

Aaron Clauset

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RESEARCH INTERESTS	Network science — methods, data, theories, applications Epistemology — data science, statistical inference, machine learning, complex systems Science of science — social and epistemic inequalities, prestige economy, faculty Computational biology — oncology, genomics, networks, macroevolution	
EDUCATION	Ph.D. Computer Science, University of New Mexico (with distinction) B.S. Physics, Haverford College (with honors and concentration in Computer Science)	2002 – 2006 1997 – 2001
ACADEMIC POSITIONS	Professor, Computer Science Dept., <i>University of Colorado, Boulder</i> Core Faculty, BioFrontiers Institute, <i>University of Colorado, Boulder</i> External Faculty, <i>Santa Fe Institute</i> Affiliated Faculty, Ecology & Evo. Biology Dept., <i>University of Colorado, Boulder</i> Affiliated Faculty, Applied Mathematics Dept., <i>University of Colorado, Boulder</i> Affiliated Faculty, Information Dept., <i>University of Colorado, Boulder</i> Associate Professor, Computer Science Dept., <i>University of Colorado, Boulder</i> Assistant Professor, Computer Science Dept., <i>University of Colorado, Boulder</i> Omidyar Fellow, <i>Santa Fe Institute</i>	2022 – present 2010 – present 2012 – present 2011 – present 2012 – present 2015 – present 2018 – 2022 2010 – 2018 2006 – 2010
EDITORIAL POSITIONS	Deputy Editor, <i>Science Advances</i> , AAAS Associate Editor, <i>Science Advances</i> , AAAS Associate Editor, <i>Journal of Complex Networks</i> , Oxford University Press	2017 – present 2014 – 2017 2012 – 2017
HONORS & AWARDS (SELECTED)	Fellow, Network Science Society Dean’s Faculty Fellowship, U. Colorado, Boulder Provost Faculty Achievement Award, U. Colorado, Boulder Erdős-Rényi Prize in Network Science Top 20 Teachers, College of Engineering, U. Colorado, Boulder NSF CAREER Award Kavli Fellow Santa Fe Institute Public Lecturer (http://bit.ly/I6t9gf) Graduation Speaker, U. New Mexico School of Engineering Convocation Outstanding Graduate Student Award, U. New Mexico School of Engineering	2023 2023 2019 2016 2016 2015 2014 2010 2006 2006
GOOGLE SCHOLAR	scholar.google.com/citations?user=e7VI-HcAAAAJ * indicates an undergraduate coauthor; ° indicates equal contribution	
MANUSCRIPTS UNDER REVIEW	K. Spoon, N. Laberge, K. H. Wapman, S. Zhang, A. C. Morgan, M. Galesic, B. K. Fosdick, D. B. Larremore, and A. Clauset , “Gender and retention patterns among U.S. faculty.” Submitted (2023). (Preprint at osf.io/preprints/socarxiv/u26ze) X. He, A. Ghasemian, E. Lee, A. Clauset , and P. J. Mucha, “Sequential stacking link prediction algorithms for temporal networks.” Submitted (2023). U. Dutta, B. K. Fosdick, and A. Clauset , “Sampling random graphs with specified degree sequences.” Submitted (2022). (Preprint at arxiv:2105.12120)	

D. Van Egdom, C. Spitzmueller, P. Lindner, **A. Clauset**, “Supporting working parents: The effects of work-family policies on research productivity trends.” Submitted (2022).

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N. LaBerge, K. H. Wapman, A. C. Morgan, S. Zhang, D. B. Larremore, and **A. Clauset**, “Subfield prestige and gender inequality in computer science.” *Communications of the ACM* **65**(12), 46–55 (2022). (Preprint at [arxiv:2201.00254](https://arxiv.org/abs/2201.00254))

S. Zhang, K. H. Wapman, D. B. Larremore, and **A. Clauset**, “Labor advantages drive the greater productivity of faculty at elite universities.” *Science Advances* **8**(46), eabq7056 (2022). (Preprint at [arxiv:2204.05989](https://arxiv.org/abs/2204.05989))

K. H. Wapman, S. Zhang, **A. Clauset**, and D. B. Larremore, “Quantifying hierarchy and dynamics in US faculty hiring and retention.” *Nature* **610**, 120–127 (2022). [Chosen for an invited News & Views editorial]

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W. Li, S. Zhang, Z. Zheng, S. J. Cranmer, and **A. Clauset**, “Untangling the network effects of productivity and prominence among scientists.” *Nature Communications* **13**, 4907 (2022).

E. Lee, **A. Clauset**^o, and D. B. Larremore^o, “The dynamics of faculty hiring networks.” *EPJ Data Science* **10**, 48 (2021). (Preprint at [arxiv:2105.02949](https://arxiv.org/abs/2105.02949))

H. Hosseinmardi, A. Ghasemian, **A. Clauset**, M. Mobius, 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](https://arxiv.org/abs/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)

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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]

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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**^o, and D. B. Larremore^o, “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”]

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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](#))

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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).

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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]

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[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](#))
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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).
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- 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](#))

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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).

