Aaron Clauset

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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 – B.S. Physics, Haverford College (with honors and concentration in Computer Science) 1997 –		2002 – 2006 ce) 1997 – 2001	
ACADEMIC POSITIONS	Associate Professor, Computer Science Dept., Univ Core Faculty, BioFrontiers Institute, University of External Faculty, Santa Fe Institute Affiliated Faculty, Ecology & Evo. Biology Dept., University of Affiliated Faculty, Applied Mathematics Dept., University of Assistant Professor, Computer Science Dept., University Omidyar Fellow, Santa Fe Institute	Colorad Iniversity Colorad	o, Boulder ty of Colorado, Boulder of Colorado, Boulder do, Boulder	2018 – present 2010 – present 2012 – present 2011 – present 2012 – present 2015 – present 2010 – 2018 2006 – 2010
EDITORIAL Positions	Deputy Editor, Science Advances, AAAS Associate Editor, Science Advances, AAAS Associate Editor, Journal of Complex Networks, Ox	xford Uı	niversity Press	2017 - present 2014 - 2017 2012 - 2017
Honors & Awards (Selected)	Provost Faculty Achievement Award, U. Colorado, Top 20 Teachers, College of Engineering, U. Colora Erdős-Rényi Prize in Network Science NSF CAREER Award Kavli Fellow Santa Fe Institute Public Lecturer (http://bit.lyGraduation Speaker, U. New Mexico School of Eng Outstanding Graduate Student Award, U. New Mexico School of Eng Outstanding Graduate Student Award, U. New Mexico School of Eng Outstanding Graduate Student Award, U. New Mexico School of Eng Outstanding Graduate Student Award, U. New Mexico School of Eng Outstanding Graduate Student Award, U. New Mexico School of Englowers and English School of Englowers and English School of Englowers and English School of Eng	do, Bou	lder f) Convocation	2019 2016 2016 2015 2014 2010 2006 2006
GOOGLE SCHOLAR	scholar.google.com/citations?user=e7VI_HcAA	AAJ		
	* indicator an undergraduate counther: o indicator	ogual ec	ntribution	

 $^{^*}$ indicates an undergraduate coauthor; $^\circ$ indicates equal contribution

Manuscripts Under Review W. Li, S. Zhang, Z. Zheng, S. J. Cranmer, and A. Clauset, "Untangling the network effects of productivity and prominence among scientists." Submitted (2021).

K. H. Wapman, S. Zhang, A. Clauset, and D. B. Larremore, "Quantifying hierarchy and dynamics in U.S. faculty hiring." Submitted (2021).

N. LaBerge, K. H. Wapman, A. C. Morgan, S. Zhang, D. B. Larremore, and A. Clauset, "Subfield prestige and gender inequality in computer science." Submitted (2021).

N. J. Cordaro, A. J. Kavran, M. Smallegan, M. Palacio, N. Lammer, T. S. Brant, V. DuMont, N. Doherty Garcia, S. Miller, T. Jourabchi, S. L. Sawyer, and A. Clauset, "Optimizing polymerase chain reaction (PCR) using machine learning." Submitted (2021). (Preprint at biorxiv.org/content/10.1101/2021.08.12.455589)

A. C. Morgan, N. LaBerge, D. B. Larremore, M. Galesic, and A. Clauset, "Socioeconomic roots of academic faculty." Submitted (2021). (Preprint at osf.io/preprints/socarxiv/6wjxc)

Publications (Refereed)

