

Zackary Okun Dunivin

University of California, Davis
Departments of Computer Science and Communication

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Education

Indiana University

Ph.D. Complex Systems (Informatics), 2024

Ph.D. Sociology, 2024

M.A. Sociology, 2020

Reed College

B.A. Biology, 2016

Concentration in Philosophy and Computation

Research Interests

AI in organizations & techno-bureaucracy

organizational topology & decision-making

cultural sociology & cultural evolution

complex networks & systems

text mining & natural language processing

BA Thesis

“Quantifying the spatiotemporal patterning of *atoh7* expression in the developing zebrafish retina”

Dissertation

“Text, culture, time: Bringing complex systems to bear on cultural sociology through computational mixed methods”

Affiliations

University of California, Davis

Post-doctoral Scholar, 2024–present

Departments of Computer Science & Communication

Mimbres School

Center for Humanistic Exploration of Complex Problems

Teaching Fellow, 2021–2023, Mimbres Valley, NM

Bloomington Cooperative Living

70 member affordable housing collective

Board President, 2019–2022, Bloomington, IN

Board Member, 2017–2019

Select
Publications

Dunivin, Z.O., Kaminski, P. 2024. "Path dependence, stigmergy, and memetic reification in the formation of the 27 Club myth." PNAS. *Accepted*.

Dunivin, Z.O. 2024. "Scalable qualitative coding with LLMs: Chain-of-thought reasoning matches human performance in some hermeneutic tasks." Proceedings of the 2025 Future of Information and Communication Conference. *Accepted*.

Dunivin, Z.O., Smaldino, P.E. 2024. "Dynamics of covert signaling: Modeling the emergence and extinction of identity signals." Psychological Review. *Accepted*.

Shattuck, A., Werner, M., Mempel, F., **Dunivin, Z.**, Galt, R. 2023. "Global Pesticide Use and Trade Database (GloPUT): Estimates for 147 countries show pesticide use trends in low-income countries substantially underestimated." Global Environmental Change.

Dunivin, Z.O., Yan, H.Y., Ince, J., Rojas, F. 2022. "Black Lives Matter protests shift public discourse." PNAS.

van der Does, T., Galesic, M., **Dunivin, Z.O.**, Smaldino, P.E. 2022. "Strategic identity signaling in heterogeneous networks." PNAS.

Dunivin, Z., Zadunayski, L., Baskota, U., Siek, K., Mankoff, J. 2020. "Gender, soft skills, and patient experience in online physician Reviews: A large-scale text analysis." Journal of Medical Internet Research.

Publications
In Progress

Sen, A., **Dunivin, Z.O.**, Bushouse, B., Atkisson, C. "High-information managers are more likely to rely on informal criteria in decision-making." *In progress*.

Berndt, C., Mempel, F., Werner, M., Shattuck, A., **Dunivin, Z.O.**, Galt, R. "The generics revolution and the new economic geography of the global pesticide industry." *Under review*.

Dunivin, Z.O., Ince, J., Rojas, F. "Leading the way: How vanguard cities catalyze contagious mobilization in the Black Lives Matter Movement." *In progress*.

Dunivin, Z.O. "LLMs have sociocultural mental models: GPT-4 shows gendered interpretations of emotional expression." *In progress*.

Dunivin, Z.O., Lanigan, A. "White genocide, ethnocrisis, and far-right identity politics: Constructing white nationalist identity through Twitter discourse." *Under review*.

Dunivin, Z.O. "A lexical approach to locating symbolic boundaries around cultural identities on social media." *Under review*.

Awards and Fellowships	Luddy Graduate Researcher of the Year 2022, Informatics Department, Indiana University
	Robinson Social Action Award 2021, Sociology Department, Indiana University
	Luddy Outstanding Teaching Award 2021, Informatics Department, Indiana University
	Reassessing Threat Assessment Graduate Fellowship 2018, Tobin Project
	Research Trainee Fellowship in Complex Systems and a Second Discipline 2017–2019, NSF
Conference Presentations	Indiana Rural Development Conference 2022, French Lick, IN “Housing cooperatives as a remedy to urban decay in towns and cities.”
	American Sociological Association Annual Meeting 2020, Online Refereed Roundtable on Methods and Culture “A semi-automated method for extracting group-specific lexicons from unlabeled text corpora.”
	Santa Fe Institute Graduate Workshop on Computational Social Science 25th Anniversary Conference 2019, Santa Fe, NM “Legal Code is a Complex System.”
	Conference on Complex Systems 2015, Tempe, AZ Evolution of Technology Satellite Session “Trait Evolution in Multi-Parental Technology Innovation Networks.”
	Graduate Workshop in Computational Social Science and Complexity Methods and Analysis 2018, Santa Fe Institute
Competitive Workshops	Reassessing Threat Assessment 2018, Tobin Project

Teaching **Mimbres School**

Instructor, Introduction to Cybernetics, 2023

Santa Fe Institute

Teaching Assistant, Humanities Analytics, 2021–22

Indiana University

Teaching Assistant, Complex Systems Seminar I, 2023

Teaching Assistant, Data Fluency, 2021–22

Teaching Assistant, Introduction to Virtual Reality, 2021

Co-instructor, Science as Process (Introduction to Informatics I), 2020–21

Teaching Assistant, Artificial Life in Virtual Reality, 2020

Co-instructor, Information Infrastructure II, 2019

Reed College

Teaching Assistant, Computer Science Fundamentals II, 2016

Teaching Assistant, Genes, Genetics & Genomes, 2016

Teaching Assistant, Computational Biology, 2015

Teaching Assistant, Computer Science Fundamentals I, 2015

Service

Collective Futures Land Project

2023–present, San Francisco, CA

Founding member of an affordable housing non-profit specializing in prison recovery. Transitioning from rentership to ownership.

DeepMay Tech Autonomy Boot Camp

2022, Paoli, IN

Indiana University co-sponsor for 10-day living-working camp for adults to learn information-tech skills toward serving community autonomy projects.

Prison Recovery Mentorship

2020–2022, Bloomington, IN

Provided support to two men recently released from prison. Support included housing, food, social services applications, transportation, crisis counseling, computer skills, and resocializing attitudes toward women.

Bloomington Cooperative Living

70 member low-income housing collective

2017–present, Bloomington, IN

Board Member

2019–2022, Bloomington, IN

Board President

2017–2020, Bloomington, IN

Membership Coordinator

Service
(continued)

Graduate Informatics Student Association
2018, Indiana University
Institutional Voice Chair

Butter Bog Housing Collective
2015–2017, Portland, OR
Founding Member

Computing Policy Committee
2013–2014, Reed College

Service
Accomplish-
ments

Cooperative House Financing
2020, Bloomington, IN
Led a team of 3 volunteers to secure a \$950,000 financing package for a new 18-bedroom cooperative house. Completed in 2022.

Co-op Zoning Laws
2019, Bloomington, IN
Worked with City Council and Planning to expand the definition of Single-Family Housing to include cooperatively owned houses.

Expert Witness
Testimony

Statistical Analyst
Racial Bias in Policing
Jan. 2021, Monroe County Circuit Court, IN

Expert “Twitness”
Twitter, Information Ethics, Internet Surveillance
Oct. 2018, Monroe County Circuit Court, IN