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PROFESSIONAL APPOINTMENTS

- 2025 **One-U Responsible AI Postdoctoral Fellow**
Scientific Computing and Imaging Institute
School of Environment, Society, and Sustainability
University of Utah
- 2022 **Post-Doctoral Associate**
Center for Collaborative Synthesis in Archaeology, CU Boulder
- 2018 **Assistant Director**
University of Utah Archaeological Center

EDUCATION

- 2022 **PhD in Anthropology** | University of Utah, Salt Lake City, UT
- 2009 **MA in Philosophy** | Northern Illinois University, DeKalb, IL
- 2006 **BA in History and Philosophy** | University of Central Arkansas, Conway, AR

PEER-REVIEWED JOURNAL ARTICLES

- 2026 **A reconstruction of the Indigenous maize farming niche of Utah**
Journal of Archaeological Science: Reports 69:105493
 Ishmael D. Medina, Kenneth B. Vernon, Weston C. McCool, Jerry D. Spangler, Brian F. Codding
 10.1016/j.jasrep.2025.105493
- Migration and environmental learning in interstitial areas: An example from the Northern Rio Puerco Valley, New Mexico**
Open Archaeology 12(1)
 Kenneth B. Vernon, Donald A. Shiffler, Scott G. Ortman
 10.1515/opar-2025-0075

The impact of subsistence change on demography: Theory-informed Approximate Bayesian Computation reveals 4-fold increase in carrying capacity following economic intensification

Journal of Archaeological Science 189:106523

👤 Kurt M. Wilson, Brian F. Coddling, Weston C. McCool, Ishmael Medina, Kenneth Blake Vernon, Simon C. Brewer

📄 10.1016/j.jas.2026.106523

2025 **Drought, Population Pressure, and Inequality Drive Intergroup Conflict in the Precontact North American Southwest**

American Antiquity:1-19

👤 Weston C. McCool, Kenneth B. Vernon, Ishmael D. Medina, Joan Brenner Coltrain, Kurt M. Wilson, Brian F. Coddling

📄 10.1017/aaq.2025.10107

Environmental drivers of wealth inequality among Ancestral Puebloan farmers in Bears Ears National Monument

American Antiquity:1-7

👤 Roxanne Lois F. Lamson, Kurt M. Wilson, Hayley T. Kievman, Kenneth Blake Vernon, Peter M. Yaworsky, Brian F. Coddling

📄 10.1017/aaq.2025.8

Modeling the rise and demise of Classic Maya cities: Climate, conflict, and economies of scale

Proceedings of the National Academy of Sciences 122(42):e2512325122

👤 Weston C. McCool, Brian F. Coddling, Bridgette Degnan, Claire E. Ebert, Emily S. Johnson, Kenneth Blake Vernon, Kurt M. Wilson, Timothy Beach, Keith M. Prufer, Douglas J. Kennett

📄 10.1073/pnas.2512325122

Targeted explorations of Pleistocene-Holocene transition archaeology on the Colorado Plateau in southern Utah

Quaternary International 746:109992

👤 Abby S. Baka, Kenneth B. Vernon, Madeline E. Mackie, Simon Brewer, Jerry Spangler, Brian F. Coddling, Lisbeth A. Louderback, Thomas H. Flanigan, Alexandra M. Greenwald

📄 10.1016/j.quaint.2025.109992

2024 **A method for defining dispersed community territories**

Journal of Archaeological Science 170:106048

👤 Kenneth B. Vernon, Scott G. Ortman

📄 10.1016/j.jas.2024.106048

Can we reliably detect adaptive responses of hunter-gatherers to past climate change? Examining the impact of Mid-Holocene drought on Archaic settlement in the Basin-Plateau Region of North America

Quaternary International 689-690:5-15

👤 Brian F. Coddling, Heidi Roberts, William Eckerle, Simon C. Brewer, Ishmael D. Medina, Kenneth B. Vernon, Jerry S. Spangler

📄 10.1016/j.quaint.2023.06.014

The Fremont frontier: Living at the margins of maize farming

American Antiquity 89(3):440-458

👤 Kenneth B. Vernon, Peter M. Yaworsky, Weston McCool, Jerry D. Spangler, Simon Brewer, Brian F. Coddling

📄 10.1017/aaq.2024.22

The Goldilocks Zone for maize agriculture and the settlement and abandonment of the West Tavaputs Plateau

