0949](https://arxiv.org/abs/1103.0949) (2011).
- A. Clauset**, M. Young and K. S. Gleditsch, “A novel explanation of the power-law form of the frequency of severe terrorist events: Reply to Saperstein.” *Peace Economics, Peace Science and Public Policy* **16**(1), Article 12 (2010).
- A. Clauset**, “Story-telling, statistics, and other grave scientific insults.” *Nature Soapbox Science Blog* (posted 27 October 2010). <http://tinyurl.com/2gx7z51>
- A. Clauset**, “A theoretician ponders what physics has to offer ecology.” *Nature* **465**, 139 (2010).
- N. Eagle, **A. Clauset**, A. Pentland and D. Lazer, “Multi-dimensional edge inference: Response to comment by Dr. Adams.” *Proc. Natl. Acad. Sci. USA* **107**(9), E31 (2010).
- A. Clauset** and C. Moore, “How do networks become navigable?” Preprint, [arxiv:cond-mat/0309415](https://arxiv.org/abs/cond-mat/0309415) (2003).
- POPULAR PRESS D. B. Larremore, A. C. Morgan and **A. Clauset**, “More Inclusive Scholarship Begins With Active Experimentation.” *The Chronicle of Higher Education*, published online 1 November, <http://bit.ly/21FB1Go> (2017).
- D. B. Larremore and **A. Clauset**, “Why predicting the future is more than just horseplay.” *The Christian Science Monitor*, published online 24 April, <http://bit.ly/2omFZbX> (2017).
- J. Warner and **A. Clauset**, “The Academy’s dirty secret.” *Slate*, published online 23 February, <http://slate.me/1MNdKGH> (2015).
- J. Warner and **A. Clauset**, “What same-sex marriage means for the future of recreational weed.” *Pacific Standard*, published online 24 October, <http://bit.ly/1tdlut1> (2014).
- INDUSTRY CONSULTING Scientific & Technical Consultant, *Respond Software Inc.*, Mountain View CA 2017
- Scientific & Technical Consultant, *FullContact Inc.*, Denver CO 2015 – 2017
- Scientific & Technical Consultant, *Institute for Defense Analysis*, Alexandria VA 2010 – 2014
- Corporate Advisory Board, *33across LLC*, New York NY 2008 – 2012
- Scientific & Technical Consultant, *33across LLC*, New York NY 2007 – 2012
- Strategy & Management Consultant, *FischerJordan LLC*, New York NY 2005

GRANTS  
(PI OR CO-PI)

“Leveraging machine learning to improve biological protocol accuracy.” <b>PI</b> , with Sara Sawyer (co-PI; Colorado) University of Colorado, Research & Innovation Seed Grant, \$50,000	2018 – 2019
“Academic hiring networks and scientific productivity across disciplines.” <b>PI</b> , with Daniel B. Larremore (PI; Santa Fe) and Mirta Galesic (co-PI; Santa Fe) NSF SBE, \$550,000	2016 – 2019
“CAREER: Hierarchical probabilistic models for networks with rich data in scientific domains.” <b>PI</b> NSF CISE, \$550,000	2015 – 2020
“Extracting diagnostic signals from human microbiome data.” <b>PI</b> , with Ken Krauter (co-PI; Colorado) and Matt McQueen (co-PI; Colorado) University of Colorado, Butcher Seed Grant Award, \$70,000	2014 – 2016
“High-throughput ecosystem analysis and design.” <b>co-PI</b> , with Rob Knight (PI; Colorado), Ryan Gill (co-PI; Colorado), Noah Fierer (co-PI; Colorado), Manuel Lladser (co-PI; Colorado) and Robin Dowell (co-PI; Colorado) Keck Foundation, \$1,000,000	2013 – 2014
“An alignment-free network approach to analyzing highly recombinant malaria parasite antigens.” <b>PI</b> , joint with Caroline Buckee (PI; Harvard) NIH/NIGMS, R21, \$286,485	2013 – 2016
“EAGER: Understanding technological change from the map of capabilities.” <b>co-PI</b> , with Hyejin Youn (PI; Santa Fe Institute) NSF SBE, \$152,500	2013 – 2017
“Statistical inference for detecting structures and anomalies in networks.” <b>PI</b> , joint with Cris Moore (PI; Santa Fe Institute) and Mark Newman (PI; Michigan) DARPA and AFOSR, GRAPHS, \$2,924,396	2012 – 2015
“Measuring the structure of research university networks.” <b>PI</b> Kauffman Foundation, \$53,000	2012 – 2013
“Statistical inference and machine learning for complex networks.” <b>co-PI</b> , with Cris Moore (PI; Santa Fe Institute) and Mark Newman (PI; Michigan) McDonnell Foundation, \$417,576	2008 – 2012

