James Bagrow

CURRICULUM VITAE February 14, 2026

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RESEARCH INTERESTS

I am interested in the underlying rules and organizing principles of complex physical, technological, and biological systems. My work combines mathematical models with large-scale data analysis to better understand these systems, with a particular emphasis on network science and system dynamics. Other interests include stochastic and nonlinear dynamics, dynamical systems, and novel optimization and scientific machine learning methods.

EXPERIENCE

Associate Professor, **2019 – present**
Assistant Professor, **2013 – 2019**
Mathematics and Statistics,
The University of Vermont, Burlington, VT, USA

Core Faculty,
CREATE: Center for Resilient Energy & Autonomous Technologies in Engineering, **2019 – present**
Vermont Complex Systems Center, **2013 – present**
The University of Vermont, Burlington, VT, USA

Research Assistant Professor, **2011 – 2013**
Engineering Sciences and Applied Mathematics & Northwestern Institute on Complex Systems (NICO),
Northwestern University, Evanston, IL, USA

Visiting Researcher, **2009 – 2011**
Dana-Farber Cancer Institute, Harvard University, Boston, MA, USA

Postdoctoral Researcher, **2008 – 2011**
Center for Complex Network Research, Northeastern University, Boston, MA, USA

NSF Graduate Research Fellowship, Clarkson University, Potsdam, NY, USA **2006 – 2008**
T-7 Summer Graduate Research, Los Alamos National Laboratory **2005**
Graduate Teaching Assistantship, Clarkson University **2004 – 2006**
NSF REU Internship, Rensselaer Polytechnic Institute, Troy, NY, USA **2002**
Academic Peer Mentor, SUNY Cobleskill, Cobleskill, NY, USA **2000 – 2001**

EDUCATION

Ph.D., Physics, Clarkson University, Potsdam, NY, USA **2004 – 2008**
Dissertation Topic: "Analysis and Applications of Complex Networks"
Advisors: Daniel ben-Avraham, Erik Bollt

M.S., Physics, Clarkson University **2004 – 2005**
B.S., Physics with Great Distinction, Clarkson University **2001 – 2004**
A.S., Liberal Arts & Sciences, High Honors, SUNY Cobleskill, Cobleskill, NY, USA **1999 – 2001**

SUPPORT

Google Open Source, $1,000,000 **2020 – 2022**
Open Source Complex Ecosystems and Networks (OCEAN),

PI

NASA ESPCoR, $750,000 **2020 – 2023**
New Unified Framework for Scalable, Risk-Aware, and Resilient Estimation and Control of Satellite Swarms,
Co-PI; Lead PI Hamid Ossareh

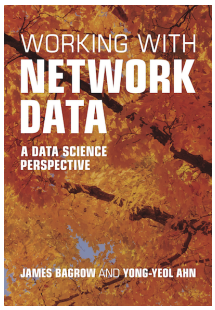
Army CRREL Award, $10M **2020 – 2024**

ARPA-E NODES (PlusUp), $3,400,000 **2019 – 2021**
Packetized Energy Management: Coordinating Transmission and Distribution,
Co-I; PI Mads Almassalkhi

CA Technologies research award, $70,000 **2018 – 2024**
GitHub public data as a vehicle for understanding individuals and teams: hypotheses, challenges, and proposed research,
PI

NSF BIGDATA award, $600,000 **2014 – 2020**
Hunch & Crunch: Iterative Crowdsourced Hypothesis Generation,
PI

BOOKS



Working with Network Data: a Data Science Perspective,
James Bagrow and Yong-Yeol Ahn,
Cambridge University Press, London (2024).

Book's website
Cambridge.org
Amazon.com

PUBLICATIONS AND PREPRINTS

87. Y. Pedari, H. Basu, C. Buchanan, J. Bagrow, L. Duffaut Espinosa, M. R. Almassalkhi, and H. R. Ossareh, "**A hierarchical control architecture for optimal guidance and navigation of satellite formations**." 2025.
86. J. Bagrow and J. Bongard, "**Optimized architectures for Kolmogorov–Arnold networks**." 2025. [arXiv:2512.12448].
85. J. Bagrow and J. Bongard, "**Softly symbolifying Kolmogorov–Arnold networks**." 2025. [arXiv:2512.07875].
84. C. Buchanan, P. Rombach, J. Bagrow, and H. R. Ossareh, "**Vertex addition to a ball graph with application to reliability and area coverage in autonomous swarms**." Under review, 2025. [arXiv:2506.19197].
83. *PRECOG: Predictable Robot Evolves via Control Optimization and GP*, vol. ALIFE 2025: Ciphers of Life: Proceedings of the Artificial Life Conference 2025. 10, 2025.
82. J. Bagrow and J. Bongard, "**Multi-exit Kolmogorov–Arnold networks: enhancing accuracy and parsimony**," *Machine Learning: Science and Technology* **6** no. 3, (2025) 035037, [arXiv:2506.03302].
81. A. Parsa, J. Bagrow, C. S. O'Hern, R. Kramer-Bottiglio, and J. Bongard, "**Data-driven modeling of granular chains with modern koopman theory**." arXiv preprint, 2024. [arXiv:2411.15142].

80. Z. P. Neal, Z. Almquist, J. Bagrow, A. Clauset, J. Diesner, E. Lazega, J. Lovato, J. Moody, T. P. Peixoto, Z. Steinert-Threlkeld, and A. S. Teixeira, "**Recommendations for sharing network data and materials**," *Network Science* **12** no. 4, (2024) 404–417.
★ *SIPS 2025 Commendation.*

79. M. Z. Trujillo, L. Hébert-Dufresne, and J. Bagrow, "**Measuring centralization of online platforms through size and interconnection of communities**," *Online Social Networks and Media* **43-44** (2024) 100292, [arXiv:2307.15027].

78. J. Bagrow and Y.-Y. Ahn, *Working with Network Data: A Data Science Perspective*. Cambridge University Press, London, 2024.

77. A. Bertschinger, J. Bagrow, and J. Bongard, "**[RETRACTED] Evolving form and function: Dual-objective optimization in neural symbolic regression networks**," in *Proceedings of the Genetic and Evolutionary Computation Conference*, GECCO '24, p. 277–285. Association for Computing Machinery, New York, NY, USA, 2024. [arXiv:2502.17393].

76. E. Ratliff-Crain, C. M. Van Oort, J. Bagrow, M. T. K. Koehler, and B. F. Tivnan, "**Revisiting stylized facts for modern stock markets**," in *2023 IEEE International Conference on Big Data (BigData)*, pp. 1814–1823. 2023.

75. L. Hébert-Dufresne, G. St-Onge, J. Meluso, J. Bagrow, and A. Allard, "**Hierarchical team structure and multidimensional localization (or siloing) on networks**," *Journal of Physics: Complexity* **4** no. 3, (2023) 035002, [arXiv:2203.00745].

