

Joseph Bak-Coleman

PERSONAL DETAILS

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Website www.joebakcoleman.com

PROFESSIONAL APPOINTMENTS

Research Scientist <i>University of Washington</i> Department of Biology	May 2025 - Present
Consulting Expert <i>United Nations Development Programme</i> Human Development Reports Office	Jul 2024 - May 2025
Associate Research Scientist <i>Columbia University</i> Craig Newmark Center for Journalism Ethics and Security	July 2022 - June 2024
Postdoctoral Scholar <i>University of Washington</i> Center for an Informed Public	Sept. 2020 - July 2022
Adjunct Instructor <i>Owens Community College</i> Biology Department	2014

AFFILIATIONS

External Applied Complexity Fellow <i>Santa Fe Institute</i> Applied Complexity	Jan 2025 - Present
Collaboration Partner <i>University of Konstanz</i> Centre for the Advanced Study of Collective Behaviour*	Aug. 2024 - Present
External Affiliate <i>Harvard University</i> Berkman Klein Center	Apr. 2023 - Present
Affiliate <i>UNC Chapel Hill</i> Center for Information, Technology, and Public Life	Aug. 2022 - Present
RSM Assembly Fellow <i>Harvard University</i> Berkman Klein Center	Sept. 2022 - Apr. 2023
UW Data Science Postdoctoral Fellow <i>University of Washington</i> eScience Institute	Sept. 2020 - July 2022

EDUCATION

Ph.D. Ecology and Evolutionary Biology <i>Princeton University</i>	2014-2020
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Supervisors: Professor Iain Couzin, Professor Dan Rubenstein
Dissertation Title: Collective behavior in a connected world

M.A. Ecology and Evolutionary Biology

2016

Princeton University

Supervisors: Professor Iain Couzin, Professor Dan Rubenstein

M.S. Biology

2014

Bowling Green State University

Supervisor: Professor Sheryl Coombs

Thesis Title: The role of the lateral line during rheotaxis

B.S. Neuroscience

2011

Bowling Green State University

PUBLICATIONS

- [24] Joseph Bak-Coleman. “Randomized controlled trials cannot identify social media’s causal effects”. In: *Nature Reviews Psychology* (2025).
- [23] Carl T Bergstrom and Joe Bak-Coleman. “AI, peer review and the human activity of science”. In: *Nature* (2025).
- [22] Joseph Bak-Coleman and Berna Devezer. “Claims about scientific rigour require rigour”. In: *Nature Human Behaviour* 8.10 (2024), pp. 1890–1891.
- [21] Kimberly C Doell et al. “The International Climate Psychology Collaboration: Climate change-related data collected from 63 countries”. In: *Scientific data* 11.1 (2024), p. 1066.
- [20] Anastasia Kozyreva et al. “Toolbox of Interventions Against Online Misinformation and Manipulation”. In: *Nature Human Behavior* (2024).
- [19] M. Vlasceanu[†] et al. “Addressing climate change with behavioral science: A global intervention tournament in 63 countries”. In: *Science Advances* (2024).
- [18] Claudia Winklmayr et al. “Collective decision strategies in the presence of spatio-temporal correlations”. In: *Collective Intelligence* 2 (1 Feb. 2023).
- [17] J. Bak-Coleman et al. “Collective wisdom in polarized groups.” In: *Collective Intelligence* (2022).
- [16] J. Bak-Coleman et al. “Combining interventions to reduce the spread of viral misinformation”. In: *Nature Human Behavior* (2022).
- [15] Jolle Wolter Jolles et al. “Both prey and predator features predict the individual predation risk and survival of schooling prey”. In: *eLife* 11 (July 2022).
- [14] J. Bak-Coleman et al. “Stewardship of Global Collective Behavior”. In: *PNAS* (2021).
- [13] Joseph B Bak-Coleman and Carl T Bergstrom. “Reply to Cheong and Jones: The role of science in responding to collective behavioral threats”. In: *Proceedings of the National Academy of Sciences* 118.42 (2021), e2114477118.
- [12] S. Coombs, J. Bak-Coleman, and J. Montgomery. “Rheotaxis revisited: Multi-behavioral and multisensory frameworks for understanding how fish orient to flow.” In: *The Journal of Experimental Biology* (2020).
- [11] L. Liang et al. “Vortex phase matching as a strategy for schooling in robots and in fish”. In: *Nature Communications* (2020).
- [10] C. Winklmayr, A. Kao, and J. Bak-Coleman. “The wisdom of stalemates: consensus and clustering as filtering mechanisms for improving collective accuracy”. In: *Proceedings B* (2020).
- [9] Carl T Bergstrom and Joseph B Bak-Coleman. *Information gerrymandering in social networks skews collective decision-making*. 2019.
- [8] M. Sosna et al. “Structural encoding of perceived risk in fish schools”. In: *PNAS* (2019).