GIFTS  
(UNRESTRICTED)

Facebook Inc.	2015
Microsoft Inc.	2014

INVITED TALKS  
(RECENT)

- Lecturer, Summer Institute in Computational Social Science (SICSS), Boulder CO, 13–17 August 2018
- Keynote, Internat. Conf. on Computational Social Science (IC2S2), Evanston IL, 12–15 July 2018
- Colloquium, Department of Statistics, University of Wisconsin, Madison WI, 25 April 2018
- Symposium on L. F. Richardson, International Studies Assoc. Annual Meeting, San Francisco CA, 7 April 2018
- Keynote, Internat. Conference on Complex Networks (CompleNet), Boston MA, 5–8 March 2018
- Oslo Lecture on Peace and Conflict, Peace Research Institute Oslo (PRIO), Oslo Norway, 11 January 2018

- Colloquium, Computer Science Dept., University of Notre Dame, South Bend IN, 26 October 2017
- Advanced Empirical Seminar, Joint Degree Program in Social Science and Social Policy, Princeton University, Princeton NJ, 16–18 October 2017
- CU Biomedical Engineering Society, University of Colorado, Boulder CO, 13 September 2017
- Discovery Lead, Current Challenges in Computing (CCubed) Conference, Napa Valley CA, 10–12 September 2017
- “Human Performance Summit,” Southwest Research Institute, San Antonio TX, 15–16 July 2017
- “Machine Learning in Network Science,” NetSci Satellite Workshop, Indianapolis IN, 19 June 2017
- “Network Science and Education,” NetSci Satellite Workshop, Indianapolis IN, 19 June 2017

## ADVISING

### Postdoctoral Fellows

- Dr. Samuel F. Way 2017 – present
- Dr. Andrea Berardi 2015 – 2016
- Dr. Daniel B. Larremore 2012 – 2015
- Dr. Leto Peel 2013 – 2015

### Doctoral Students (all at Colorado)

- Anna Broido 2016 – present  
Applied Mathematics & IQ Biology
- Nora Connor 2011 – present  
Computer Science & IQ Biology; NSF GRF
- Amir Ghasemian 2014 – present  
Computer Science
- Andrew Kavran 2016 – present  
Chemistry and Biochemistry & IQ Biology; co-advised with N. Ahn
- Allison C. Morgan 2016 – present  
Computer Science
- Abigail Z. Jacobs (PhD, Computer Science) 2017  
Dissertation: *Comparative, population-level analysis of social networks in organizations*
- Samuel F. Way (PhD, Computer Science, and IQ Biology) 2017  
Dissertation: *Systematic inequalities in the composition and productivity of Computer Science faculty*
- Lauren G. Shoemaker (PhD, Ecology & Evolutionary Biology, and IQ Biology, co-advised with B. Melbourne) 2017  
Dissertation: *Stabilizing and equalizing mechanisms alter community coexistence and macroevolutionary diversity patterns*
- Sears Merritt (PhD, Computer Science) 2013  
Dissertation: *Dynamics and structure in competitive social systems*