Quaternary International 689-690:30-42

👤 Peter M. Yaworsky, Kenneth B. Vernon, Weston C. McCool, Isaac A. Hart, Jerry Spangler, Brian F. Coddling

📄 10.1016/j.quaint.2023.12.003

Trade-off between market and ecosystem services drives settlement decisions among smallholder ranchers in Baja California Sur, Mexico

Sustainability Science 19(4):1377-1390

👤 Kenneth B. Vernon, Brian F. Coddling, Simon C. Brewer, Shane J. Macfarlan

📄 10.1007/s11625-024-01491-9

2022 **Climate change-induced population pressure drives high rates of lethal violence in the Prehispanic central Andes**

Proceedings of the National Academy of Sciences 119(17):e2117556119

👤 Weston C. McCool, Brian F. Coddling, Kenneth B. Vernon, Kurt M. Wilson, Peter M. Yaworsky, Norbert Marwan, Douglas J. Kennett

📄 10.1073/pnas.2117556119

Decomposing habitat suitability across the forager to farmer transition

Environmental Archaeology 27(4):420-433

👤 Kenneth B. Vernon, Peter M. Yaworsky, Jerry Spangler, Simon Brewer, Brian F. Coddling

📄 10.1080/14614103.2020.1746880

Ecological constraints on violence avoidance tactics in the Prehispanic Central Andes

Environmental Archaeology:1-14

👤 Weston C. McCool, Kurt M. Wilson, Kenneth B. Vernon

📄 10.1080/14614103.2022.2137652

Socioecological dynamics structuring the spread of farming in the North American basin-plateau region

Environmental Archaeology 27(4):434-446

👤 Brian F. Codding, Joan Brenner Coltrain, Lisbeth Louderback, Kenneth Blake Vernon, Kate E. Magargal, Peter M. Yaworsky, Erick Robinson, Simon C. Brewer, Jerry D. Spangler

📄 10.1080/14614103.2021.1927480

Subsistence strategy mediates ecological drivers of human violence

PLOS ONE 17(5):e0268257

👤 Weston C. McCool, Kenneth B. Vernon, Peter M. Yaworsky, Brian F. Codding

📄 10.1371/journal.pone.0268257

2021 **Plant species richness at archaeological sites suggests ecological legacy of Indigenous subsistence on the Colorado Plateau**

Proceedings of the National Academy of Sciences 118(21):e2025047118

👤 Bruce M. Pavlik, Lisbeth A. Louderback, Kenneth B. Vernon, Peter M. Yaworsky, Cynthia Wilson, Arnold Clifford, Brian F. Codding

📄 10.1073/pnas.2025047118

2020 **Advancing predictive modeling in archaeology: An evaluation of regression and machine learning methods on the Grand Staircase-Escalante National Monument**

PLOS ONE 15(10):e0239424

👤 Peter M. Yaworsky, Kenneth B. Vernon, Jerry D. Spangler, Simon C. Brewer, Brian F. Codding

📄 10.1371/journal.pone.0239424

Marriage dynamics in old Lower California: Ecological constraints and reproductive value in an arid peninsular frontier

Biodemography and Social Biology 65(2):156-171

👤 Shane J. Macfarlan, Ryan Schacht, Caroline Foley, Sydney Cahoon, Grace Osusky, Kenneth B. Vernon, Evan Tayler, Celeste Henrickson, Eric Schniter

📄 10.1080/19485565.2020.1728685

2017 **The ecology of population dispersal: Modeling alternative Basin-Plateau foraging strategies to explain the Numic expansion**

American Journal of Human Biology 29(4):e23000

👤 Kate E. Magargal, Ashley K. Parker, Kenneth Blake Vernon, Will Rath, Brian F. Codding

📄 10.1002/ajhb.23000

MANUSCRIPTS

2026 **Explaining PaleoIndian settlement in the Intermountain West with comparative machine learning**

Journal of Archaeological Science (3-Submitted/Under-Review)

👤 Kenneth B. Vernon, Kate E. Magargal, Paul E. Allgaier, David Zeanah, D. Craig Young, Robert G. Elston, Simon C. Brewer, Brian F. Codding

NetC14: A Gaussian mixture neural network for calibrating and summarizing radiocarbon dates

Journal of Archaeological Science (2-Drafting)

👤 Kenneth B. Vernon, Brian F. Coddling, Simon C. Brewer

Predicting PHT archaeology on the northwest Colorado Plateau: A predictive model for determining targeted survey areas