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

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

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PREPRINTS AND OTHER PUBLICATIONS A.C. Morgan and **A. Clauset**, “Nearly a quarter of tenure-track faculty have a parent with a PhD.” *Nature Human Behavior* (2022). <https://doi.org/10.1038/s41562-022-01426-3>

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.” Preprint, [biorxiv.org/content/10.1101/2021.08.12.455589](https://www.biorxiv.org/content/10.1101/2021.08.12.455589) (2021).

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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/2lFB1Go (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).

BOOK ENDORSEMENTS

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PATENTS

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INDUSTRY CONSULTING

Scientific & Technical Consultant, <i>Respond Software Inc.</i> , Mountain View CA	2017
Scientific & Technical Consultant, <i>FullContact Inc.</i> , Denver CO	2015 – 2017
Scientific & Technical Consultant, <i>Institute for Defense Analysis</i> , Alexandria VA	2010 – 2014
Corporate Advisory Board, <i>33across LLC</i> , New York NY	2008 – 2012
Scientific & Technical Consultant, <i>33across LLC</i> , New York NY	2007 – 2012
Strategy & Management Consultant, <i>FischerJordan LLC</i> , New York NY	2005

GRANTS (PI OR CO-PI)	“Assessing bias and idiosyncrasies in elite scientific peer review.” PI , with Daniel B. Larremore (co-PI; Colorado) NSF SBE, \$501,890	2022 – 2025
	“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, \$1,173,487	2020 – 2023
	“A New Synthesis for the Science of Science.” 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 – 2023
	“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.” PI 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

	<p>“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</p>	2013 – 2014
	<p>“An alignment-free network approach to analyzing highly recombinant malaria parasite antigens.” PI, with Caroline Buckee (PI; Harvard) NIH/NIGMS, R21, \$286,485</p>	2013 – 2016
	<p>“EAGER: Understanding technological change from the map of capabilities.” co-PI, with Hyejin Youn (PI; Santa Fe Institute) NSF SBE, \$152,500</p>	2013 – 2017
	<p>“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</p>	2012 – 2015
	<p>“Measuring the structure of research university networks.” PI Kauffman Foundation, \$53,000</p>	2012 – 2013
	<p>“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</p>	2008 – 2012
GIFTS	Facebook Inc.	2015
(UNRESTRICTED)	Microsoft Inc.	2014
INVITED TALKS (RECENT)	<ul style="list-style-type: none"> • Colloquium, Department of Computer Science, University of Memphis, Memphis TN, 1 December 2023 • Colloquium, Department of Sociology, University of Massachusetts, Amherst MA, 8 November 2023 • Seminar, NIH National Institute of Child Health and Human Development, 15 September 2023 • Seminar, German Centre for Higher Education Research and Science Studies (DZHW), Hannover Germany, 14 August 2023 • Seminar, Academic Analytics Research Center, 3 August 2023 • Keynote, “Parenthood in Academia” panel, International Conference on Network Science, Vienna Austria, 12 July 2023 • Keynote, International Conference on the Science of Science and Innovation (ICSSI), Northwestern University, Evanston IL, 26–28 June 2023 • Invited Speaker, ChangeTrend Workshop, Peace Research Institute of Oslo (PRIO), Oslo Norway, 28–29 March 2023 • Invited Speaker, Data Science Seminar, University of Utah, Salt Lake City UT, 8 February 2023 • Colloquium, Data Science Research Center for Social Policies and Service, Caritas Institute of Higher Education, Hong Kong, 9 December 2022 • Colloquium, Interdisciplinary Center for Science and Technology Studies (IZWT), University of Wuppertal, Germany, 2 November 2022 • 151 other invited talks, since 2004 	
ADVISING	<p>Postdoctoral Fellows</p> <ul style="list-style-type: none"> • Dr. Katherine Wootton 2021 – 2022 • Dr. Eun Lee 2020 – 2022 • 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
- 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
- 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 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)

- Dennis Windham (MS Computer Science) 2023 – present
- Bisman Singh (MS Computer Science) 2023 – present
- Behzod Mirpochoev (BS Computer Science) 2022 – present
- Upasana Dutta (MS Computer Science) 2022
Thesis: *Sampling random graphs with specified degree sequences*
- 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

- Behzod Mirpochoev (BS Computer Science, Colorado) 2022 – 2023
Thesis: *Classification of genomic structural variants*
- Skylar Martin (BS Computer Science, Colorado) 2020 – 2021
Thesis: *PhageOne: Inferring the grammar of bacteriophage genomes*
- Nicholas Cordaro (BS Biochemistry, Colorado) 2019 – 2020
- Christoph Uhl (BS Computer Science, Colorado) 2018 – 2020
- Alexander Ray (BS Computer Science, Colorado) 2017 – 2019
Thesis: *Scaling laws in empirical networks*
- McKenzie Weller (BS Computer Science, Colorado) 2016 – 2019
- 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)