### Masters Students (all at Colorado)

- Trevor DiMartino (MS Computer Science) 2017  
Thesis: *Ratchet mechanisms in macroevolutionary processes*
- Kansuke Ikehara (MS Computer Science) 2017  
Thesis: *Structure of complex networks across domains*
- Christopher Aicher (BS/MS Applied Mathematics) 2014  
Thesis: *The weighted stochastic block model*
- Pooneh Mortazavi (MS, Computer Science) 2013  
Thesis: *Genome optimization and evolution modeling using genetic algorithm and GA-TRMR*
- Yogesh Virkar (MS, Computer Science) 2012  
Thesis: *Power-law distributions and binned empirical data*



### Undergraduate Students

- Alexander Ray (BS Computer Science, Colorado) 2017 – present
- McKenzie Weller (BS Computer Science, Colorado) 2016 – present
- Tetsumichi Umada (BS Computer Science, Colorado) 2016 – 2018
- Ellen Tucker (BS Mathematics, Colorado) 2015 – 2016
- Matthias Sainz (BS Computer Science, Colorado) 2014 – 2016
- Dominic Tonozzi (BS Computer Science, Colorado) 2014 – 2015
- Christopher Aicher (BS/MS Applied Mathematics, Colorado) 2011 – 2014
- Kenneth Sheedlo (BS Comp. Sci., Colorado; Discovery Learning Apprentice) 2011 – 2012
- Andrew Zizzi (BS Aerospace, Colorado; Discovery Learning Apprentice) 2011 – 2012
- Kristen Hargett (BS Applied Math., Colorado) 2011
- Zachary Newman (BS Math., Colorado; McNair Scholar & UROP) Summer 2011
- Abigail Jacobs (BS Math., Northwestern; REU) Summer 2010
- Amy Wesolowski (BS Math., C.o. Atlantic; REU) Summer 2010
- Benjamin Good (BS Physics, Swarthmore; REU) 2008 – 2010

### High School Students

- Preston Dunton (Legacy High School, CO) Fall 2017
- Arnab Purkayastha (Fairview High School, CO) Spring 2014
- Andrew Mauboussin (Darien High School, CT) Summer 2009

### TEACHING

#### University Courses (\* indicates a new course)

- Algorithms (undergraduate) Spring, 2014, 2017 – 2018  
Colorado CSCI 3104
- History and Future of Computing\* (undergraduate) Spring, 2015 – 2016  
Colorado CSCI 4380
- Network Analysis and Modeling\* (graduate) Fall, 2013 – 2014, 2016 – 2017  
Colorado CSCI 5352
- Design and Analysis of Algorithms (graduate) Spring, 2011 – 2013  
Colorado CSCI 5454
- Inference, Models and Simulation for Complex Systems\* (graduate) Fall, 2010 – 2011  
Colorado CSCI 7000

#### Summer Schools

- Faculty, Santa Fe Institute, “Complex Systems Summer School” (CSSS) 2007 – 2018  
Santa Fe NM, 2007–2008, 2013–2014, 2016–2018; Beijing China, 2008–2009; Ajitgarh India 2015
- Faculty, Santa Fe Institute, “Short Course on Exploring Complexity” 2011 – 2016  
Albuquerque NM, 2011; Washington DC, 2012; Stanford CA, 2012; Austin TX, 2013; Santa Fe NM, 2015; Santa Fe NM, 2016
- Faculty, Summer Institute in Computational Social Science (SICSS) 2018  
Boulder CO, 2018

### REFeree WORK

- **Applied Math and Statistics:** Annals of Applied Statistics, EPJ Data Science, SIAM ICDM Workshop on Analysis of Dynamic Networks (2009), Statistical Analysis and Data Mining
- **Biology:** Bioinformatics, BMC Bioinformatics, Evolutionary Biology, Global Ecology and Biogeography, IET Systems Biology, Journal of Animal Ecology, Journal of Theoretical Biology, Marine Ecology Progress Series, Methods in Ecology and Evolution, PLOS Biology, PLOS Computational Biology, Trends in Ecology & Evolution
- **Computer Science:** AAI (2014), Communications of the ACM (CACM), Computer Science Reviews (CSR), Foundations and Trends in Machine Learning, IEEE GLOBECOM (2010), Proceedings of the IEEE, IEEE International Conference on Robotics and Automation (2006), ICWSM (2014–2017), Journal of the ACM (JACM), ACM Journal of Experimental Algorithmics (JEA), Journal of Statistical Analysis and Data Mining, Machine Learning, ACM Trans.