74. J. Bagrow, "**Using fast and slow data to unfold city dynamics**," *Nature Computational Science* **3** no. 7, (2023) 578–579. Invited News & views.

73. C. Buchanan, J. Bagrow, P. Rombach, and H. R. Ossareh, "**Node placement to maximize reliability of a communication network with application to satellite swarms**," in *2023 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, pp. 3466–3473. 2023.

72. A. Bertschinger, Q. T. Davis, J. Bagrow, and J. Bongard, "**The Metric is the Message: Benchmarking challenges for neural symbolic regression**," in *Machine Learning and Knowledge Discovery in Databases: Research Track*, D. Koutra, C. Plant, M. Gomez Rodriguez, E. Baralis, and F. Bonchi, eds., pp. 161–177. Springer Nature Switzerland, Cham, 2023.

71. J. Bagrow and Y.-Y. Ahn, "**Network Cards: concise, readable summaries of network data**," *Applied Network Science* **7** no. 1, (2022) 84, [arXiv:2206.00026].

70. J. P. Bagrow and S. Lehmann, "**Recovering lost and absent information in temporal networks**." In revision, 2021. [arXiv:2107.10835].

69. M. Z. Trujillo, L. Hébert-Dufresne, and J. Bagrow, "**The penumbra of open source: projects outside of centralized platforms are longer maintained, more academic and more collaborative**," *EPJ Data Science* **11** no. 1, (2022) 31, [arXiv:2106.15611].

68. M. Warrick, S. F. Rosenblatt, J.-G. Young, A. Casari, L. Hébert-Dufresne, and J. Bagrow, "**The OCEAN mailing list data set: Network analysis spanning mailing lists and code repositories**," in *2022 IEEE/ACM 19th International Conference on Mining Software Repositories (MSR)*, pp. 338–342. 2022. [arXiv:2204.00603].

67. A. Hotaling and J. Bagrow, "**Accurate inference of crowdsourcing properties when using efficient allocation strategies**," *Nature Scientific Reports* **12** no. 1, (2022) 6849, [arXiv:1903.03104].

66. J. Meluso, J. Austin-Breneman, J. P. Bagrow, and L. Hébert-Dufresne, "**A review and framework for modeling complex engineered system development processes**," *IEEE Transactions on Systems, Man, and Cybernetics: Systems* (2022) 1–13, [arXiv:2103.12820].

65. Z. Chen, S. Kelty, A. G. Evsukoff, B. F. Welles, J. Bagrow, R. Menezes, and G. Ghoshal, "**Contrasting social and non-social sources of predictability in human mobility**," *Nature Communications* **13** no. 1, (2022) 1922, [arXiv:2104.13282].

64. S. S. Jónasdóttir, J. Bagrow, and S. Lehmann, "**Sleep during travel balances individual sleep needs**," *Nature Human Behaviour* no. 5, (2022) 691–699.
★ *Cover article for the May 2022 "issue".*

63. J. Meluso, S. Johnson, and J. Bagrow, "**Flexible Environments for Hybrid Collaboration: Redesigning Virtual Work Through the Four Orders of Design**," *Design Issues* **38** no. 1, (01, 2022) 55–69, [SocArXiv:wehsk].

62. J. Meluso, L. Hébert-Dufresne, J. P. Bagrow, and R. Razzante, "**Masculinity contest cultures and inclusive cultures: Insights from an agent-based model of organizational socialization and promotion**," in *The Future of Diversity & Inclusion*, E. B. King, Q. M. Roberson, and M. Hebl, eds., vol. 3 of *Research on Social Issues in Management*. Information Age Publishing, Charlotte, NC, USA, 2022. [SocArXiv:tp9b8].

61. J.-G. Young, A. Casari, K. McLaughlin, M. Z. Trujillo, L. Hébert-Dufresne, and J. P. Bagrow, "**Which contributions count? analysis of attribution in open source**," in *2021 IEEE/ACM 18th International Conference on Mining Software Repositories (MSR)*, pp. 242–253. IEEE Computer Society, Los Alamitos, CA, USA, May, 2021. [arXiv:2103.11007].
★ *FOSS Impact paper award.*

60. T. Alshaabi, D. R. Dewhurst, J. P. Bagrow, P. S. Dodds, and C. M. Danforth, "**The sociospatial factors of death: Analyzing effects of geospatially-distributed variables in a bayesian mortality model for hong kong**," *PLOS ONE* **16** no. 3, (03, 2021) 1–20, [arXiv:2006.08527].

59. J. P. Bagrow, "**TL;DR: how well do machines summarize our work? (correspondence)**," *Nature* **590** (2021) 36.

58. A. Casari, K. McLaughlin, M. Z. Trujillo, J.-G. Young, J. P. Bagrow, and L. Hébert-Dufresne, "**Open source ecosystems need equitable credit across contributions**," *Nature Computational Science* **1** no. 1, (2021) 2–2.

57. A. Hotaling and J. P. Bagrow, "**Efficient crowdsourcing of crowd-generated microtasks**," *PLOS ONE* **15** no. 12, (2020) 1–18, [arXiv:1912.05045].

56. R. A. Baten, D. Bagley, A. Tenesaca, F. Clark, J. P. Bagrow, G. Ghoshal, and M. E. Hoque, "**Creativity in temporal social networks: how divergent thinking is impacted by one's choice of peers**," *J. R. Soc. Interface* **17** no. 20200667, (2020), [arXiv:1911.11395].

55. J. P. Bagrow, "**Democratizing AI: Non-expert design of prediction tasks**," *PeerJ Computer Science* **6** (2020) e296, [arXiv:1802.05101].

54. T. Pond, S. Magsarjav, T. South, L. Mitchell, and J. P. Bagrow, "**Complex contagion features without social reinforcement in a model of social information flow**," *Entropy* **22** no. 3, (2020) 265, [arXiv:2002.05035].

53. D. Berenberg and J. P. Bagrow, "**Inferring the size of the causal universe: features and fusion of causal attribution networks**." In preparation, 2018. [arXiv:1812.06038].

52. J. P. Bagrow, D. Berenberg, and J. C. Bongard, "**Neural language representations predict outcomes of scientific research**." In preparation, 2018. [arXiv:1805.06879].

51. J. P. Bagrow and E. M. Bollt, "**An information-theoretic, all-scales approach to comparing networks**," *Applied Network Science* **4** no. 1, (2019) 45, [arXiv:1804.03665].

50. X. Liu and J. P. Bagrow, "**Autocompletion interfaces make crowd workers slower, but their use promotes response diversity**," *Human Computation* **6** (2019), [arXiv:1707.06939].

49. J. P. Bagrow, X. Liu, and L. Mitchell, "**Information flow reveals prediction limits in online social activity**," *Nature Human Behaviour* **3** no. 2, (2019) 122–128, [arXiv:1708.04575].

