

# Joseph Bak-Coleman

## PERSONAL DETAILS

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## PROFESSIONAL APPOINTMENTS

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<b>Consulting Expert</b> <i>United Nations Development Programme</i> Human Development Reports Office	Jul 2024 - Present
<b>Collaboration Partner</b> <i>University of Konstanz</i> Centre for the Advanced Study of Collective Behaviour*	Aug. 2024 - Present
<b>External Affiliate</b> <i>Harvard University</i> Berkman Klein Center	Apr. 2023 - Present
<b>Affiliate</b> <i>UNC Chapel Hill</i> Center for Information, Technology, and Public Life	Aug. 2022 - Present
<b>Associate Research Scientist</b> <i>Columbia University</i> Craig Newmark Center for Journalism Ethics and Security	July 2022 - June 2024
<b>RSM Assembly Fellow</b> <i>Harvard University</i> Berkman Klein Center	Sept. 2022 - Apr. 2023
<b>Postdoctoral Scholar</b> <i>University of Washington</i> Center for an Informed Public	Sept. 2020 - July 2022
<b>UW Data Science Postdoctoral Fellow</b> <i>University of Washington</i> eScience Institute	Sept. 2020 - July 2022
<b>Adjunct Instructor</b> <i>Owens Community College</i> Biology Department	2014

## EDUCATION

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<b>Ph.D. Ecology and Evolutionary Biology</b> <i>Princeton University</i> Supervisors: Professor Iain Couzin, Professor Dan Rubenstein Dissertation Title: Collective behavior in a connected world	2014-2020
<b>M.A. Ecology and Evolutionary Biology</b> <i>Princeton University</i> Supervisors: Professor Iain Couzin, Professor Dan Rubenstein	2016
<b>M.S. Biology</b> <i>Bowling Green State University</i>	2014

## PEER-REVIEWED PUBLICATIONS

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- [20] Joseph B Bak-Coleman and Berna Devezer. “Causal claims about scientific rigor require rigorous causal evidence.” In: *Nature Human Behavior* (2024).
- [19] Todorova B. Vlasceanu M. Doell K.C. and Others. “The International Climate Psychology Collaboration: Climate change-related data collected from 63 countries.” In: (2024).
- [18] Anastasia Kozyreva et al. “Toolbox of Interventions Against Online Misinformation and Manipulation”. In: *Nature Human Behavior* (2024).
- [17] M. Vlasceanu<sup>†</sup> et al. “Addressing climate change with behavioral science: A global intervention tournament in 63 countries”. In: *Science Advances* (2024).
- [16] Claudia Winklmayr et al. “Collective decision strategies in the presence of spatio-temporal correlations”. In: *Collective Intelligence* 2 (1 Feb. 2023).
- [15] J. Bak-Coleman et al. “Collective wisdom in polarized groups.” In: *Collective Intelligence* (2022).
- [14] J. Bak-Coleman et al. “Combining interventions to reduce the spread of viral misinformation”. In: *Nature Human Behavior* (2022).
- [13] 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).
- [12] J. Bak-Coleman et al. “Stewardship of Global Collective Behavior”. In: *PNAS* (2021).
- [11] 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).
- [10] L. Liang et al. “Vortex phase matching as a strategy for schooling in robots and in fish”. In: *Nature Communications* (2020).
- [9] 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).
- [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).

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<sup>†</sup>Indicates joint-first authorship.

## INVITED ARTICLES

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- [3] J Bak-Coleman et al. “Create an IPCC-like body to harness benefits and combat harms of digital tech”. In: *Nature* 617.7961 (2023), pp. 462–464.
- [2] Kristian Lum, Naim Kabir, and Joe Bak-Coleman. “How to mislead with statistics”. In: *Significance* 18.4 (2021), pp. 30–32.
- [1] Carl T Bergstrom and J B Bak-Coleman. “Information gerrymandering in social networks skews collective decision-making”. In: *Nature* (2019).

## MANUSCRIPTS IN REVIEW OR REVISION

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- [4] J. Bak-Coleman. “The Risk of Adopting Simple Heuristics for Judging Rigor and Quality of Science”. In: *Nature Human Behavior* (2024).
- [3] J B Bak-Coleman. *Limiting Factors in the Effectiveness of Crowd-Sourced Labeling for Combating Misinformation*. 2023. DOI: 10.31235/osf.io/ahm27. URL: [osf.io/preprints/socarxiv/ahm27](https://osf.io/preprints/socarxiv/ahm27).
- [2] K. Duskin, J. West, and J. Bak-Coleman. *Suspensions of prominent accounts minimally impact platform engagement*. 2023.
- [1] J. Bak-Coleman et al. “Replication does not reliably measure scientific productivity”. In: (Review).

## AWARDS AND FUNDING

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**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

## POPULAR PRESS AND MISC. WRITING

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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

## BOOKS

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**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.

## SEMINARS AND CONFERENCE PARTICIPATION

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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
J.P. Scott Seminar (BGSU)	2010
	* Invited

## SELECTED COVERAGE AND IMPACT

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‘We are embarrassed’: Scientific rigor proponents retract paper on benefits of scientific rigor. *Science*  
This Study Was Hailed as a Win for Science Reform. Now It’s Being Retracted. *The Chronicle of Higher Ed*  
Does social media polarize voters? Unprecedented experiments on Facebook users reveal surprises. *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

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<b>Guest Lecturer</b> <i>Graduate Regression</i> 2023-2024	NYU
<b>Guest Lecturer</b> <i>Policy Lab: Women in Conflict &amp; Security</i> 2023	University of Pennsylvania
<b>Guest Lecturer</b> <i>Calling Bullshit</i> 2020	University of Washington
<b>Guest Lecturer</b> <i>Comparative Physiology</i> 2017-2018	Princeton University
<b>Assistant in Instruction</b> <i>Comparative Physiology</i> <i>Conservation Biology</i> <i>Life on Earth: Chaos and Clockwork of Biological Design</i> 2014-2018	Princeton University
<b>Adjunct Instructor</b> <i>Introductory Biology, Taxonomy</i> 2014	Owens Community College

## SERVICE

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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

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Animal Behavior

Biology Open

Journal of Experimental Biology

Nature

Nature Communications

Nature Communications Psychology

Nature Human Behavior

Perspectives on Psychological Science

Physics Review Letters

Patterns

PLoS Computational Biology

PLoS ONE

PNAS

Proceedings B

Science

Science Advances