on Knowledge Discovery from Data (TKDD), IEEE Trans. on Knowledge and Data Engineering (TKDE), MLG (2016–2017), IEEE Trans. on Network Science and Engineering (TNSE), ACM Trans. on the Web (TWEB), RANDOM (2007), SIMPLEX (2010), SODA (2006, 2007), SDM Workshop on Analysis of Dynamic Networks (2009), NIPS Workshop on Analyzing Graphs (2008), Workshop on Experimental Algorithms (2006), ACM SIGKDD Workshop on Social Network Mining and Analysis (2008, 2009), WSDM (2010), WWW (2010–2018)

- **General:** Nature, Nature Communications, Nature Methods, PLOS ONE, PNAS, Science, Science Advances
- **Physics:** European Physical Journal B, Europhysics Letters, Journal of Statistical Mechanics, New Journal of Physics, Physica A, Physical Review E, Physical Review Letters
- **Political Science:** American Journal of Political Science, American Political Science Review, British Journal of Political Science, Defense & Peace Economics, Journal of Conflict Resolution, Journal of Peace Research
- **Others:** Advances in Complex Systems, Computational Linguistics, Hydrology Earth System Sciences, Journal of Chemical Information and Modeling, Journal of Complex Networks, Networks and Spatial Economics, The Social Science Journal
- **Funding Agencies:** U.S. National Science Foundation (NSF), U.S. Department of Energy (DOE), U.S. Army Research Office (ARO), ETH Zürich Research Commission, European Research Council (ERC)

PROFESSIONAL  
SERVICE

**Workshops** (Organizer or co-organizer)

- *Statistical Inference for Network Models*  
NetSci 2018, Satellite Workshop, Paris France (11 June) 2018  
With D. B. Larremore (Santa Fe), B. Fosdick (Colo. State), and T. Eliassi-Rad (Northeastern)
- *Statistical Inference for Network Models*  
NetSci 2017, Satellite Workshop, Indianapolis IN (19 June) 2017  
With D. B. Larremore (Santa Fe), B. Fosdick (Colo. State), and T. Broderick (MIT)
- *Violent Radicalization in Western Democracies*  
Santa Fe Institute, Santa Fe NM (1–4 March) 2017  
With Mirta Galesic (Santa Fe), Marion Dumas (Santa Fe), and David Pines (UC Davis)
- *Statistical Inference for Network Models*  
NetSci 2016, Satellite Workshop, Seoul Korea (30 May) 2016  
With D. B. Larremore (Santa Fe), B. Fosdick (Colo. State), and A. Z. Jacobs (Colorado)
- *Inference on Networks: Algorithms, Phase Transitions, New Models and New Data*  
Santa Fe Institute, Santa Fe NM (14–18 December) 2015  
With C. Moore (SFI) and M.E.J. Newman (Michigan)
- *Networks in the Social and Information Sciences*  
NIPS 2015, Montreal Canada (12 December) 2015  
With E. Airoldi (Harvard), D. Choi (CMU), J. Ugander (Microsoft), and P. Toulis (Harvard)
- *Statistical Inference for Network Models*  
NetSci 2015, Satellite Workshop, Zaragoza Spain (1 June) 2015  
With D. B. Larremore (Harvard), L. Peel (Colorado), and A. Z. Jacobs (Colorado)
- *Networks: From Graphs to Rich Data*  
NIPS 2014, Montreal Canada (13 December) 2014  
With E. Airoldi (Harvard), D. Choi (CMU), J. Ugander (Microsoft), and L. Peel (Colorado)
- *Mathematics Research Community Workshop on Network Science*  
Snowbird UT (24–30 June) 2014  
With M. A. Porter (Oxford) and D. Kempe (Southern Cal.)
- *Statistical Inference for Network Models*  
NetSci 2014, Satellite Workshop, Berkeley CA (2 June) 2014  
With D. B. Larremore (Harvard), L. Peel (Colorado), and A. Z. Jacobs (Colorado)
- *Frontiers of Network Analysis: Methods, Models, and Applications*  
NIPS 2013, Lake Tahoe NV (9 December) 2013  
With E. Airoldi (Harvard), D. Choi (CMU), K. El-Arini (Facebook), and J. Leskovec (Stanford)