- E. Lee, **A. Clauset**°, and D. B. Larremore°, "The dynamics of faculty hiring networks." *EPJ Data Science* **10**, 48 (2021). (Preprint at arxiv:2105.02949)
- H. Hosseinmardi, A. Ghasemian, A. Clauset, M. Mobiush, D. M. Rothschild, and D. J. Watts, "Examining the consumption of radical content on YouTube." *Proc. Natl. Acad. Sci. USA* 118(32), e2101967118 (2021). (Preprint at arxiv:2011.12843)
- A. J. Kavran and A. Clauset, "Denoising large scale molecular profiling data using network filters." *BMC Bioinformatics* **22**, article 157 (2021). (Preprint at doi.org/10.1101/2020.03.12.989244)
- A. C. Morgan, S. F. Way, M. J. D. Hoefer, D. B. Larremore, M. Galesic, and **A. Clauset**, "The unequal impact of parenthood in academia." *Science Advances* **7**(9), eabd1996 (2021). [Paper of the Year Award, 2021, International Society for Scientometrics and Informetrics (ISSI)]
- K. R. Jordan, M. J. Sikora, J. E. Slansky, A. Minic, J. K. Richer, M. R. Moroney, J. C. Costello, A. Clauset, K. Behbakht, T. R. Kumar, and B. G. Bitler, "The capacity of the ovarian cancer tumor microenvironment to integrate inflammation signaling conveys a shorter disease-free interval." *Journal of Clinical Research* 26(23), 6362–6373 (2020). (Preprint at doi.org/10.1101/2020.04.14.041145)
- A. Ghasemian, H. Hosseinmardi, A. Galstyan, E. M. Airoldi, and **A. Clauset**, "Stacking models for nearly optimal link prediction in complex networks." *Proc. Natl. Acad. Sci. USA* **117**(38), 23393–23400 (2020). (Preprint at arxiv:1909.07578) [Chosen for an invited Commentary editorial]
- S. F. Way, A. C. Morgan, D. B. Larremore°, **A. Clauset**°, "Productivity, prominence, and the effects of academic environment." *Proc. Natl. Acad. Sci. USA* **116**(22), 10729–10733 (2019).
- A. Ghasemian, H. Hosseinmardi, and **A. Clauset**, "Evaluating overfit and underfit in models of network community structure." *IEEE Trans. Knowledge and Data Engineering* **32**(9), 1722–1735 (2019). (Preprint at arxiv:1802.10582)
- S. F. Way, S. Gil, I. Anderson, and **A. Clauset**, "Environmental changes and the dynamics of musical identity." *Proc.* 13th International AAAI Conference on the Web and Social Media (ICWSM), **13**, 527–536 (2019). (Preprint at arxiv:1904.04948)
- A. D. Broido and **A. Clauset**, "Scale-free networks are rare." *Nature Communications* **10**, 1017 (2019). (Preprint at arxiv:1801.03400) [19th most-read article in Physics in *Nat. Comms.* in 2019] [Chosen for a special Comment editorial]
- A. C. Morgan, D. J. Economou, S. F. Way and **A. Clauset**, "Prestige drives epistemic inequality in the diffusion of scientific ideas." *EPJ Data Science* **7**, 40 (2018). (Preprint at arxiv:1805.09966)
- A. C. Morgan, S. F. Way and **A. Clauset**, "Automatically assembling a full census of an academic field." *PLOS ONE* **13**(8), e0202223 (2018). (Preprint at arxiv:1804.02760)
- **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**°, and D. B. Larremore°, "The misleading narrative of the canonical faculty productivity trajectory." *Proc. Natl. Acad. Sci. USA* **114**(44), E9216–E9223 (2017). (Preprint at arxiv: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 doi: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)
- 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)
- 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)
- M. E. J. Newman and A. Clauset, "Structure and inference in annotated networks." *Nature Communications* 7, 11863 (2016). (Preprint at arxiv: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)
- 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)
- 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)
- **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) [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)
- 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)

- 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) [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) [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) [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)
- 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) [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)
- S. Merritt and A. Clauset, "Environmental structure and competitive scoring advantages in team competitions." *Scientific Reports* 3, 3067 (2013). (Preprint at arxiv: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. Merrit, A. Z. Jacobs, W. Mason and A. Clauset, "Detecting friendship within dynamic online interaction networks." *Proc. 7th International AAAI Conference on Weblogs and Social Media* (ICWSM), 380–389 (2013). (Preprint at arxiv: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)
- W. Mason and A. Clauset, "Friends FTW! Friendship, collaboration and competition in *Halo: Reach.*" Proc. 2013 Conference on Computer Supported Cooperative Work (CSCW), 375–386 (2013). (Preprint at arxiv: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)