48. M. D. Wagy, J. C. Bongard, J. P. Bagrow, and P. D. Hines, "**Crowdsourcing predictors of residential electric energy usage**," *IEEE Systems Journal* **12** no. 4, (2018) 3151–3160, [arXiv:1709.02739].

47. D. Berenberg and J. P. Bagrow, "**Efficient crowd exploration of large networks: The case of causal attribution**," *Proc. ACM Hum.-Comput. Interact.* **2** no. CSCW, (2018), [arXiv:1810.03163].
★ *Best Paper honorable mention.*

46. J. P. Bagrow and L. Mitchell, "**The quoter model: A paradigmatic model of the social flow of written information**," *Chaos* **28** no. 7, (2018) 075304, [arXiv:1711.00326].

45. J. P. Bagrow, "**Information spreading in emergencies and anomalous events**," in *Complex Spreading Phenomena in Social Systems*, S. Lehmann and Y.-Y. Ahn, eds., pp. 269–286. Springer, 2018. [arXiv:1703.07362].

44. P. Shrestha, B. S. Lee, and J. P. Bagrow, "**Predicting an effect event from a new cause event using a semantic web based abstraction tree of past cause-effect event pairs**," in *4th Annual International Symposium on Information Management and Big Data (SIMBig)*. 2017.

43. T. C. McAndrew, E. Guseva, and J. P. Bagrow, "**Reply & supply: Efficient crowdsourcing when workers do more than answer questions**," *PLOS ONE* **12** no. 8, (2017) e69829, [arXiv:1611.00954].

42. J. P. Bagrow, C. M. Danforth, and L. Mitchell, "**Which friends are more popular than you?: Contact strength and the friendship paradox in social networks**," in *Proceedings of the 2017 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining 2017*, pp. 103–108. ACM, 2017. [arXiv:1703.06361].

41. M. Korkali, J. G. Veneman, B. F. Tivnan, J. P. Bagrow, and P. D. Hines, "**Reducing cascading failure risk by increasing infrastructure network interdependence**," *Nature Scientific Reports* **7** (2017) 44499.

40. T. C. McAndrew, J. C. Bongard, C. M. Danforth, P. S. Dodds, P. D. Hines, and J. P. Bagrow, "**What we write about when we write about causality: Features of causal statements across large-scale social discourse**," in *2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, pp. 519–524. IEEE Computer Society, 2016. [arXiv:1604.05781].

39. E. M. Cody, J. C. Stephens, J. P. Bagrow, P. S. Dodds, and C. M. Danforth, "**Transitions in climate and energy discourse between Hurricanes Katrina and Sandy**," *Journal of Environmental Studies and Sciences* (2016) 1–15, [arXiv:1510.07494].

38. M. Klug and J. P. Bagrow, "**Understanding the group dynamics and success of teams**," *Royal Society Open Science* **3** no. 4, (2016), [arXiv:1407.2893].

37. J. R. Williams, J. P. Bagrow, A. J. Reagan, S. E. Alajajian, C. M. Danforth, and P. S. Dodds, "**Zipf's law is a consequence of coherent language production**." Preprint, 2016. [arXiv:1601.07969].

36. J. R. Williams, E. M. Clark, J. P. Bagrow, C. M. Danforth, and P. S. Dodds, "**Identifying missing dictionary entries with frequency-conserving context models**," *Phys. Rev. E* **92** (2015) 042808, [arXiv:1503.02120].

35. J. R. Williams, P. R. Lessard, E. M. Clark, S. Desu, J. P. Bagrow, C. M. Danforth, and P. S. Dodds, "**Zipf's law holds for phrases, not words**," *Nature Scientific Reports* **4** no. 12209, (2015), [arXiv:1406.5181].

34. J. P. Bagrow, S. Lehmann, and Y.-Y. Ahn, "**Robustness and modular structure in networks**," *Network Science* **3** (2015) 509–525, [arXiv:1102.5085].

33. P. S. Dodds, E. M. Clark, S. Desu, M. R. Frank, A. J. Reagan, J. R. Williams, L. Mitchell, K. D. Harris, I. M. Kloumann, J. P. Bagrow, K. Megerdoomian, M. T. McMahon, B. F. Tivnan, and C. M. Danforth, "**Reply to Garcia et al.: Common mistakes in measuring frequency-dependent word characteristics**," *Proc. Natl. Acad. Sci. U. S. A.* **112** no. 23, (2015) E2984–E2985, [arXiv:1505.06750].

32. J. R. Williams, J. P. Bagrow, C. M. Danforth, and P. S. Dodds, "**Text mixing shapes the anatomy of rank-frequency distributions**," *Phys. Rev. E* **91** (2015) 052811, [arXiv:1409.3870].

31. T. C. McAndrew, C. M. Danforth, and J. P. Bagrow, "**Robustness of spatial micronetworks**," *Phys. Rev. E* **91** (2015) 042813, [arXiv:1501.05976].

30. P. S. Dodds, E. M. Clark, S. Desu, M. R. Frank, A. J. Reagan, J. R. Williams, L. Mitchell, K. D. Harris, I. M. Kloumann, J. P. Bagrow, K. Megerdoomian, M. T. McMahon, B. F. Tivnan, and C. M. Danforth, "**Human language reveals a universal positivity bias**," *Proc. Natl. Acad. Sci. U. S. A.* **112** no. 8, (2015) 2389–2394, [arXiv:1406.3855].

29. L. Gao, C. Song, Z. Gao, A.-L. Barabási, J. P. Bagrow, and D. Wang, "**Quantifying information flow during emergencies**," *Nature Scientific Reports* **4** no. 1, (2014) 3997.

28. M. Price, M. Evans, and J. P. Bagrow, "**PTSD symptoms, disability, and social support in the acute period after a traumatic injury: A preliminary investigation of competing hypotheses**," *J Trauma Stress Disor Treat* **4** (2014)

27. M. R. Frank, J. R. Williams, L. Mitchell, J. P. Bagrow, P. S. Dodds, and C. M. Danforth, "**Constructing a taxonomy of fine-grained human movement and activity motifs through social media**." Under review, 2014. [arXiv:1410.1393].

26. D. Wang, Y.-R. Lin, and J. P. Bagrow, "**Social networks in emergency response**," in *Encyclopedia of Social Network Analysis and Mining*, R. Alhajj and J. Rokne, eds., pp. 1904–1914. Springer New York, 2014.

25. J. P. Bagrow, S. Desu, M. R. Frank, N. Manukyan, L. Mitchell, A. J. Reagan, E. E. Bloedorn, L. B. Booker, L. K. Branting, M. J. Smith, B. F. Tivnan, C. M. Danforth, P. S. Dodds, and J. C. Bongard, "**Shadow networks: Discovering hidden nodes with models of information flow**." In preparation, 2013. [arXiv:1312.6122].

