TYLER D. HOFFMAN

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EDUCATION

Arizona State University, Tempe, AZ *August 2021 - May 2026 (estimated)*
Ph.D, Geography; advised by Professor Peter Kedron
NSF Graduate Research Fellowship Recipient

University of Maryland, College Park, MD *August 2017 - May 2021*
B.S. with High Honors, Mathematics; minors in Computer Science and History
President's Scholarship Recipient; Earned University Honors Certificate in April 2019

PUBLICATIONS AND PROCEEDINGS

P. Kedron, S. Bardin, **T. D. Hoffman**, M. Sachdeva, M. Quick, J. Holler. In review. "A Replication of DiMaggio et al. (2020) in Phoenix, AZ." Annals of Epidemiology.

T. D. Hoffman, T. Oshan. (2021). "A Supervised Heuristic for a Balanced Approach to Regionalization." GIS Research UK Conference Proceedings. https://doi.org/10.5281/zenodo.4670015

T. Hoffman*, A. Swain*, W. F. Fagan. (2021). "Trade-offs in sensory characteristics shape the evolution of perception." Frontiers in Ecology and Evolution, 9. https://doi.org/10.3389/fevo.2021.698041

A. Lawson, **T. Hoffman**, Y. Chung, K. Keegan, S. Day. (2021). "A density-based approach to feature detection in persistence diagrams for firn data." Foundations of Data Science. http://dx.doi.org/10.3934/fods.2021012

W. F. Fagan, **T. Hoffman**, D. Dahiya, E. Gurarie, R. S. Cantrell, C. Cosner. (2019). "Improved foraging by switching between diffusion and advection: benefits from movement that depends on spatial context." Theoretical Ecology, 13 (2), 127–136. https://doi.org/10.1007/s12080-019-00434-w

**equal contributions*

RESEARCH EXPERIENCE

Geospatial Data Analysis, GEOSMASH Lab, University of Maryland *May 2020 - Present*
Affiliate (May 2021-Present); Previously Undergraduate Researcher (May 2020-May 2021)

— Developing open source software for the widespread use of spatial interaction modeling and spatial econometrics models.
— Software has been incorporated in the Python Spatial Analysis Library (PySAL) Spatial Interaction (SpInt) module and can be found at this Github link.

Mathematical Biology, Fagan Lab, University of Maryland *May 2018 - May 2021*
Undergraduate Researcher

— Designed and implemented a complex system model to study the evolution of vision. Presented at Ecological Society of America (ESA) Conference 2020.
— Pursued novel modeling techniques in the fields of population dynamics and movement ecology by partial differential equations (PDEs) and agent-based simulations to examine forager motion.
— Analyzed dynamical systems relating to the spread of disease and the vector-host relationship.

Computational Statistics University of North Carolina Greensboro *May 2020 - July 2020*
Research Experience for Undergraduates (REU) Participant

— Employed unsupervised learning for outlier detection in topological data analysis settings to extract insights from sea ice datasets.

Naval Surface Warfare Center, Carderock Division *May 2019 - August 2019*
Naval Research Enterprise Internship Program (NREIP) Intern

— Evaluated new finite and boundary element methods to solve computationally hard problems relating to acoustic-structure interaction.
— Created a tool which implements a boundary element method for arbitrary geometries.

Math Directed Reading Program *Spring 2018*
Participant

— Studied manifold theory under the direction of a graduate student mentor.
— Delivered a talk proving that the Klein bottle cannot be embedded in three dimensions.

AWARDS AND LEADERSHIP

NSF Graduate Research Fellowship Award *2021 - 2026*
Award Recipient

— The award is worth $138,000. Received the National Science Foundation Graduate Research Fellowship Award for graduate work in computationally intensive research in the social sciences.

School of Geographical Sciences Graduate Student Committee *2022*
President

— Elected President of the committee for the 2022 calendar year. The President serves as an immediate liaison between the faculty and administration and the graduate student body.

Maryland Undergraduate Researcher of the Year Award *2021*
Award Recipient

— The award is worth $1,000. Received the Maryland Undergraduate Researcher of the Year award recognizing fruitful pursuits of learning and scholarship beyond the classroom.

UMD Flagship Fellowship *2021*
Award Winner

— The award is worth $60,000 over 4 years. Received but declined the Flagship Fellowship for graduate studies at the University of Maryland, College Park.

Math Department Strauss Teaching Assistant *2020 - 2021*
Award Recipient

— Received the Strauss Teaching Assistant award to teach a section of Calculus I in the fall and Calculus II in the spring.

Model United Nations Team *2017 - 2021*
Senior Executive Advisor; Vice President; Undersecretary-General for Crisis at UMUNC I

— Vice President and founding member of the University of Maryland Model United Nations Team.
— Helped to raise the team from unranked to Top 50 nationwide in two seasons.
— Outstanding Delegate (Second Place), William & Mary Model UN Conference (April 2019)
— Honorable Delegate (Third Place), NYU Model UN Conference (April 2018)

University Senate, College of Computer, Mathematical, and Natural Sciences *2018 - 2019*
Senator and Programs, Courses, and Curricula (PCC) Committee Member

— Participated in Senate discussions on campus affairs. Engaged in coalitions to better the university.
— Reviewed proposals for new and modified majors, minors, and certificate programs as a member of the Programs, Courses, and Curricula Committee.

UMD President's Scholarship *2017 - 2021*
Award Recipient

— Merit scholarship worth $8,000 per year over four years.

CONFERENCES AND WORKSHOPS

Association of American Geographers 2022 Annual Meeting *25 Feb 2022 - 1 Mar 2022*
Contributing Speaker

— Talk title: "A model-driven approach to regionalization and spatial change-of-support."

GIS Research UK (GISRUK) 2021 *14 April 2021 - 16 April 2021*
Contributing Speaker

— Talk title: "A Supervised Heuristic for a Balanced Approach to Regionalization."

Ecological Society of America 2020 Meeting *3 Aug 2020 - 6 Aug 2020*
Contributing Speaker

— Talk title: "Perceptual evolution: How the spatially explicit interplay of biological and environmental factors shapes resource uptake."

UMD COMBINE Network Epidemiology Online Workshop Series *April 2020*
Participant

— Attended a series of lectures from prominent epidemiological network scientists on cutting-edge techniques in the field and their relevance to the contemporary coronavirus epidemic.
— Led a team of graduate students and postbacs to research epidemiological network science and produce a poster which introduces and explains current research for public health officials.

SKILLS AND LANGUAGES

Proficient in	Python, Julia, Unix/Linux/Bash, LaTeX, MATLAB/Octave, C, Java, OCaml
Familiar with	R, APL, Netlogo, Fortran, Rust, Go, Ruby, Perl, French, Arduino, HTML/CSS