- 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) [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)
- **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)
- 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) [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)
- **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)
- **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)
- **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) [Chosen for a special News & Views editorial]
- **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)
- 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)
- J. T. Ayers, A. Clauset, J. D. Schmitt, L. P. Dwoskin 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. Santago 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)

- 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)
- **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)
- E. Bayram, P. Santago 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. Glassemian, 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)
- 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)
- 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)
- 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).
- 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)

BOOK CHAPTERS

- **A.** Clauset, "On the frequency and severity of interstate wars." In Nils Petter Gleditsch (Ed.), Lewis F. Richardson His Intellectual Legacy and Influence in the Social Sciences, Springer Pioneer Series (2020). (Preprint at arxiv:1901.05086)
- 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).

Essays and Perspectives **A. Clauset**, K. Behbakht, B. G. Bitler, "Decoding the dynamic tumor microenvironment." *Science Advances* **7**(23), eabi5904 (2021).

- **A.** Clauset, D. B. Larremore and R. Sinatra, "Data-driven predictions in the science of science." *Science* **355**, 477–480 (2017). [Invited]
- 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).

PREPRINTS AND OTHER PUBLICATIONS

- U. Dutta and A. Clauset, "Convergence criteria for sampling random graphs with specified degree sequences." Preprint at arxiv:2105.12120 (2021).
- N. Connor and A. Clauset, "Predicting the outcomes of policy diffusion from U.S. states to federal law." Preprint, arxiv:1810.08988 (2018).
- J. I. Perotti, C. J. Tessone, A. Clauset and G. Caldarelli, "Thermodynamics of the minimum description length on community detection." Preprint, arxiv:1806.07005 (2018).
- K. Ikehara and A. Clauset, "Characterizing the structural diversity of complex networks across domains." Preprint, arxiv:1710.11304 (2017).
- R. C. Tillquist, L. Shoemaker, K. B. Knight, and A. Clauset, "The evolution of primate body size: Left-skewness, maximum size, and Copes rule." Preprint, doi:10.1101/092866 (2016).
- L. Fortunato and A. Clauset, "Revisiting the effect of red on competition in humans." Preprint, doi:10.1101/086710 (2016).
- 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 (2015).
- C. R. Shalizi, A. Z. Jacobs*, K. L. Klinkner and A. Clauset, "Adapting to non-stationarity with growing expert ensembles." Preprint, arxiv: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). go.nature.com/3mYkXfq
- **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 (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, 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, bit.ly/2omFZbX (2017).

- J. Warner and A. Clauset, "The Academy's dirty secret." *Slate*, published online 23 February, bit.ly/3FRm4Gd (2015).
- J. Warner and A. Clauset, "What same-sex marriage means for the future of recreational weed." *Pacific Standard*, published online 24 October, bit.ly/1tdlut1 (2014).

Воок

Endorsements

B. F. Braumoeller, Only the Dead: The Persistence of War in the Modern Age. Oxford University Press (2019). \rightarrow "Only the Dead demolishes the myth that war is in decline, and constructs a compelling explanation for the true drivers of war in the past, and likely in the future."

PATENTS

A. C. Morgan, S. F. Way, and **A. Clauset**, "System and methods for crawling web pages and parsing relevant information stored in web pages." U.S. Patent Application 20200293581, Number 62/593,804 (2020).

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, Fischer Jordan LLC, New York NY	2005

Grants (PI or co-PI)

"Mining thousands of genomes to classify somatic and pathogenic structural variants."

co-I, with Ryan Layer (PI) and Fritz Sedlazeck (co-I; Baylor)

NIH R01, \$3,176,940 2022 - 2027

"A machine learning approach to chemotherapy-induced remodeling of the tumor microenvironment."

co-PI, with Benjamin Bitler (PI; Anschutz)

Ovarian Cancer Research Alliance (OCRA), \$895,275

2022 - 2024

"NRT: Integrated Data Science (Int dS): Teams for Advancing Bioscience Discovery."

co-PI, with Tom Cech (PI; Colorado), Robin Dowell (co-PI; Colorado), Eric Vance (co-PI; Colorado) and Manuel Lladser (co-PI; Colorado)

NSF DGE, \$3,000,000 2020 – 2025

"Evaluating and Maximizing Fairness in Information Flow on Networks."