24. L. M. Shekhtman, J. P. Bagrow, and D. Brockmann, "**Robustness of skeletons and salient features in networks**," *Journal of Complex Networks* **2** no. 2, (2014) 110–120, [arXiv:1309.3797].

23. O. Woolley-Meza, D. Grady, C. Thiemann, J. P. Bagrow, and D. Brockmann, "**Eyjafjallajökull and 9/11: The impact of large-scale disasters on worldwide mobility**," *PLOS ONE* **8** no. 8, (2013) e69829.

22. C. Noble, J. P. Bagrow, and D. Brockmann, "**The role of caretakers in disease dynamics**," *J. Stat. Phys.* **152** no. 4, (2013), [arXiv:1209.2419].

21. J. P. Bagrow and D. Brockmann, "**Natural emergence of clusters and bursts in network evolution**," *Phys. Rev. X* **3** (2013) 021016, [arXiv:1209.3307].

20. S. Saavedra, S. Mukherjee, and J. P. Bagrow, "**Is coaching experience associated with effective use of timeouts in basketball?**," *Nature Scientific Reports* **2** no. 676, (2012), [arXiv:1205.1492].

19. J. P. Bagrow, "**Communities and bottlenecks: Trees and treelike networks have high modularity**," *Phys. Rev. E* **85** (2012) 066118, [arXiv:1201.0745].

18. J. P. Bagrow and Y.-R. Lin, "**Mesoscopic structure and social aspects of human mobility**," *PLOS ONE* **7** no. 5, (2012) e37676, [arXiv:1202.0224].

17. Y.-R. Lin, J. P. Bagrow, and D. Lazer, "**Quantifying bias in social and mainstream media**," *SIGWEB Newsletter* no. Summer, (2012) 5:1–5:6.

16. Y.-Y. Ahn, S. E. Ahnert, J. P. Bagrow, and A.-L. Barabási, "**Flavor network and the principles of food pairing**," *Nature Scientific Reports* **1** no. 196, (2011), [arXiv:1111.6074].

15. L. S. Schulman, J. P. Bagrow, and B. Gaveau, "**Visualizing relations using the "observable representation"**," *Advances in Complex Systems* **14** no. 6, (2011) 829–851.

14. Y.-R. Lin, J. P. Bagrow, and D. Lazer, "**More voices than ever? Quantifying bias in social and mainstream media**," in *International AAAI Conference on Weblogs and Social Media*. 2011. [arXiv:1111.1227].

13. J. P. Bagrow, D. Wang, and A.-L. Barabási, "**Collective response of human populations to large-scale emergencies**," *PLOS ONE* **6** no. 3, (2011) e17680, [arXiv:1106.0560].

12. J. P. Bagrow, Y.-Y. Ahn, and S. Lehmann, "**Link communities reveal multiscale complexity in networks**," *Nature* **466** (2010) 761–764, [arXiv:0903.3178]. (All authors contributed equally and were listed alphabetically in the final publication.).

11. J. P. Bagrow and T. Koren, "**Investigating bimodal clustering in human mobility**," *International Conference on Computational Science and Engineering* **4** (2009) 944–947, [arXiv:0911.0674].

10. J. Sun, J. P. Bagrow, E. M. Bollt, and J. D. Skufca, "**Dynamic computation of network statistics via updating schema**," *Phys. Rev. E* **79** (2009) 036116, [arXiv:0809.4707].

9. J. M. Campuzano, J. P. Bagrow, and D. ben-Avraham, "**Kleinberg navigation on anisotropic lattices**," *Research Letters in Physics* **2008** (2008), [arXiv:0805.0807].

8. J. P. Bagrow, J. Sun, and D. ben-Avraham, "**Phase transition in the rich-get-richer mechanism due to finite-size effects**," *J. Phys. A: Math. Theor.* **41** (2008) 185001, [arXiv:0712.2220].

7. J. P. Bagrow, "**Evaluating local community methods in networks**," *J. Stat. Mech.* **2008** no. 5, (2008) P05001, [arXiv:0706.3880].

6. J. P. Bagrow, E. M. Bollt, J. D. Skufca, and D. ben-Avraham, "**Portraits of complex networks**," *Europhysics Letters* **81** (2008) 68004, [arXiv:cond-mat/0703470].

5. J. P. Bagrow, E. M. Bollt, and L. da F. Costa, "**Network structure revealed by short cycles**." Unpublished, 2006. [arXiv:cond-mat/0612502].

4. J. P. Bagrow and D. ben-Avraham, "**On the google-fame of scientists and other populations**," in *Proc. Am. Inst. of Physics Conf.*, vol. 779, pp. 81–89. 2005. [arXiv:physics/0504034].

3. J. P. Bagrow and E. M. Bollt, "**A local method for detecting communities**," *Phys. Rev. E* **72** (2005) 046108, [arXiv:cond-mat/0412482].

2. J. P. Bagrow, H. D. Rozenfeld, E. M. Bollt, and D. ben-Avraham, "**How famous is a scientist? — Famous to those who know us**," *Europhysics Letters* **67** (2004) 511, [arXiv:cond-mat/0404515].

1. M. K. Nordhaus, H. J. Newberg, J. P. Bagrow, T. Beers, J. Kern, C. Rider, J. A. Smith, D. Tucker, and B. Yanny, "**Photometric separation of physical properties of stars**," *American Astronomical Society, 201st AAS Meeting, #16.12; Bulletin of the American Astronomical Society* **34** (2002) 1126.

INVITED TALKS

Open Source and Open Science: data-enabled studies of thriving ecosystems and collaborations **6/2022**
MIT Computational Social Science Lunch Talk, Online

The Penumbra of Open Source: Public projects outside of centralized platforms **7/2021**
Google State of the Ecosystem Special Guest talk, Online

Exploring the OCEAN: Open source Complex Ecosystems and Networks **6/2021**
NetOpen21, Satellite at Networks 2021, Online

Exploring the OCEAN: Open source Complex Ecosystems and Networks **5/2021**
(Keynote speaker) CompleNet 21: International Conference on Complex Networks, Online

Information flow and prediction limits in online networks **3/2021**
Computer Science Seminar Series, University of Exeter, Online

Working with network data + data visualization—school speaker **1/2021**
Complex Networks Winter Workshop, Online

Introduction to network science—school speaker **4/2020**
Northeast Region Conference on Complex Systems (NERCCS), Online (originally Buffalo, NY)

Working with network data + data visualization—school speaker **12/2019**
Complex Networks Winter Workshop, Québec City, Québec

Measuring and Modeling Information Flow Online **10/2019**
(Invited speaker) MB57 - Data Driven Disaster Resilience, Session at INFORMS 2019, Seattle, WA, USA

Human-AI hybrid network exploration: the case of causal attribution **10/2019**
(Invited speaker) Machine Learning and Modeling for Complex Systems, Satellite at Conference on Complex Systems 2019, Nanyang Technological University, Singapore