- *Structure, Statistical Inference, and Dynamics in Networks: From Graphs to Rich Data*  
Santa Fe Institute, Santa Fe NM (6–9 May) 2013  
With C. Moore (SFI) and M.E.J. Newman (Michigan)
- *The Mathematics of Terrorism*  
Santa Fe Institute, Santa Fe NM (31 Aug.–2 Sept) 2009  
With B. Tivnan (MITRE)
- *Statistical Inference for Complex Networks*  
Santa Fe Institute, Santa Fe NM (3–5 December) 2008  
With C. Moore (New Mexico, SFI)
- *Navigability and Complex Networks*  
Santa Fe Institute, Santa Fe NM (4–6 August) 2008  
With D. Krioukov (UCSD) and kc claffy (UCSD)
- *Is There a Physics of Society?*  
Santa Fe Institute, Santa Fe NM (10–12 January) 2008  
With M. Girvan (Maryland)

#### Conferences (Organizer or co-organizer)

- *2<sup>nd</sup> Computer Science at UNM Student Research Conference*, Conference Chair,  
Albuquerque NM, (3 March) 2006
- *1<sup>st</sup> Computer Science at UNM Student Research Conference*, Conference Chair,  
Albuquerque NM, (4 March) 2005

#### Program Committees

- *International Conference on Computational Social Science (IC2S2)* 2016 – 2018
- *International Conference on Network Science (NetSci, main cycle)* 2015 – 2018
- *World Wide Web Conference (WWW)* 2010 – 2018
- *SIAM Workshop on Network Science* 2013, 2017 – 2018
- (PC co-chair) *International Conference on Computational Social Science (IC2S2)* 2017
- (Senior PC) *International Conference on Network Science (NetSci, main cycle)* 2017
- (Senior PC) *World Wide Web Conference (WWW)* 2017
- *International Conference on Network Science (NetSci-X)* 2015 – 2017
- *International Workshop on Mining and Learning With Graphs (MLG)* 2016 – 2017
- *International AAAI Conference on Web and Social Media (ICWSM)* 2014 – 2017
- (Senior PC) *International Conference on Computational Social Science (IC2S2)* 2016
- *AAAI Conference on Artificial Intelligence (AAAI)* 2014
- *International Conference on Complex Networks (CompleNet)* 2009 – 2010
- *Workshop on Simplifying Complex Networks for Practitioners (SIMPLEX)* 2010
- *ACM International Conference on Web Search and Data Mining (WSDM)* 2010
- *Workshop on Social Network Mining and Analysis (at ACM SIGKDD)* 2008 – 2009
- *Workshop on Analysis of Dynamic Networks (at SIAM ICDM)* 2009
- *Workshop on Analyzing Graphs: Theory and Applications (at NIPS)* 2008
- *International Workshop on Experimental Algorithms* 2006