PI, with Suresh Venkatasubramanian (PI; Utah), Carlos E. Scheidegger (PI; Arizona), and Sorelle Friedler (PI; Haverford)

NSF CISE III, \$1,173,487 2020 – 2023

"A New Synthesis for the Science of Science."

 \mathbf{PI}

NSF SBE SMA Conference, \$40,418

2020 - 2022

"Ovarian cancer ascites: A glimpse of therapeutic response and recurrence."

co-PI, with Benjamin Bitler (PI; Anschutz), Kian Behbakht (co-PI; Anschutz), Raj Kumar (co-PI; Anschutz), Jennifer Richer (co-PI; Anschutz), Jill Slansky (co-PI; Anschutz), Matthew Sikora (co-PI; Anschutz), Kim Jordan (co-PI; Anschutz)

Comprehensive Cancer Center Developmental Therapeutics Program Multi-PI Grant, University of Colorado Denver, \$100,000 2020

"Mapping the structure and dynamics of the scientific ecosystem."

PI, with Daniel B. Larremore (PI; Colorado), Mirta Galesic (co-PI; Santa Fe), and Jennifer Dunne

(co-PI; Santa Fe) DoD and AFOSR, MINERVA, \$2,568,889 2019 - 2022"Leveraging machine learning to improve biological protocol accuracy." **PI**, with Sara Sawyer (co-PI; Colorado) University of Colorado, Research & Innovation Seed Grant, \$50,000 2018 - 2020"Academic hiring networks and scientific productivity across disciplines." PI, with Daniel B. Larremore (PI; Santa Fe) and Mirta Galesic (co-PI; Santa Fe) NSF SBE, \$550,000 2016 - 2020"CAREER: Hierarchical probabilistic models for networks with rich data in scientific domains." NSF CISE, \$550,000 2015 - 2020"Extracting diagnostic signals from human microbiome data." PI, 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." co-PI, 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." **PI.** with Caroline Buckee (PI: Harvard) NIH/NIGMS, R21, \$286,485 2013 - 2016"EAGER: Understanding technological change from the map of capabilities." co-PI, with Hyejin Youn (PI; Santa Fe Institute) NSF SBE, \$152,500 2013 - 2017"Statistical inference for detecting structures and anomalies in networks." PI, 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." Kauffman Foundation, \$53,000 2012 - 2013"Statistical inference and machine learning for complex networks." co-PI, with Cris Moore (PI; Santa Fe Institute) and Mark Newman (PI; Michigan) McDonnell Foundation, \$417,576 2008 - 2012Facebook Inc. 2015 Microsoft Inc. 2014 • Seminar, Division of Reproductive Sciences, University of Colorado, Anschutz CO, 22 February

Invited Talks (Recent)

(UNRESTRICTED)

GIFTS

- Seminar, Division of Reproductive Sciences, University of Colorado, Anschutz CO, 22 February 2022
- Seminar, Center for Theoretical and Evolutionary Genetics, University of California, Berkeley CA, 5 November 2021
- Colloquium, Department of Statistics, University of Wisconsin, Madison WI, 20 October 2021
- Seminar, Institute for Cognitive Science, University of Colorado, Boulder CO, 18 October 2021

- Seminar, International Roundtable on Computational Social Science, Institute for Analytical Sociology (IAS), Norrköping, Sweden, 14 October 2021
- Colloquium, Department of Integrated Physiology, University of Colorado, Boulder CO, 11 October 2021
- Seminar, Department of Information Science, University of Colorado, Boulder CO, 22 September
- Data Science/Computational Social Science Seminar, University of Michigan, Ann Arbor MI, 9 September 2021
- Keynote, Department of Computer Science, University of Vermont, Burlington VT, 3 September
- "Network Science: Statistical approaches and beyond" Invited Session, Joint Statistical Meetings, Seattle WA, 7–12 August 2021
- Complexity Interactive, Santa Fe Institute, Santa Fe NM, 14 June 2021
- GoldLab Symposium, Boulder CO, 14–15 May 2021
- Mothers In Science Conference, 5 May 2021
- Keynote, Computer Science Student Conference, University of New Mexico, Albuquerque NM, 31 March 2021
- 132 other invited talks, since 2004

