TYLER HOFFMAN

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EDUCATION

Arizona State University, Tempe, AZ   *September 2021 - May 2025 (estimated)*
Doctor of Philosophy, Geography
NSF Graduate Research Fellowship Awardee

University of Maryland, College Park, MD   *August 2017 - May 2021*
Bachelor of Science with High Honors, Mathematics; minors in Computer Science and History
Presidential Scholarship Recipient; Earned University Honors Certificate in April 2019
Cumulative GPA 3.75/4.00

PUBLICATIONS

T. Hoffman, T. Oshan. (2021). "A Supervised Heuristic for a Balanced Approach to Regionalization." GIS Research UK Conference. `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.

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, Oshan Lab, University of Maryland   *May 2020 - Present*
Undergraduate Researcher

— 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 - Present*
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 REU, University of North Carolina Greensboro   *May - July 2020*
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 - 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 one such 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.

CONFERENCES AND WORKSHOPS

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

— Presented a talk which introduces an endogenous, model-driven criterion for the number of clusters to select when pursuing spatial clustering.

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

— Presented a talk entitled "Perceptual evolution: How the spatially explicit interplay of biological and environmental factors shapes resource uptake" which explores work done by A. Swain and T. Hoffman on the evolution of vision through agent-based simulation.

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.

AWARDS AND LEADERSHIP

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

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

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

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

UMD Flagship Fellowship   *2021*
Award Winner

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

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 - Present*
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 75 in one year and Top 50 in the 2019-2020 season.
— Honorable Delegate (Third Place), NYU Model UN Conference (April 2018)
— Outstanding Delegate (Second Place), William and Mary Model UN Conference (April 2019)

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

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

SKILLS AND LANGUAGES

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