Information flow and prediction limits in online networks **10/2019**
(Invited speaker) Conference on Complex Systems 2019, Nanyang Technological University, Singapore

Information flow and prediction limits in online networks **4/2019**
Computational and Data-Enabled Science and Engineering (CDSE) Days, Research Symposium, University at Buffalo, Buffalo, NY, USA

Information flow and prediction limits in online networks **4/2019**
Department of Physics and Astronomy Colloquium, University of Rochester, Rochester, NY, USA

Working with network data—school speaker **12/2018**
Inaugural Complex Networks Winter Workshop, Québec City, Québec

Hunch & Crunch: iterative crowdsourced hypothesis generation **10/2018**
Inaugural Case Workshop on Digital Innovation, Weatherhead School of Management at Case Western Reserve University, Cleveland, OH, USA

Hunch & Crunch: iterative crowdsourced hypothesis generation **7/2018**

Crowdsourcing and Collective Intelligence (CCI) Workshop, Ninth International Conference on Complex Systems (ICCS), Boston, MA, USA

Hunch & Crunch: iterative crowdsourced hypothesis generation **5/2018**
NSF-sponsored Workshop on Converging Human and Technological Perspectives in Crowdsourcing Research, Alexandria, VA, USA

Measuring and modeling the social flow of information **12/2017**
Fall 2017 David A. Walsh '67 Arts and Science Seminar, Clarkson University, Potsdam, NY, USA

Information flow and Prediction Limits in Online Social Networks **10/2017**
Data Institute SF Annual Conference, University of San Francisco, San Francisco, CA, USA

Information and Prediction Limits in Online Social Activity **7/2017**
Center for Complex Networks Research seminar, Northeastern University, Boston, MA, USA

Information and Prediction Limits in Online Social Activity **5/2017**
MS135 Causation Inference and Information Flow in Dynamical Systems: Theory and Applications - Part I of II, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA

An introduction to network science **11/2016**
Math Club, University of Vermont, Burlington, VT, USA

Hunch & Crunch: iterative crowdsourced hypothesis generation **11/2016**
28th Kavli Frontiers of Science Symposium (lightning talk), University of California, Irvine, CA, USA

Models and Mechanisms in Network Science **10/2016**
Complex Systems/Applied Math seminar, University of Vermont, Burlington, VT, USA

An introduction to Network Science **10/2016**
Burlington Data Science meetup, Burlington, VT, USA

Machines, Algorithms, and Minority Report **5/2016**
Burlington High School Year End Studies presentation, Burlington, VT, USA

Data-driven approaches to studying human dynamics **7/2015**
Center for Nonlinear Studies seminar, LANL, Los Alamos, NM, USA

Data-driven approaches to studying human dynamics **6/2015**
DTU Compute seminar, Department of Applied Mathematics and Computer Science, Technical University of Denmark

Symbolic Regression: a tool to advance our understanding of complex systems **6/2015**
NetSci Backstage 2015, NetSci 2015, Zaragoza, Spain

Shadow Networks: Discovering Hidden Nodes with Models of Information Flow **5/2015**
MS102 Complex Network Theory Based Approaches in the Analyses of Complex Systems and Data - Part II of II, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA

Shadow Networks: Discovering Hidden Nodes with Models of Information Flow **5/2015**
Cambridge Networks Day 2015, University of Cambridge, Cambridge, UK

Flight or Fight: Predicting Human Dynamics with Tweets and Phones **4/2014**
Macmillan Symposium, University of Vermont, Burlington, VT, USA

Natural emergence of clusters and bursts in network **11/2013**
Physics Department Condensed Matter Theory, Weekly Seminar, University of Vermont, Burlington, VT, USA

Mesoscopic Structure and Social Aspects of Human Mobility **5/2013**
MS75 Computational Social Science: An Exploration of Human Dynamics, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA

Human dynamics through the lens of modern data **03/2013**
University of Vermont, Burlington, VT, USA

Natural emergence of clusters and bursts in network **1/2013**
2013 ACCA Seminar Series on Systems Biology, Benedictine University, Lisle, IL, USA

Natural emergence of clusters and bursts in network **10/2012**
Networks and Complex Systems Talk Series, Indiana University, Bloomington, IN, USA

Introduction to networks (half-day school) **6/2012**
NetSci 2012 School, Lecturer, Northwestern University, Evanston, IL, USA

Human dynamics through the lens of modern data **4/2012**
Engineering Science and Applied Mathematics, Weekly seminar, Northwestern University, Evanston, IL, USA

Cell phones, communities, and complex networks **1/2012**
Northwestern Institute on Complex Systems (NICO), Weekly seminar, Northwestern University, Evanston, IL, USA

Response of human populations to large-scale emergencies **10/2011**
NetMob 2011, MIT, Boston, MA, USA

Robustness of overlapping modular networks **5/2011**

MS73: Collective Behavior - Part I of II, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA

Exploring mesoscopic structure in complex networks **5/2011**
Senseable City, MIT, Boston, MA, USA

Exploring mesoscopic structure in complex networks **5/2011**
Northwestern Institute on Complex Systems, Northwestern University, Evanston, IL, USA

Exploring mesoscopic structure in complex networks **4/2011**
Center for Nonlinear Studies seminar, LANL, Los Alamos, NM, USA

Communities and Complex Networks **4/2011**
Network Science Class, Northeastern University, Boston, MA, USA

Exploring mesoscopic structures in complex networks **10/2010**
Department of Physics and Department of Mathematics and Computer Science, Joint Colloquium, Clarkson University, Potsdam, NY, USA

Response of human populations to large-scale emergencies **4/2010**
MIT Media lab, Boston, MA, USA

Network Reading Group: Extracting the multiscale backbone of complex weighted networks **12/2009**
Harvard Medical School, Boston, MA, USA

A Toy Model of Animal Locomotion -or- Hey, what's that smell? **2/2009**
JointNet Seminar, Northeastern University, Boston, MA, USA

Communities and Complex Networks **10/2008**
Center for International Development, Harvard University, Cambridge, MA, USA

Detecting communities in complex networks **5/2007**
Math department seminar, RIT, Rochester, NY, USA

Methods for detecting communities **6/2005**
Center for Nonlinear Science, Los Alamos National Laboratory, Los Alamos, NM, USA

A local method for detecting communities **5/2005**
CP43: Network Structures - Part II of II (presenter and session chair), SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA

PRESS COVERAGE

Our study **"Sleep during travel balances individual sleep needs"** was described in a Research Highlight in Nature. We were also the cover article for the May 2022 "issue" of *Nature Human Behaviour*.

"Information flow reveals prediction limits in online social activity" received coverage in Science, Forbes, Quartz, COSMOS, Reuters, Marketplace, Sky News, Daily Mail (UK), Ars Technica, CNET, and many other venues. Even more press coverage.