Advising

Postdoctoral Fellows

• Dr. Katherine Wootton	2021 - present
• Dr. Eun Lee	2020 - present
• Dr. Samuel F. Way	2017 - 2019
• Dr. Andrea Berardi	2015 - 2016
• Dr. Daniel B. Larremore	2012-2015
• Dr. Leto Peel	2013 - 2015

Doctoral Students (all at Colorado)

• Nicholas LaBerge	2019 - present
Computer Science; co-advised with D. B. Larremore	
• Alexander Ray	2021 - present
Computer Science	
• Katherine Spoon	2020 - present
Computer Science; NSF GRF; co-advised with D. B. Larremore	
• Ian Van Buskirk	2019 - present
Computer Science; co-advised with D. B. Larremore	
• Lucy Van Kleunen	2020 - present
Computer Science; co-advised with L. Dee	
• Caroline Wendt	2021 - present
Computer Science	

• Shimian (Sam) Zhang 2019 - present Applied Mathematics; NSF GRF

• Andrew J. Kavran (PhD Biochemistry, and IQ Biology, co-advised with N. Ahn) 2021 Dissertation: Intermittent drug treatment of $BRAF^{V600E}$ melanoma cells delays resistance by

adaptive resensitization to drug rechallenge • Allison C. Morgan (PhD Computer Science) 2021

Dissertation: Quantifying structural inequalities in the academic workforce • Anna Broido (PhD Applied Mathematics, and IQ Biology) 2019 Dissertation: Characterizing the tails of degree distributions in real-world networks

• Amir Ghasemian (PhD Computer Science) 2018 Dissertation: Limits of model selection, link prediction, and community detection

• Nora Connor (PhD Computer Science, and IQ Biology) 2018 Dissertation: Using data science to find interpretable answers for problems in ecology and political

science	
• Abigail Z. Jacobs (PhD Computer Science)	2017
Dissertation: Comparative, population-level analysis of social networks in organization	
• Samuel F. Way (PhD Computer Science, and IQ Biology)	2017
Dissertation: Systematic inequalities in the composition and productivity of faculty	Computer Science
• Lauren G. Shoemaker (PhD Ecology & Evolutionary Biology, and IQ Biology	,
co-advised with B. Melbourne)	2017
Dissertation: Stabilizing and equalizing mechanisms alter community coexister	nce and macroevo-
lutionary diversity patternsSears Merritt (PhD Computer Science)	2013
Dissertation: Dynamics and structure in competitive social systems	2013
Dissertation. Dynamics and siructure in compensive social systems	
Masters Students (all at Colorado)	
• Upasana Dutta (MS Computer Science)	2020-present
• 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	2010
• Pooneh Mortazavi (MS, Computer Science) Thesis: Genome optimization and evolution modeling using genetic algorithm	2013
• Yogesh Virkar (MS, Computer Science)	2012
Thesis: Power-law distributions and binned empirical data	2012
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Undergraduate Students	
• Skylar Martin (BS Computer Science, Colorado)	0000 0001
	2020 - 2021
Thesis: PhageOne: Inferring the grammar of bacteriophage genomes	
• Nicholas Cordaro (BS Biochemistry, Colorado)	2019 - 2020
 Nicholas Cordaro (BS Biochemistry, Colorado) Christoph Uhl (BS Computer Science, Colorado) 	2019 - 2020 $2018 - 2020$
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• Biological Networks* (undergraduate) Colorado, CSCI 3352 Fall 2019, Spring 2020 – 2022

