

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)	Provost Faculty Achievement Award, U. Colorado, Boulder Top 20 Teachers, College of Engineering, U. Colorado, Boulder Erdős-Rényi Prize in Network Science 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	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, D. B. Larremore, and A. Clauset , “Gender and retention patterns among U.S. faculty.” Submitted (2022). I. V. Buskirk, A. Clauset , and D. B. Larremore, “An open-source cultural consensus approach to name-based gender classification.” Submitted (2022). (Preprint at arxiv:2208.01714) 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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- 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]
- A. C. Morgan, N. LaBerge, D. B. Larremore, M. Galesic, J. E. Brand, and **A. Clauset**, “Socioeconomic roots of academic faculty.” *Nature Human Behavior* (2022). <https://doi.org/10.1038/s41562-022-01425-4> (Preprint at osf.io/preprints/socarxiv/6wjxc)
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- 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](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)
- A. Ghasemian, H. Hosseinmardi, A. Galstyan, E. M. Airolidi, 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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](#))
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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).
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- 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](#))
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- 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](#))
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(Preprint at [biorxiv.org/content/early/2013/12/22/001545](#)) [Highly accessed paper]

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[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).
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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](#))

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A. Clauset and K. S. Gleditsch, “The developmental dynamics of terrorist organizations.” *PLOS ONE* **7**(11), e48633 (2012). (Preprint at [arxiv:0906.3287](#))

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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).

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.

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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).

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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).

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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](#)).

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BOOK CHAPTERS

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ESSAYS AND PERSPECTIVES

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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

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](#) (2021).

N. Connor and **A. Clauset**, “Predicting the outcomes of policy diffusion from U.S. states to federal law.” Preprint, [arxiv:1810.08988](#) (2018).

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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).

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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).

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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

B. F. Braumoeller, *Only the Dead: The Persistence of War in the Modern Age*. Oxford University Press (2019). → “*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, <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)

“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.”
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

“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

	<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 (UNRESTRICTED)	<p>Facebook Inc.</p> <p>Microsoft Inc.</p>	<p>2015</p> <p>2014</p>
INVITED TALKS (RECENT)	<ul style="list-style-type: none"> • 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 • Keynote, “Communities in Networks,” NetSci Satellite Workshop, China, Shanghai, 12 July 2022 • Keynote, “Advances in Network Analysis and its Applications” symposium, 35th New England Statistics Symposium, University of Connecticut, Storrs, CT, 24 May 2022 • Seminar, Peace & Stability Workshop, Peace Research Institute of Oslo, Oslo Norway, 11 May 2022 • A New Synthesis for the Science of Science Workshop, Santa Fe Institute, Santa Fe NM, 6 May 2022 • Colloquium, Lucy Family Institute, University of Notre Dame, Notre Dame IN, 2 March 2022 • Seminar, Division of Reproductive Sciences, University of Colorado, Anschutz CO, 22 February 2022 • 145 other invited talks, since 2004 	
ADVISING	<p>Postdoctoral Fellows</p> <ul style="list-style-type: none"> • Dr. Katherine Wootton • Dr. Eun Lee • Dr. Samuel F. Way • Dr. Andrea Berardi • Dr. Daniel B. Larremore • Dr. Leto Peel <p>Doctoral Students (all at Colorado)</p> <ul style="list-style-type: none"> • Nicholas LaBerge • Katherine Spoon • Ian Van Buskirk • Lucy Van Kleunen 	<p>2021 – 2022</p> <p>2020 – 2022</p> <p>2017 – 2019</p> <p>2015 – 2016</p> <p>2012 – 2015</p> <p>2013 – 2015</p> <p>2019 – present</p> <p>2020 – present</p> <p>2019 – present</p> <p>2020 – present</p>

- 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 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)

- 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 – present
- 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 Tonozi (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 – 2022
Santa Fe NM, 2007, 2008, 2013, 2014, 2016 – 2019, 2022;
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:** 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), 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

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

- *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, College of Engineering and Applied Science (CEAS) Multi-Disciplinary Faculty Search Committee, Chair 2022
- Colorado, BioFrontiers Institute, Council 2010 – present
- Colorado, Computational Biology Minor (CBIO), Director (founding) 2018 – present
- Colorado, Computational Biology Minor (CBIO), Curriculum Committee 2018 – present
- Colorado, Computer Science, Executive Committee 2021 – present
- Colorado, BioFrontiers Institute, Computing Committee 2015 – 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 – 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
– 501 followers
– 8 toots
- Science microblogger on Twitter @aaronclauset 2012 – present
– 11,096 followers
– 2807 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