Dominic Bair, M.S.

✉ dbair@tennessee.edu   🌐 www.dbair.xyz

 https://github.com/DothWalrus   in https://linkedin.com/in/dominic-bair-861ab0189/

Education

2022 – ⋯	🔖	**Ph.D. candidate, Mathematics,** University of Tennessee Knoxville (UTK).
2020 – 2022	🔖	**M.S. Mathematics,** Montana State University (MSU). Thesis title: *DVM: A deep learning algorithm for minimizing functionals.*
2016 – 2020	🔖	**B.S. Mathematics; Minor: Physics,** Montana State University.

Publications

1. D. Bair, S. Jana, and Q. Yulan, "First-passage percolation, non-positive curvature, and radial maps," *Preprint*, 2025. 🔗 URL: https://arxiv.org/abs/2512.05720.

2. D. Bair, "DVM: A deep learning algorithm for minimizing functionals," *Theses and Dissertations at Montana State University (MSU)*, 2022. 🔗 URL: https://scholarworks.montana.edu/xmlui/handle/1/16840.

3. C. Potts, J. Schearer, T. A. Sebrell, *et al.*, "MNPmApp: An image analysis tool to quantify mononuclear phagocyte distribution in mucosal tissues," *Cytometry Part A*, vol. 101, no. 12, pp. 1012–1026, 2022. 🔗 URL: https://onlinelibrary.wiley.com/doi/abs/10.1002/cyto.a.24657.

Employment History

Paid Positions

2022 – ⋯	🔖	**Graduate Teaching Assistant,** UTK Department of Mathematics.
2023 – 2024	🔖	**Climbing Wall Attendant/Setter,** UTK RECSports.
2020 – 2022	🔖	**Graduate Teaching Assistant,** MSU Department of Mathematical Sciences.
2015 – 2022	🔖	**Laborer,** 3 Brothers Plumbing and Heating.
2020	🔖	**Laborer,** Peak Property Management.
2019 – 2020	🔖	**Undergraduate Research Assistant,** MSU Department of Mathematical Sciences.
2018 – 2019	🔖	**Undergraduate Research Assistant,** MSU Department of Physics.

Volunteer Positions

2018 – 2020	🔖	**Assistant,** National Center for Unwanted Firearms.
2015 – 2017	🔖	**Firefighter,** Clancy Volunteer Fire Department.

Courses Taught

M115	🔖	**Statistical Reasoning,** UTK.
M125	🔖	**Basic Calculus,** UTK.
M113	🔖	**Mathematical Reasoning,** UTK.
M119	🔖	**College Algebra,** UTK.
M171	🔖	**Calculus I,** MSU.
M151	🔖	**Precalculus,** MSU.
M161	🔖	**Survey of Calculus,** MSU.
M121	🔖	**College Algebra,** MSU.

Research Interests

Percolation theory, geometric group theory, graph limit theory, machine learning, applications.

Skills

Languages	▮	German (A1).
Coding/Software	▮	MATLAB, Python, LaTeX, Julia, Windows, Linux.
Misc.	▮	Technical problem solving, adaptability, leadership, academic research, teaching, training, first aid.

Miscellaneous Experience

Awards and Achievements

2025	▮	**UTK Oral Specialty Exam,** passed.
	▮	**UTK Preliminary Exam in Topology,** passed.
	▮	**UTK Preliminary Exam in Stochastics,** passed.
2020	▮	**NSF GRFP Reviews,** Excellent, Excellent, Very Good. (Fellowship not received).
	▮	**NSF and AWM Travel Grant,** to present at Data Science and Image Analysis Conference of the Pacific Northwest.
2019 – 2020	▮	**INBRE Grant,** to support the Spatial Statistics in Histology Images research. NIH funded, MSU based grant
2016 – 2020	▮	**MSU Premier Scholarship,** for demonstration of academic promise, leadership experience and other honors.
2019	▮	**Superior Achievement in the Field of Mathematics,** recognition by the National Honorary Mathematics Society, Pi Mu Epslion, for superior achievement in the field of mathematics.
2016	▮	**Eagle Scout,** the highest achievement that can be obtained in the Scouts of America.

Presentations

2021	▮	**Deep Variational Methods,** MSU Poster Slam.
	▮	**Deep Variational Methods,** Walk the Walk Chalk the Chalk.
2020	▮	**Spatial Statistics in Histology Images,** SIAM Northern States Section Student Chapters Conference.
	▮	**Spatial Statistics in Histology Images,** Data Science and Image Analysis Conference of the Pacific Northwest.
2019	▮	**Spatial Statistics in Histology Images,** MSU Winter Research Celebration.

Reading Courses

2023	▮	**Monte Carlo Strategies in Scientific Computing (Liu),** UTK.

Certifications

	▮	**CPR and First Aid,** American Red Cross.