Our study **"Human language reveals a universal positivity bias"** on the Pollyanna principle, received quite a bit of press coverage, including CBS This Morning (YouTube), NPR Marketplace, Science Magazine, The Atlantic, and The New York Times, among others.

Our **"Shadow Networks"** project, on uncovering hidden nodes in networks, was covered by the Nutonian blog.

"Is coaching experience associated with effective use of timeouts in basketball?" was featured in Physics Buzz Blog at Physics Central and The Wall Street Journal.

My work with Yu-Ru Lin, **"Mesoscopic Structure and Social Aspects of Human Mobility"** was featured in the Spring 2012 issue of McCormick Magazine, the biannual magazine of Northwestern University's McCormick School of Engineering.

"Flavor network and the principles of food pairing" received quite a bit of attention. Outlets covering it include: Wired, Nature News, NPR, The Daily Mail, MIT Technology Review, Popular Science, Inside Science, Physorg.com, Gizmodo, The Huffington Post, Chemistry World, Flowingdata.com, FoodNavigator.com, Indiana University News Room, and News@Northeastern. This paper received over 100,000 downloads in its first few months of publication at *Nature Scientific Reports*. During that time, it was the most downloaded article of any Nature Publishing Group journal, including Nature itself.

"Collective response of human populations to large-scale emergencies" was featured in news@northeastern and physorg.com.

"Link communities reveal multiscale complexity in networks" was featured in news@northeastern and Science On (Hankyoreh).

My undergraduate project, **"How famous is a scientist? — Famous to those who know us"** was covered in Nature News in Brief, Sci-Tech Today, the Inquirer, NewsFactor Innovation, WebOptimiser, physicsworld.com, Felix (student newspaper of Imperial College), and we were interviewed on "The Science Guy", NewsTalk Radio KFRU.

COLLABORATORS (*since 2022*)

- *Yong-Yeol Ahn*[1]
- Sebastian Ahnert[2]
- Sharon Alajajian[3]
- *Antoine Allard*[4]
- *Mads Almassalkhi*[5]
- *Zack Almquist*[6]
- Thayer Alshaabi[5]
- *Jesse Austin-Breneman*[7]
- Daryl Bagley[8]
- Albert-László Barabási[9]
- *Himadri Basu*[10]
- Raiyan Baten[8]
- Timothy Beers[11]
- Daniel ben-Avraham[12]
- Daniel Berenberg[5]
- *Amanda Bertschinger*[5]
- Eric Bloedorn[13]
- Erik Bollt[12]
- *Joshua Bongard*[5]
- Joshua Bongard[14]
- Lashon Booker[13]
- Luther Branting[13]
- Dirk Brockmann[15]
- *Calum Buchanan*[5]
- J. Mauricio Campuzano[16]
- *Amanda Casari*[17]
- *Zexun Chen*[18]
- Eric Clark[5]
- Famous Clark[8]
- *Aaron Clauset*[19]
- Emily Cody[20]
- Luciano da F. Costa[21]
- Christopher Danforth[5]
- *Q. Tyrell Davis*[5]
- Suma Desu[22]
- David Dewhurst[5]
- *Jana Diesner*[23]
- Peter Dodds[5]
- *Luis Duffaut Espinosa*[5]
- Maggie Evans[5]
- *Alexandre Evsukoff*[24]
- Morgan Frank[25]
- Liang Gao[26]
- Ziyou Gao[26]
- Bernard Gaveau[27]
- *Gourab Ghoshal*[8]
- Daniel Grady[28]
- Elizaveta Guseva[29]
- Kameron Harris[6]
- Paul D.H. Hines[5]
- Mohammed Hoque[8]
- *Abigail Hotaling*[5]
- *Laurent Hébert-Dufresne*[5]
- *Susan Johnson*[30]
- *Sigga Jónasdóttir*[31]
- *Sean Kelty*[8]
- Jamie Kern[32]
- Isabel Kloumann[33]
- Michael Klug[3]
- *Matthew T. Koehler*[13]
- Tal Koren[34]
- Mert Korkali[35]
- *Rebecca Kramer-Bottiglio*[36]
- *Emmanuel Lazega*[37]
- David Lazer[9]
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- *Sune Lehmann*[31]
- Paul Lessard[19]
- Yu-Ru Lin[38]
- Xipei Liu[5]
- *Juniper Lovato*[5]
- Saranzaya Magsarjav[39]
- Narine Manukyan[40]
- Thomas McAndrew[5]
- Katie McLaughlin[17]
- Matthew McMahon[13]
- Karine Megerdoomian[13]
- *John Meluso*[5]
- *Ronaldo Menezes*[41]
- Lewis Mitchell[39]
- *James Moody*[42]
- Satyam Mukherjee[43]
- *Zachary Neal*[11]
- Heidi Jo Newberg[44]
- Charleston Noble[45]
- Miranda Nordhaus[32]
- *Corey O'Hern*[36]
- *Hamid Ossareh*[5]
- *Atoosa Parsa*[5]
- *Yasaman Pedari*[5]
- *Tiago Peixoto*[46]
- Tyson Pond[5]
- Matthew Price[5]
- *Ethan Ratliff-Crain*[5]
- *Rob Razzante*[47]
- Andrew Reagan[5]
- Cristin Rider[48]
- *Puck Rombach*[5]
- *Samuel Rosenblatt*[5]
- Hernán Rozenfeld[49]
- Serguei Saavedra[50]
- Lawrence Schulman[12]
- Louis Shekhtman[51]
- Prajwal Shrestha[5]
- Joseph Skufca[12]
- J. Allyn Smith[52]
- Michael Smith[13]
- Chaoming Song[53]
- Tobin South[39]
- *Guillaume St-Onge*[9]
- *Zachary Steinert-Threlkeld*[54]
- Jennie Stephens[9]
- Jie Sun[12]
- *Andreia Sofia Teixeira*[55]
- Ashely Tenesaca[8]
- Christian Thiemann[43]
- *Brian Tivnan*[13]
- *Milo Trujillo*[5]
- Douglas Tucker[48]
- *Colin Van Oort*[13]
- Jason Veneman[13]
- Mark Wagy[5]
- Dashun Wang[43]
- *Melanie Warrick*[17]
- *Piper Welch*[5]
- *Brooke Foucault Welles*[9]
- Jake Williams[56]
- Olivia Woolley-Meza[57]
- Brian Yanny[48]
- *Jean-Gabriel Young*[5]

