

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

cultural sociology & cultural evolution
organizational topology & decision-making
text mining & natural language processing
AI in organizations & techno-bureaucracy
complex networks & systems

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. 2024. “Scalable qualitative coding with LLMs: Chain-of-thought reasoning matches human performance in some hermeneutic tasks.” arXiv. *Preprint; Under review.*

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

Dunivin, Z.O., Smaldino, P. 2024. “Dynamics of covert signaling: Modeling the emergence and extinction of identity signals.” *Under review.*

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.*

Dunivin, Z.O., Kaminski, P. “Path dependence, stigmergy, and memetic reification in the formation of the 27 Club myth.” *Under review.*

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.”

Competitive
Workshops

**Graduate Workshop in Computational Social Science
and Complexity Methods and Analysis**

2018, Santa Fe Institute

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