- Biological Networks* (undergraduate) Fall 2019, Spring 2020 – 2023
Colorado, CSCI 3352
- Network Analysis and Modeling* (graduate) Fall 2013, 2014, 2016, 2017, 2021, 2022
Colorado, CSCI 5352
- Algorithms (undergraduate) Spring 2014, 2017, 2018
Colorado, CSCI 3104
- History and Future of Computing* (undergraduate) Spring 2015, 2016
Colorado, CSCI 4380
- 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
- Topics in Interdisciplinary Research* (graduate) Fall 2019 – 2022, Spring 2022, 2023
Colorado, CSCI 7000 (co-taught with D. Larremore)

Summer School Courses

- Santa Fe Institute, Complex Systems Summer School (CSSS) 2007 – 2023
Santa Fe NM, 2007, 2008, 2013, 2014, 2016 – 2019, 2022, 2023;
Beijing China, 2008, 2009; Ajitgarh India 2015
- Science of Science Summer School (S4), Syracuse U. 2022
- Philosophy & Political Economy Graduate Summer Workshop, Chapman U. 2021
- Santa Fe Institute, Complexity Interactive 2021

- Summer Institute in Computational Social Science (SICSS), Boulder CO 2018
- 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), SIAM Workshop on Network Science (2013, 2017, 2018, 2020, 2022), Statistical Analysis and Data Mining
- **Biology:** Bioinformatics, BMC Bioinformatics, eLife, 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 (2016–2018, 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, PNAS Nexus, 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, American Sociological Review, 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

National

- Member, Committee on *Pathways to Doctoral Degrees in Computing*
CSTB, National Academies of Science, Engineering, and Medicine (NASEM) 2023 – 2024

Workshops (Organizer or co-organizer)

- *A New Synthesis for the Science of Science*
Santa Fe Institute, Santa Fe NM (5–6 May) 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)
- *Statistical Inference for Network Models*
NetSci 2020, Satellite Workshop, Rome Italy (20 September) 2020
With D. B. Larremore (Colorado), B. K. 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. K. 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. K. 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. K. 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
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)

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

Program Committees

- *Atlanta Conference on Science and Innovation Policy* (ATLC) 2023
- *International Conference on Computational Social Science* (IC2S2) 2016 – 2018, 2023
- *International Conference on Network Science* (NetSci, main cycle) 2015 – 2018, 2020
- *World Wide Web Conference* (WWW) 2010 – 2018
- *SIAM Workshop on Network Science* (NS) 2013, 2017, 2018, 2020, 2022
- (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 – 2018, 2020
- *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, Council 2010 – present
- Colorado, Computer Science, Strategic Planning Committee, Co-chair 2023 – present
- Colorado, Computer Science, Executive Committee 2021 – present
- Colorado, Computational Biology Minor (CBIO), Curriculum Committee 2018 – present
- Colorado, BioFrontiers Institute, Computing Committee 2015 – present
- Colorado, Interdisciplinary Quant. Biology (IQBio) Curriculum Committee 2017 – present
- Colorado, Computational Biology Minor (CBIO), Director (founding) 2018 – 2023
- Colorado, College of Engineering and Applied Science (CEAS) Multi-Disciplinary Faculty Search Committee, Chair 2022 – 2023
- Colorado, Computer Science, CRA CERP point-of-contact 2016 – 2022
- Colorado, Computer Science, Teaching Circles, Director (founding) 2019 – 2022
- Colorado, Provost's Faculty Achievement Award Committee 2020 – 2021
- Colorado, BioFrontiers Faculty Search Committee, Co-chair 2016 – 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

Professional Society Leadership Positions

- Co-founder and Administrator, Zachary Karate Club CLUB Prize in Network Science networkkarate.tumblr.com 2013 – present
- Erdős-Rényi Prize selection committee, Network Science Society 2020
- President, UNM Computer Science Grad. Student Assoc. (CSGSA) 2004, 2005

- Vice President, UNM Computer Science Grad. Student Assoc. (CSGSA) 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)

SYNERGISTIC ACTIVITIES

- 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* 2005 – present
 - aaronclauset.github.io, 5 entries 2017 – present
 - structureandstrangeness.com (defunct), 366 entries and >500,000 page hits 2005 – 2016
- Science microblogger on Mastodon @aaronclauset@fediscience.org 2022 – present
 - 1000+ followers
 - 82 posts
- Science microblogger on Twitter @aaronclauset 2012 – present
 - 11,212 followers
 - 2977 tweets
 - proud to be blocked by Steven Pinker since at least 2021
- Popular science writing 2014 – 2017
 - Pacific Standard, Slate, Christian Science Monitor, and Chronicle of Higher Education*
- 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
 - LinkPrediction network corpus (with A. Ghasemian, H. Hosseinmardi) 2019
 - Parental leave policies, U.S. & Canada (with A.C. Morgan, S.F. Way, D.B. Larremore) 2018
 - CommunityFitNet network corpus (with A. Ghasemian, H. Hosseinmardi) 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
 - Configuration model sampler (Python; with U. Dutta) 2022
 - Stacked topological model for link prediction in networks (Python; with A. Ghasemian) 2019
 - Scale-free network toolkit (Python; with A.D. Broido) 2018
 - 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