- [7] A. Kao et al. “Counteracting estimation bias and social influence to improve the wisdom of crowds.” In: *Journal of the Royal Society, Interface* 15 (2018).
- [6] J. Bak-Coleman, D. Smith, and S. Coombs. “Going with, then against the flow: Evidence against the optomotor hypothesis of fish rheotaxis”. In: *Animal Behaviour* 107 (2015).
- [5] A. Chicoli et al. “Rheotaxis performance increases with group size in a coupled phase model with sensory noise: The effects of noise and group size on rheotaxis”. In: *European Physical Journal: Special Topics* 224 (2015).
- [4] M. Kulpa, J. Bak-Coleman, and S. Coombs. “The lateral line is necessary for blind cavefish rheotaxis in non-uniform flow”. In: *The Journal of Experimental Biology* 218 (2015).
- [3] J. Bak-Coleman and S. Coombs. “Sedentary behavior as a factor in determining lateral line contributions to rheotaxis”. In: *The Journal of Experimental Biology* 217 (2014).
- [2] A. Chicoli et al. “The effects of flow on schooling *Devario aequipinnatus*: school structure, startle response and information transmission”. In: *Journal of Fish Biology* (2014).
- [1] J. Bak-Coleman et al. “The spatiotemporal dynamics of rheotactic behavior depends on flow speed and available sensory information.” In: *The Journal of Experimental Biology* 216 (2013).

POLICY DOCUMENTS

- [1] UNDP (United Nations Development Programme). “Human Development Report 2025”. In: *UNDP (United Nations Development Programme)* (2025). URL: <https://report.hdr.undp.org>.

AWARDS AND FUNDING

Templeton World Charities Foundation (2025)	\$256k
Behavioral Science and Policy Association Paper of the Year (2024)	
Santa Fe Institute Dimensionality Working Group	\$17k
Berkman Klein Center RSM Fellowship	\$18K
CIP Innovation Fund Rapid Response Workshop	\$2.5K
CIP Innovation Fund Experimental approaches to studying misinformation online	\$10K
CIP Postdoctoral Fellowship	\$170K
UW eScience Institute Data Science Postdoctoral fellowship	\$2K
BGSU CURS Summer Research Fellowship	\$2.5K
BGSU SETGO Summer Research Fellowship	\$3.5K
Choose Ohio First Bioinformatics Scholarship (3. years)	\$12K
Flow Sensing in Air and Water Travel Award	\$2K

BOOKS

Title: *Of Fish and Fascists* (Forthcoming: 2026)

Publisher(s): Princeton University Press (US), Oneworld Publishing (UK), Corpus (Russia), Ullstein Verlag (Germany), Sangsangsquare (Korea)

Agent: Brockman Inc.

^{0†}Indicates joint-first authorship.

POPULAR PRESS AND MISC. WRITING

TikTok's API Guidelines Are a Minefield for Researchers, *Tech Policy Press*
Twitter Is Not Rocket Science—It's Harder, *Scientific American*
On Elon Musk's Vision of Twitter as a Hive Mind, *Tech Policy Press*
Promoting sustainability and equity in global social systems , *UNDP Report*, 2021
A High-Speed Scientific Hive Mind Emerged, *Scientific American*, 2021
Meta's 'average user' data obscures harm to thousands... *The Conversation*, 2021
Journalists are exposing Facebook's problems. We'll need academics... *Tech Policy Press*, 2021
The Long Fuse: Misinformation and the 2020 Election *Election Integrity Partnership*, 2021
The ignorance of the crowd. *Scientific American*, Nov. 2017
Why did Donald Trump get elected? Ask the bees. *Wired*, Dec. 2016

SEMINARS AND CONFERENCE PARTICIPATION

CITP Seminar (Princeton University)	*2025
Guest Seminar (Stockholm Resilience Center)	*2025
Closing Keynote at CoCCoN workshop (Humboldt University)	*2025
BKC Circle Launch Panel (Harvard University)	*2025
Special Seminar (Center for the Advanced Study of Collective Behavior)	*2025
Wikidata Day 2024 Panel (Wikimedia NYC)	*2024
Collective Adaptation in a Turbulent World (Santa Fe Institute)	*2023
Diverse Intelligences Summit (Saint Andrews)	*2023
Our shared digital future (UNDP)	*2023
Optimizing for What? (Columbia University)	*2023
Future of Mathematical Social Science Workshop, (UPenn)	*2023
Vlasceanu Lab Meeting, (NYU)	*2022
Collective Intelligence Journal Launch (Sage Journals)	*2022
Keynote Speaker, Rebooting Social Media Kickoff (Berkman Klein Center, Harvard)	*2021
Machine Learning Ethics, Transparency and Accountability Seminar Speaker (Twitter)	*2021
Plenary, DARPA ISAT SLICE Workshop (Stanford Internet Observatory)	*2021
Whole U Seminar Series (University of Washington)	*2021
Online Behavioral Interventions Workshop (Max Planck Institute for Human Development)	*2021
Collective Intelligence Workshop (Santa Fe Institute)	*2021
Humphrey Fellowship Seminar (University of Washington)	*2021
IC2S2 Satellite Panel (Konstanz)	*2021
iSchool Seminar Series (University of Washington)	*2021
IC2S2 (Amsterdam)	2019
Invited Lecture (Lenoir-Rhyne University)	*2019
Van Bavel Lab Meeting (New York University)	*2019
Collective Behavior, Social Media and Systemic Risk (Princeton University)	*2018
Yale Institute for Network Science (Yale University)	*2018
Distributed, Collective Computation in Biological and Artificial Systems (Janelia Farm)	2018
Integrated Behavioral Research Group (Princeton University)	2018
Metropolitan Society of Natural Historians (AMNH)	*2016
Integrated Behavioral Research Group (Princeton University)	2016
Animal Behavior Society (Bloomington, IN)	2012
International Congress of Neuroethology (College Park, MD)	2012
Ecological and Evolutionary Ecology of Fishes (Windsor, ON)	2012
J.P. Scott Seminar (BGSU)	2011
Flow Sensing in Air and Water (Bonn, Germany)	*2011
Undergraduate Honors Society Seminar (BGSU)	*2011
SETGO Symposium (BGSU)	2011