[1]Indiana U [2]Cambridge U [3]U of California, Berkeley [4]Université Laval [5]U of Vermont [6]U of Washington [7]U of Michigan [8]U of Rochester [9]Northeastern U [10]U of California, Santa Cruz [11]Michigan State U [12]Clarkson U [13]MITRE Corporation [14]University of Vermont [15]Humboldt U of Berlin, Robert Koch Institute [16]Stevens Institute of Technology, Hoboken NJ [17]Google [18]U of Edinburgh [19]U of Colorado, Boulder [20]Adobe Systems [21]U of So Paulo [22]Apple, Inc. [23]U of Illinois [24]Federal U of Rio de Janeiro [25]MIT Media Lab [26]Beijing Jiaotong U [27]Laboratoire analyse et physique mathématique, Paris, France [28]ID Analytics [29]Gartner, Inc. [30]Case Western Reserve U [31]Technical U of Denmark [32]Rensselaer Polytechnic Institute [33]Facebook [34]Verint Systems [35]Lawrence Livermore National Laboratory [36]Yale U [37]Institut d'Etudes Politiques de Paris [38]U of Pittsburgh [39]U of Adelaide [40]Champlain College [41]U of Exeter [42]Duke U [43]Northwestern U [44]Rensselear Polytechnic Institute

[45]Harvard U [46]Central European U [47]College of Wooster [48]Fermi National Accelerator Laboratory [49]Physical Review [50]Massachusetts Institute of Technology [51]Bar-Ilan U [52]U of Wyoming [53]U of Miami, Coral Gables [54]U of California, Los Angeles [55]U of Lisbon [56]Drexel U [57]ETH Zurich

COURSES TAUGHT

The University of Vermont, Burlington, Vermont

- F '25: Applied Linear Algebra (MATH 2522)
- F '25: Advanced Engineering Mathematics (MATH 3201)
- S '25: Applied Linear Algebra (MATH 2522)
- S '24: Advanced Engineering Mathematics (MATH 3201)
- S '24: Data Science II (STAT/CS 6870)
- F '23: Data Science I - Pinnacle (STAT/CS 3870)
- F '23: Data Science I - Experience (STAT/CS 5870) (co-localized with 3870)
- S '23: Capstone Experience (STAT 281)
- S '23: Data Science II (STAT/CS 387)
- F '22: Data Science I (STAT/CS 287)
- S '22: Capstone Experience (STAT 281)
- S '22: Data Science II (STAT/CS 387)
- F '21: Data Science I (STAT/CS 287, CSYS 395, Online)
- (*On sabbatical for Fall 2020 and Spring 2021*)
- S '20: Data Science I (STAT/CS 287)
- S '20: Data Science II (STAT/CS 387)
- F '19: Data Science I (STAT/CS 287)
- S '19: Data Science II (STAT/CS 387)
- S '19: Advanced Engineering Mathematics (MATH 271)
- F '18: Data Science I (STAT/CS 287)
- S '18: Data Science II (STAT/CS 387)
- F '17: Data Science I (STAT/CS 287)
- S '17: Data Science II (STAT 387)
- S '17: Advanced Engineering Mathematics (MATH 271)
- F '16: Data Science I (STAT/CS 287)
- S '16: Data Science II (STAT 387)
- F '15: Data Science I (STAT/CS 287)
- S '15: Advanced Engineering Mathematics (MATH 271)
- F '14: Data Science II (MATH 295)
- S '14: Intro to Data Science and Visualization (MATH/CS 195/295)
- F '13: Calculus I (MATH 21)

(*Developed Data Science I and II courses from scratch.*)

POSTDOCTORAL SCHOLARS AND RESEARCH SCIENTISTS SUPERVISED

The University of Vermont, Burlington, Vermont

- John Meluso, Postdoctoral scholar, Google OCEAN (Prof. L. Hébert-Dufresne joint supervisor), 2020–2022,
- Himadri Basu, Postdoctoral scholar, NASA EPSCoR (Profs. H. Ossareh and M. Almassalkhi joint supervisors), 2020–2021.

STUDENTS ADVISED AND CO-ADVISED

The University of Vermont, Burlington, Vermont

- Amanda Bertschinger, PhD Computer Science (Prof. J. Bongard co-advisor), 2023–present,
- Milo Trujillo, PhD Complex Systems and Data Science (Prof. L. Hébert-Dufresne co-advisor), 2020–2024,
- Ryan Grindle, MS Computer Science, MS Mathematics (Prof. J. Bongard co-advisor), 2017–2021,
- Tyson Pond, MS Mathematics, 2018–2020,
- Andrew Becker, MS Statistics (2018), 2017–2019,
- Abigail Hotaling, MS Statistics, 2017–2019,
- Olivia Hurd, undergraduate, 2018–2019,
- Daniel Berenberg, Accelerated Masters (AMP) Computer Science, 2017–2018,
- Brian Colombini, undergraduate, 2016–2018,
- Xipei Liu, MS Complex Systems and Data Science, 2016–2017,
- Thomas McAndrew, PhD Mathematics (Prof. C. Danforth co-advisor), 2014–2016.

THESIS AND DISSERTATION COMMITTEES

The University of Vermont, Burlington, Vermont

- 2024–present: Computer Science PhD Committee, Piper Welch,
- 2024–present: Electrical and Biomedical Engineering PhD Committee, Yasaman Pedari,
- 2023–2024: Computer Science PhD Committee, Atoosa Parsa,
- 2016–2021: Rubenstein School of Environmental and Natural Resources PhD Committee (External Faculty Chair), Lindsay Barbieri,
- 2020: EBE MS Committee ((External Faculty Chair), Aidan Laracy,
- 2018–2020: Math & Stats MS Committee, Tyson Pond,
- 2019: Math BA / Data Science BS Honors Thesis Committee, Blake Williams,
- 2018–2019: Math & Stats BS Honors Thesis Committee (Faculty advisor), Olivia Hurd,
- 2017–2018: Math & Stats MS Committee, Ryan Grindle,
- 2017–2018: Computer Science BS Honors Thesis Committee (Faculty advisor), Brian Colombini,
- 2017: Math & Stats MS Committee, Christopher Fusting,
- 2017: Computer Science Masters Project Committee, Prajwal Shrestha,
- 2016: Math & Stats PhD Committee, Thomas C. McAndrew,
- 2015: Computer Science BS Honors Thesis Committee, Mariko Totten,
- 2015: Math & Stats BS Honors Thesis Committee, Nicholas Strayer,

Clarkson University, Potsdam, New York

- 2018: Dept. Mathematics, PhD Examining Committee of B.M. Shandeepa Dilhani Wickramasinghe (Thesis: *Data and Complex Systems: from Modeling Social Spatial Complex Networks to Comparison-based Ranking and Sensor Localization*).

Technical University of Denmark (DTU), Copenhagen, Denmark

- 2015: DTU Compute (Dept. Applied Mathematics and Computer Science), PhD Examining Committee of Vedran Sekara (Thesis: *Dynamics of High-Resolution Networks*).