Network Analysis and Modeling* (graduate)
 Colorado, CSCI 5352

Fall 2013, 2014, 2016, 2017, 2021

• Inference, Models and Simulation for Complex Systems* (graduate) Colorado, CSCI 7000

Fall 2010, 2011

• Algorithms (undergraduate) Colorado, CSCI 3104 Spring 2014, 2017, 2018

History and Future of Computing* (undergraduate)
 Colorado, CSCI 4380

Spring 2015, 2016

• Design and Analysis of Algorithms (graduate) Colorado, CSCI 5454 Spring 2011 - 2013

• Topics in Interdisciplinary Research* (graduate) Colorado, CSCI 7000 (co-taught with D. Larremore) Fall 2019 – 2021, Spring 2022

Summer Schools

- Faculty, Philosophy & Political Economy Graduate Summer Workshop, Chapman U. 2021
- Faculty, Santa Fe Institute, Complexity Interactive

2021

- Faculty, Santa Fe Institute, Complex Systems Summer School (CSSS)
 Santa Fe NM, 2007–2008, 2013–2014, 2016–2019, 2022; Beijing China, 2008–2009; Ajitgarh India 2015
- Faculty, Summer Institute in Computational Social Science (SICSS), Boulder CO 2018
- 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

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: AAAI (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), SIAM Network Science (2017–2018, 2020), 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 (2016–2018, 2020), 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, Journal of Quantitative Criminology, 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), Computing Research Association (CRA) Computing Innovation Fellows (CIFellows 2020, 2021)

Professional Service

Workshops (Organizer or co-organizer)

• A New Synthesis for the Science of Science
Santa Fe Institute, Santa Fe NM (5–6 May)
With D. B. Lavremore (Coloredo) and M. Colorio (

2022

With D. B. Larremore (Colorado) and M. Galesic (Santa Fe)

• Fairness in Networks

Internat. Conf. on Knowledge Discovery and Data Mining (KDD) (14–18 September) 2021 With S. Friedler (Haverford), C. Scheidegger (Arizona), and S. Venkatasubramanian (Brown)

 $\bullet \ \ Statistical \ Inference \ for \ Network \ Models$

NetSci 2020, Satellite Workshop, Rome Italy (20 September)

2020

With D. B. Larremore (Colorado), B. Fosdick (Colo. State), T. Eliassi-Rad (Northeastern), and T. P. Peixoto (Cent. Eur. U.)

• Statistical Inference for Network Models

NetSci 2019, Satellite Workshop, Burlington VT (27 May)

2019

With D. B. Larremore (Colorado), B. Fosdick (Colo. State), and T. Eliassi-Rad (Northeastern)

• Statistical Inference for Network Models

NetSci 2018, Satellite Workshop, Paris France (11 June)

2018

With D. B. Larremore (Colorado), 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 M. Galesic (Santa Fe), M. Dumas (Santa Fe), and D. 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

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)

 With C. Moore (SFI) and M.E.J. Newman (Michigan) The Mathematics of Terrorism Santa Fe Institute, Santa Fe NM (31 Aug2 Sept) With B. Tivnan (MITRE) Statistical Inference for Complex Networks Santa Fe Institute, Santa Fe NM (3-5 December) With C. Moore (New Mexico, SFI) Navigability and Complex Networks Santa Fe Institute, Santa Fe NM (4-6 August) With D. Krioukov (UCSD) and kc claffy (UCSD) Is There a Physics of Society? Santa Fe Institute, Santa Fe NM (10-12 Januarry) With M. Girvan (Maryland) 	2009 2008 2008 2008
 Conferences (Organizer or co-organizer) 2nd Computer Science at UNM Student Research Conference, Conference Chair Albuquerque NM, (3 March) 1st Computer Science at UNM Student Research Conference, Conference Chair Albuquerque NM, (4 March) 	2006
• World Wide Web Conference (WWW)	$\begin{array}{c} 2017 \\ 2017 \\ 2015 - 2017 \\ 2016 - 2017 \\ 2014 - 2017 \end{array}$
 Institutional Committees & Service Colorado, BioFrontiers Institute, Council Colorado, Computational Biology Minor, Founding Director Colorado, Computer Science, Executive Committee Colorado, BioFrontiers Institute, Computing Committee Colorado, Interdisciplinary Quant. Biology (IQBio) Curriculum Committee Colorado, Interdisciplinary Quant. Biology (IQBio) liaison with CS Colorado, Computer Science, CRA CERP point-of-contact Colorado, Computer Science, Teaching Circles, Founding Director Colorado, Provost's Faculty Achievement Award Committee Colorado, Computer Science, Faculty Search Committee (co-chair) Colorado, Computer Science, Faculty Search Committee Colorado, BioFrontiers Faculty Search Committee (co-chair) 	2010 - present 2018 - present 2021 - present 2015 - present 2017 - present 2010 - present 2016 - present 2019 - 2021 2020 - 2021 2016 - 2017 2012 - 2016 2014 - 2015