Journal of Archaeological Science: Reports (2-Drafting)

👤 Abby S. Baka, Kenneth B. Vernon, Simon C. Brewer, Brian F. Coddling, Jerry D. Spangler, Alexandra M. Greenwald

Socio-economic status before we measured it: A machine learning approach to imputing income and education in the US Census before 1950

(2-Drafting)

👤 Kelsey Carlston, Kenneth B. Vernon

The evolution of a labor market

(2-Drafting)

👤 Kenneth B. Vernon, Kelsey Carlston, Weston C. McCool, Kurt M. Wilson, Brian F. Coddling

An encoder-decoder neural network for down-scaling soil moisture estimates

(1-Planning/Development)

👤 Kenneth B. Vernon, Brian F. Coddling, Simon C. Brewer

One theory, many models of habitat suitability

(1-Planning/Development)

👤 Kenneth B. Vernon

RagStone: A retrieval-augmented language model for archaeological reports

(1-Planning/Development)

👤 Kenneth B. Vernon, Brian F. Coddling, Simon C. Brewer

Responsible artificial intelligence and the science of human-environment interactions

Environmental Data Science (1-Planning/Development)

👤 Kenneth B. Vernon, Brian F. Coddling, Simon C. Brewer

Some Kantian and Aristotelian themes in anthropological thought

(1-Planning/Development)

👤 Kenneth B. Vernon

TerraCal: A global deep foundation radiocarbon calibration curve

(1-Planning/Development)

👤 Kenneth B. Vernon, Brian F. Coddling, Simon C. Brewer

Urbanism, population decline, and biodiversity in an arid environment

(1-Planning/Development)

👤 Kenneth B. Vernon, Brian F. Coddling, Simon C. Brewer, Shane J. Macfarlan

GRANTS, FELLOWSHIPS, AND AWARDS

2025 **extendr: Community-focused development for scientific computing with Rust and R**
ISC Grant | R Consortium

PI: Kenneth B. Vernon, Josiah Parry, Mossa M. Reimert | \$4,000

2022 **Archaeological Survey of Cottonwood Wash, San Rafael Desert, Emery County, Utah**

Cooperative Agreement (L20AC00267) | Bureau of Land Management

PI: Brian F. Coddling, Jerry D. Spangler | \$18,698

2020 **Developing a Modular Online Introduction to the R Environment**

Cross-College Training Grant | University of Utah College of Social and Behavioral Sciences

PI: Simon Brewer, Brian F. Coddling, Kenneth B. Vernon | \$21,020

Advancing Stewardship with Theory and Models

David C. Williams Memorial Graduate Fellowship | University of Utah

PI: Kenneth B. Vernon | \$6,000

2019 **Graduate Research**

Earl and Elies Skidmore Endowed Graduate Fellowship | University of Utah

PI: Kenneth B. Vernon | \$7,500

Advancing Stewardship with Theory and Models

David C. Williams Memorial Graduate Fellowship | University of Utah

PI: Kenneth B. Vernon | \$8,500

2018 **Why Were Prehistoric Agricultural Societies in Utah Unable to Adapt to the Medieval Megadroughts?**

Interdisciplinary Faculty Research Seed Grant | University of Utah Global Change and Sustainability Center

PI: Brian F. Coddling, Simon Brewer | \$20,000

Advancing Stewardship with Theory and Models

David C. Williams Memorial Graduate Fellowship | University of Utah

PI: Kenneth B. Vernon | \$1,000

2017 **Human Plant Use in Red Butte Canyon**

Research Grant | Friends of Red Butte

PI: Kenneth B. Vernon | \$2,000

Human Plant Use in Red Butte Canyon

Research Grant | University of Utah Global Change and Sustainability Center

PI: Kenneth B. Vernon | \$3,000

Archaeological Sites as Endangered Species: Using Next Generation Models to Predict and Protect Cultural Properties on the Grand Staircase-Escalante National Monument

Grand Staircase-Escalante National Monument Cooperative Agreement | Bureau of Land Management

PI: Brian F. Codding | \$22,066

PRESENTATIONS

2026 **One theory, many models of habitat suitability**

WEST Speaker Series, University of Utah

👤 Kenneth B. Vernon

The evolution of a labor market

91st Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, Kelsey Carlston, Weston C. McCool, Kurt M. Wilson, Brian F Codding