SELECTED COVERAGE AND IMPACT

Science's reform movement should have seen Trump's... *Science*
 'We are embarrassed': Scientific rigor proponents retract paper on benefits of scientific rigor. *Science*
 This Study Was Hailed as a Win for Science Reform... *The Chronicle of Higher Ed*
 Does social media polarize voters? Unprecedented experiments ... *Science*
 Beyond the Doom and Gloom, Here's how to Stimulate Climate Change Action. *Scientific American*
 The only thing Elon Musk understands about Twitter is how to kill it *Insider*
 2021-22 Human Development Report. *United Nations Development Program*
 Big Tech must step up now to fight misinformation in the midterms. *The Hill*
 Journals must adapt to better serve misinformation research. *Nature*
 Detecting Bullshit. *Science*
 As Climate Change Fries the World, Social Media Is Frying Our Brains. *Bloomberg*
 It's Time to Treat Social Media Like the Climate Crisis, Researchers Argue. *Gizmodo*
 Why some biologists and ecologists think social media is a risk to humanity. *Vox*
 The coronavirus pandemic drove life online. It may never return., *NBC News*
 Social-Media Companies Took an Aggressive Stance During the Election. Will It Continue?, *WSJ*
 Misinformation by a thousand cuts: Varied rigged election claims circulate, *NBC News*
 Project Veritas Video Was a 'Coordinated Disinformation Campaign,' Researchers Say. *NYT*

TEACHING

Faculty	Santa Fe Institute
<i>The Complexity Global School for Emerging Political Economies</i>	
2025	
Guest Lecturer	NYU
<i>Graduate Regression</i>	
2023-2024	
Guest Lecturer	University of Pennsylvania
<i>Policy Lab: Women in Conflict & Security</i>	
2023	
Guest Lecturer	University of Washington
<i>Calling Bullshit</i>	
2020	
Guest Lecturer	Princeton University
<i>Comparative Physiology</i>	
2017-2018	
Assistant in Instruction	Princeton University
<i>Comparative Physiology</i>	
<i>Conservation Biology</i>	
<i>Life on Earth: Chaos and Clockwork of Biological Design</i>	
2014-2018	
Adjunct Instructor	Owens Community College
<i>Introductory Biology, Taxonomy</i>	
2014	

SERVICE

Member, **Coalition for Independent Tech Research**, 2022-
 Annual Report Consultant, **United Nations Development Programme**, 2022
 Lab meeting and Seminar Series Organizer, **Center for an Informed Public**, 2020-2022

Hidden Curriculum Happy Hour Organizer, **Center for an Informed Public**, 2021-2022
Misinfo rapid-response workshop organizer, **Center for an Informed Public**, 2021-2022
Election Integrity Partnership Analyst Team Lead, **Election Integrity Partnership**, 2020
EEB Scholars Host and Speaker, **Princeton**, 2018-2019
DEI Recruiting, **ABRCMS**, 2018
CBSMSR Conference Organizer, **Princeton**, 2017
Graduate Representative, **Princeton**, 2016-2018
DEI Recruiting, **ABRCMS**, 2017
Prospective Student Week Organizer, **Princeton**, 2014-2019
Behavior Seminar Series Organizer, **Princeton**, 2015-2016
Graduate Retreat Organizer, **Princeton**, 2016-2017
President of Biology Graduate Student Association, **BGSU**, 2011-2013

PEER REVIEW

Animal Behavior
Biology Open
Journal of Experimental Biology
Nature
Nature Communications
Nature Communications Psychology
Nature Human Behavior
Nature Reviews Psychology
Perspectives on Psychological Science
Physics Review Letters
Patterns
PLoS Computational Biology
PLoS ONE
PNAS
Proceedings B
Science
Science Advances