 Colorado, Computer Science, Executive Committee Colorado, Computer Science, Graduate Committee Colorado, Interdisciplinary Quant. Biology (IQBio) Mentoring Committee Santa Fe Institute, Colloquium Committee 	$\begin{array}{c} 2013 - 2015 \\ 2010 - 2012 \\ 2011 - 2012 \\ 2007 - 2009 \end{array}$
 Professional Society Leadership Positions Co-founder and Administrator, Zachary Karate Club CLUB Prize in Network networkkarate.tumblr.com Erdős-Rényi Prize selection committee, Network Science Society President, UNM Computer Science Grad. Student Assoc. (CSGSA) Vice President, UNM Computer Science Grad. Student Assoc. (CSGSA) 	k Science 2013 – present 2020 2004 – 2005 2003 – 2004
 Professional Society Memberships (current) American Association for the Advancement of Science (AAAS) International Society for Scientometrics and Informetrics (ISSI) Complex Systems Society (CSS) Network Science Society Sigma Xi (Full Member) 	
• Founder and project lead for Colorado Index of Complex Networks (ICON)	2016 – present
 icon.colorado.edu public index of >5407 publicly accessible network science data sets Science blogger at Structure+Strangeness aaronclauset.github.io 	2005 – present 2017 – present
- 4 entries - structureandstrangeness.com (defunct)	2005 - 2016
 366 entries and >500,000 page hits Science microblogger on Twitter @aaronclauset 10,169 followers (top 1% of all users) 2554 tweets with mean 3.4 retweets per tweet (top 4% of all users) proud to be blocked by Steven Pinker since at least 2021 	2012 – present
 Popular science writing Pacific Standard, Slate, Christian Science Monitor, and Chronicle of Higher A Wikipedia contributor (various science and mathematics articles) Stackexchange contributor (various CS and mathematics questions) Public release of scientific data sets (open source; typically GPL or CC) LinkPrediction network corpus (with A. Ghasemian, H. Hosseinmardi) Parental leave policies, U.S. & Canada (with A.C. Morgan, S.F. Way, D.B. CommunityFitNet network corpus (with A. Ghasemian, H. Hosseinmardi) Degree sequences for 927 complex networks (with A.D. Broido) Faculty hiring networks for computer science, business, and history NFL 2009 network (with C. Aicher) Terrorist event sizes worldwide Body masses of all extant whale species Various binned quantities with heavy-tailed distributions (with Y. Virkar) 9/11 hijackers association network Various quantities with heavy-tailed distributions (with M.E.J. Newman) Public release of working algorithms (open source; typically GPL or CC) Stacked topological model for link prediction in networks (Python; with A. Scale-free network toolkit (Python; with A.D. Broido) 	2006 - present 2011 - present 2007 - present 2019 Larremore) 2018 2018 2018 2015 2014 2013 2013 2012 2008 2007 2004 - present Ghasemian) 2019
 neoSBM for metadata community detection (Python; with L. Peel) Block entropy statistical test (BESTest) for networks (Matlab; with D.B. L Minimum violation ranking sampling code (Matlab) 	2018 2017 arremore) 2017 2015

Synergistic ACTIVITIES

- 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