SERVICE

Editorial Board Member

- Nature Scientific Reports, Physics (2012–2023)

Reviewer

- Nature
- Proceedings of the National Academy of Sciences of the United States of America (PNAS)
- Nature Communications
- Nature Computational Science
- Science Advances
- Nature Machine Intelligence
- Physical Review Letters
- Physical Review E
- Physical Review X
- PNAS Nexus
- National Science Foundation
- Wellcome Trust
- Journal of the Royal Society Interface
- PLOS ONE
- Nature Scientific Reports
- SIAM Journal on Applied Mathematics (SIAP)
- New Journal of Physics
- Journal of Complex Networks
- Europhysics Letters (EPL)
- European Physical Journal B (EPJB)
- Journal of Statistical Physics
- IET Systems Biology
- Entropy
- Journal of Supercomputing
- Physics Letters A
- Internet Mathematics
- OTKA (Hungarian Scientific Research Fund)
- Chemical Engineering Science
- International Journal of Bifurcation and Chaos
- Networks and Spatial Economics
- ACM Transactions on Modeling and Computer Simulation (TOMACS)
- ACM Transactions on Knowledge Discovery from Data (TKDD)
- Journal of Selected Topics in Signal Processing
- Computational Intelligence
- Physica A
- Vermont Genetics Network

- Grant review panel member, National Science Foundation (2012, 2015, 2018, 2022)
- External evaluator for tenure review, School of Computing and Information, University of Pittsburgh (2025)

University of Vermont

- Interim Graduate Coordinator, Complex Systems and Data Science (2019–2020)
- Faculty Senator, Mathematics & Statistics (2023–2024)

University of Vermont Committee Member

- Math & Stats Graduate (2013–2020, 2025–)
- Math & Stats Undergraduate Curriculum (2014–2015, 2016–2017, 2021–present)
- Math & Stats Online & Hybrid Course (2014–2015, 2017–2020)
- Complex Systems & Data Science Curriculum (2014–2020, 2021–2024)
- Data Science Undergraduate Curriculum (2014–2020, 2021–2024)
- Ad Hoc Data Management Committee (2017)

Program Committee Member

- NetSci-X 2026 Network Science Conference (NetSci-x2026)
- 14th International Conference on Complex Networks and their Applications (Complex Networks 2025)
- NetSci-X 2024 Network Science Conference (NetSci-x2024)
- 12th International Conference on Complex Networks and their Applications (Complex Networks 2023)
- 9th International Conference on Computational Social Science (IC2S2 2023)
- NetSci 2023 Network Science Conference (NetSci 2023)
- NetSci 2022 Network Science Conference (NetSci 2022)
- NetSci 2020 Network Science Conference (NetSci 2020)
- 10th International Conference on Complex Systems (ICCS2020)
- 6th International Conference on Computational Social Science (IC2S2 2020)
- Third Northeast Regional Conference on Complex Systems (NERCCS2020)
- NetSci-X 2020 Network Science Conference (NetSci-x2020)
- SIAM Workshop on Network Science (NS19)
- Second Northeast Regional Conference on Complex Systems (NERCCS2019)
- 10th International Conference on Complex Networks (CompleNet'19)
- 7th International Workshop on Complex Networks and their Applications (Complex Networks 2018)
- International Conference on Complex Systems 2018 (ICCS2018)

- NetSci-X 2018 Network Science Conference (NetSci-x2018)
- The Web Conference (formerly WWW) 2018, Social Network Analysis and Graph algorithms for the Web
- SIAM Workshop on Network Science (NS17)
- 2017 International School and Conference on Network Science (NetSci 2017)
- 6th International Workshop on Complex Networks and their Applications (Complex Networks 2017)
- International Workshop on Collaborative Internet Computing for Disaster Management (CIC-DM 2016)
- 5th International Workshop on Complex Networks and their Applications (Complex Networks 2016)
- SIAM Workshop on Network Science (NS16)
- 2016 International School and Conference on Network Science (NetSci 2016)
- 9th ACM International Conference on Web Search and Data Mining (WSDM 2016)
- Workshop on Complex Networks and their Applications, part of 11th International Conference on Signal Image Technology & Internet Based Systems (SITIS 2015)
- NetSci-X 2015 Network Science Conference (NetSci-x2015)
- 6th Workshop on Complex Networks (CompleNet 2015)
- SIAM Workshop on Network Science (NS14)
- 21st International World Wide Web Conference (WWW 2012)
- 5th International AAAI Conference on Weblogs and Social Media (ICWSM 2011)
- FindingNEMO 2011 workshop (part of ECML-PKDD 2011)

Organizer

- 2023 Dynamics Days US, Organizer.
- 2019 International School and Conference on Network Science (NetSci 2019), Program Committee Chair.
- 2014 International School and Conference on Network Science (NetSci 2014), Chair of Social Media.
- 2014 KDD Workshop on Learning about Emergencies from Social Information (KDD-LESI 2014), Co-Organizer with Yu-Ru Lin.

Industry

- Academic Advisor, MassMutual Data Engineering Development Program (2019)

SOCIETY MEMBERSHIPS

Society of Industrial and Applied Mathematicians (SIAM)
American Physical Society (APS)
Society of Physics Students (SPS), formerly

HONORS AND AWARDS

- Received instutitional endorsements from the following organizations for our *Network Science* paper on Recommendations for sharing network data and materials, 2025:

  Center for Public Health Systems Science @ WUSTL, Duke Network Analysis Center @ Duke University, Globalization and World Cities research network, Inter-university Consortium for Political and Social Research (ICPSR), International Network for Social Network Analysis (INSNA), Social Development Journal, Social Science Research Journal, Sociological Science Journal, Young Researchers of the Complex Systems Society, Zenodo

- Received a SIPS Commendation from The Society for the Improvement of Psychological Science for our *Network Science* paper on Recommendations for sharing network data and materials, 2025
- Received the FOSS Impact paper award for our MSR'21 paper on acknowledging contributions in Open Source, 2021
- International Visitor Award, The University of Sydney Mathematical Research Institute (SMRI), 2021
- Received a Best Paper honorable mention award for our CSCW'18 paper on crowdsourcing causal networks, 2018

- Outstanding Junior Faculty Performance Award, College of Engineering and Mathematical Sciences, University of Vermont, 2017
- Kavli Fellow, National Academy of Sciences, 2016
- Excellence in Teaching Award, UVM Graduate Student Senate, 2015–2016
- National Science Foundation Graduate Research Fellowship, 2006
- Physics Department Senior Award, Clarkson University, 2004
- Presidential Scholar, Clarkson University, 2001-2004
- Elected to Phi Kappa Phi (all-discipline honor society), 2002
- Senior Scholarship Award, Liberal Arts and Sciences — AS, SUNY Cobleskill, 2001
- Elected to Phi Theta Kappa (international two-year college honor society), 2000

REFERENCES

Dr. Albert-László Barabási — Research Supervisor
Robert Gray Dodge Professor of Network Science and a Distinguished University Professor
Director, Center for Complex Network Research
Department of Physics
Northeastern University, Boston, MA, USA
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Dr. Daniel ben-Avraham — Academic/Research Supervisor
Professor, APS Fellow
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