#### Institutional Committees & Service

- Colorado, BioFrontiers Institute, Task Force 2010 – present
- Colorado, BioFrontiers Institute, Computing Committee 2017 – present
- Colorado, Interdisciplinary Quant. Biology (IQBio) Curriculum Committee 2017 – present
- Colorado, Interdisciplinary Quant. Biology (IQBio) liaison with CS 2010 – present
- Colorado, Computer Science, CRA CERP point-of-contact 2016 – present
- Colorado, BioFrontiers Faculty Search Committee (co-chair) 2016 – 2017
- Colorado, BioFrontiers Institute, Computing Committee (co-chair) 2015 – 2017
- Colorado, Computer Science, Faculty Search Committee 2012 – 2016
- Colorado, BioFrontiers Faculty Search Committee (co-chair) 2014 – 2015
- Colorado, Computer Science, Executive Committee 2013 – 2015

- Colorado, Computer Science, Graduate Committee 2010 – 2012
- Colorado, Interdisciplinary Quant. Biology (IQBio) Mentoring Committee 2011 – 2012
- Santa Fe Institute, Colloquium Committee 2007 – 2009

### Society Leadership Positions

- Co-founder and Administrator, Zachary Karate Club CLUB Prize in Network Science  
<http://networkkarate.tumblr.com> 2013 – present
- President, UNM Computer Science Grad. Student Assoc. (CSGSA) 2004 – 2005
- Vice President, UNM Computer Science Grad. Student Assoc. (CSGSA) 2003 – 2004

### SYNERGISTIC ACTIVITIES

- Creator and project lead for *Colorado Index of Complex Networks* (ICON) 2016 – present
  - <https://icon.colorado.edu>
  - public index of >4400 publicly accessible network science data sets
- Science blogger at *Structure+Strangeness* 2005 – present
  - <https://aaronclauset.github.io> 2017 – present
  - 2 entries
  - <http://structureandstrangeness.com> 2005 – 2016
  - 366 entries and >500,000 page hits
- Science microblogger on Twitter @aaronclauset 2012 – present
  - 5051 followers (top 1% of all users)
  - 1325 tweets with mean 3.4 retweets per tweet (top 4% of all users)
- Popular science writing, for *Pacific Standard, Slate, and CSM* 2014 – present
- Wikipedia contributor (various science and mathematics articles) 2006 – present
- Stackexchange contributor (various CS and mathematics questions) 2011 – present
- Public release of scientific data sets (open source; typically GPL or CC) 2007 – present
  - Parental leave policies, U.S. & Canada (with A.C. Morgan, S.F. Way, D.B. Larremore) 2018
  - CommunityFitNet corpus (with A. Ghasemian) 2018
  - Degree sequences for 927 complex networks (with A.D. Broido) 2018
  - Faculty hiring networks for computer science, business, and history 2015
  - NFL 2009 network (with C. Aicher) 2014
  - Terrorist event sizes worldwide 2013
  - Body masses of all extant whale species 2013
  - Various binned quantities with heavy-tailed distributions (with Y. Virkar) 2012
  - 9/11 hijackers association network 2008
  - Various quantities with heavy-tailed distributions (with M.E.J. Newman) 2007
- Public release of working algorithms (open source; typically GPL or CC) 2004 – present
  - neoSBM for metadata community detection (Python; with L. Peel) 2017
  - Block entropy statistical test (BESTest) for networks (Matlab; with D.B. Larremore) 2017
  - Minimum violation ranking sampling code (Matlab) 2015
  - Bipartite stochastic block model package (Matlab; with D.B. Larremore) 2014
  - Network change-point detection package (C++ and Python; with L. Peel) 2014
  - Weighted stochastic block model package (Matlab; with C. Aicher) 2014
  - Power-law distributions with bins toolkit (Matlab; with Y. Virkar) 2012
  - Rare event forecasting tool kit (Matlab) 2012
  - Terrorist organization simulation code (Matlab) 2011
  - Modularity landscape mapping software package (Python; with B.H. Good) 2010
  - Hierarchical random graph and missing-link prediction software package (C++) 2008
  - Species mass macroevolution simulation code (Matlab) 2008
  - Power-law distributions tool kit (Matlab and R; with C.R. Shalizi) 2007
  - Local-modularity network clustering algorithm (C++) 2005
  - Fast-modularity network clustering algorithm (C++) 2004