2025 **Indirect dating with Mixture Density Networks**

Utah Center for Data Science, Data Science & AI Lecture Series

👤 Kenneth B. Vernon, Brian F Codding, Scott G. Ortman, Simon C. Brewer

Indirect dating with Mixture Density Networks

90th Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, Brian F Codding, Scott G. Ortman, Simon C. Brewer

Promoting water-use efficiency with responsible AI

One-U Responsible AI Annual Symposium

👤 Kenneth B. Vernon

Working with REST APIs to access spatial data

Spatial Utah Data Science (SUDS) Meeting

👤 Kenneth B. Vernon

2024 **The network ecology of settlement persistence**

workshop 'Advances in modelling past human ecosystems'

👤 Kenneth B. Vernon, Simon C. Brewer, Brian F. Codding, Scott G. Ortman

The network ecology of settlement persistence

30th Annual Meeting of the European Archaeological Association

👤 Kenneth B. Vernon, Simon C. Brewer, Brian F. Codding, Scott G. Ortman

The socio-ecology of community centers

89th Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, Scott G. Ortman

2023 **A core-periphery approach to defining community boundaries**

29th Annual Meeting of the European Archaeological Association

👤 Kenneth B. Vernon, Scott G. Ortman

Exploring the dynamics of late precontact obsidian procurement and exchange networks across the US Southwest and Northwest Mexico using cyberSW

The Southwest Symposium Archaeological Conference

👤 Sarah Oas, Kenneth B. Vernon, Matthew A. Peeples, Barbara J. Mills, Joshua Watts, Jeffery J. Clark, Steven Shackley, Scott G. Ortman

How do I work this? this R project

Spatial Utah Data Science (SUDS) Meeting

👤 Kenneth B. Vernon

The ecology of agglomeration and the rise of Chaco Great Houses

88th Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, Weston C. McCool, Simon C. Brewer, Brian F. Coddling, Scott G. Ortman

2022 **The Fremont frontier: Living at the margins of maize farming**

87th Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, Jerry D. Spangler, Weston C. McCool, Peter M. Yaworsky, Simon C. Brewer, Brian F. Coddling

2021 **Explaining PaleoIndian settlement in the Intermountain West: A regression adjustment approach**

86th Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, David Zeanah, D. Craig Young, Robert G. Elston, Brian F. Coddling

2019 **Decomposing habitat suitability with theory-driven machine-learning**

84th Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, Peter M. Yaworsky, Brian F. Coddling

2018 **Prearchaic land use in Grass Valley, Nevada: A novel statistical implementation of optimal distribution modeling**

83th Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, Peter M. Yaworsky, Kate E. Magargal, D. Craig Young, David Zeanah, Brian F. Coddling

Prearchaic land use in Grass Valley, Nevada: This time with Bayes

Bi-annual Great Basin Anthropological Conference

👤 Kenneth B. Vernon, Peter M. Yaworsky, Kate E. Magargal, D. Craig Young, David Zeanah, Brian F. Coddling

2015 **Nomic fires: Modeling the effects of anthropogenic fire on foraging decisions in the Great Basin**

80th Annual Meeting of the Society for American Archaeology

👤 Kenneth B. Vernon, Kate E. Magargal, Ashley K. Parker, Will Rath, Brian F. Coddling

TEACHING

Teaching interests

Behavioral Ecology, Environmental Data Science, Statistics, Urban and Economic Geography, Conservation & Sustainability, Demography, Human Prehistory.

University of Utah

ANTH 1010: Culture and the Human Experience

ANTH 1030: Introduction to World Prehistory

ANTH 5850: Quantitative Analysis of Archaeological Data

PROFESSIONAL AFFILIATIONS

2016 Great Basin Anthropological Association

2014 Society for American Archaeology

2022 Coalition for Archaeological Synthesis

2023 European Association of Archaeologists

SERVICE, OUTREACH, AND OTHER ACTIVITIES

2022 **Studio Lab** | University of Colorado, Boulder, 2022–2024

Mentor. Supporting undergraduate research.

2018 **Undergraduate Research Opportunities Program** | University of Utah, 2018–2022

Mentor. Supporting undergraduate research.

Journal Club: Problems in Evolutionary Anthropology | University of Utah, 2018–2022

Organizer.

Hopi Tribe v Donald J. Trump, Utah Diné Bikéyah v Donald J. Trump, Natural Resources Defense Council v Donald J. Trump

Brief Amici Curiae of Archaeological Organizations in Support of Plaintiffs. Contributor.

REFERENCES

Available upon request.