Fangfei (Fei) Lan

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EDUCATION

Scientific Computing and Imaging (SCI) Institute, University of Utah
Salt Lake City, UT — Aug. 2019 – Dec. 2024
Ph.D. in Computing

American University (AU), Magna Cum Laude
Washington, DC — Aug. 2014 – Dec. 2017
B.S. in Mathematics with a second major in Computational Science (*Minor*: Dance)

RESEARCH INTERESTS

Topological data analysis, machine learning, scientific data visualization, AI for climate modeling

RESEARCH EXPERIENCE

University of Lausanne, Lausanne, Switzerland — Dec. 2024 – present
Postdoctoral Researcher in Machine Learning for Atmospheric Modeling
Principal investigator: Tom Beucler

University of Utah, Salt Lake City, UT
Graduate Research Assistant — Jan. 2020 – Dec. 2024
Advisor: Bei Wang
Research Interests: Topological data analysis and data visualization

Linköping University, Norrköping, Sweden
Visiting PhD Student in Visualization for Astrophysics — Sept. 2023 – May 2024
Supervisor: Alexander Bock

Argonne National Lab, Lemont, IL
PhD Research Intern in Visualization for Climate Science — May 2022 – Aug. 2022
Supervisor: Hanqi Guo

AU Department of Mathematics, Washington, DC
Undergraduate Research Assistant — May 2017 – Oct. 2018
Advisor: Michael Robinson

SELECTED ACADEMIC PROJECTS

Fangfei Lan, Claudia Landi, Dhruv Meduri, Kevin Knudson, Bei Wang. **Bridging Stratification and Computation: Multiparameter Discrete Stratified Morse Theory.** In preparation, 2026.

Guanqun Ma, Fangfei Lan, He Chen, Bei Wang. **Inverse Merge Tree.** In preparation, 2026.

Mingzhe Li, Fangfei Lan, Gunther Weber, Bei Wang. **Uncertainty Visualization for Approximated Barycenter of Contour Trees Based on Partial Optimal Transport.** *Under review at IEEE VIS, short paper track, 2026.*

Malin Ejdbo*, Fangfei Lan*, Joachim Moeyens, Bei Wang, Michael Sedlmair, Daniel Weiskopf, Anders Ynnerman, Alexander Bock. **NEOviz: Characterizing and Visualizing Time-Evolving Uncertainty in Near-Earth Asteroid Trajectories.** *Under review at IEEE VIS, 2026.*
*these authors contributed equally

Stephen Y Zhang, Fangfei Lan, Youjia Zhou, Agnese Barbensi, Michael P H Stumpf, Bei Wang, Tom Needham. **Geometry of the Space of Partitioned Networks: A Unified Theoretical and Computational Framework.** *Information and Inference: A Journal of the IMA, 2026.*

Fangfei Lan, Salman Parsa, Bei Wang. **Labeled Interleaving Distance for Reeb Graphs.**
Journal of Applied and Computational Topology (APCT), 2024.

Kajetan Enge, Elias Elmquist, Valentina Caiola, Niklas Rönnberg, Alexander Rind, Michael Iber, Sara Lenzi, Fangfei Lan, Robert Höldrich, and Wolfgang Aigner. **Open Your Ears and Take a Look: A State-of-the-Art Report on the Integration of Sonification and Visualization.**
Eurographics Conference on Visualization (EuroVis), 2024. Computer Graphics Forum, 2024.

Fangfei Lan, Brandi Gamelin, Lin Yan, Jiali Wang, Bei Wang, Hanqi Guo. **Topological Characterization and Uncertainty Visualization for Atmospheric Rivers.**
Eurographics Conference on Visualization (EuroVis), 2024. Computer Graphics Forum, 43(3), 2024.

Fangfei Lan, Salman Parsa, Bei Wang. **Labeled Interleaving Distance for Reeb Graphs (Abstract).**
International Symposium of Computational Geometry (SOCG) Young Researcher Forum (YRF), 2024.

Fangfei Lan, Sourabh Palande, Michael Young, Bei Wang. **Uncertainty Visualization for Graph Coarsening.**
IEEE International Conference on Big Data (IEEE BigData), GTA^3, 2022.

Fangfei Lan, Michael Young, Lauren Anderson, Anders Ynnerman, Alexander Bock, Michelle A. Borkin, Angus G. Forbes, Juna A. Kollmeier, Bei Wang. **Visualization in Astrophysics: Developing New Methods, Discovering Our Universe, and Educating the Earth.**
Eurographics Conference on Visualization (EuroVis), 2021. Computer Graphics Forum, 40(3), 2021.

TALKS

Neural Operators: Machine Learning on Function Spaces.
Neural Operators for Earth System Modeling. AI4PEX General Assembly, Lund, Sweden, 2025.

HybridESM-Bench: Towards an Objective Benchmark of Hybrid Earth System Models.
AI4PEX Webinar, 2025.

Uncertainty Visualization with Topological Descriptors.
Topological Data Visualization. SIAM Conference on Mathematics of Data Science, Atlanta, GA, 2024.

Labeled Interleaving Distance for Reeb graphs.
AMS Special Session on Applied and Computational Topology, I. AMS Fall Sectional Meeting, Albany, NY, 2024.

Labeled Interleaving Distance for Reeb graphs.
Young Researcher Forum (YRF). CG Week, Athens, Greece, 2024.

Topological Characterization and Uncertainty Visualization of Atmospheric Rivers.
3rd Workshop on Uncertainty in Computational Geometry. CG Week, Athens, Greece, 2024.

Topological Characterization and Uncertainty Visualization of Atmospheric Rivers.
Summer School on Topological Data Analysis in Visualization. Linköping University, Sweden, 2023.

Topological Characterization of Atmospheric Rivers.
AMS Special Session on Applied Topology: Theory and Implementation. Joint Mathematics Meetings, Boston, MA, 2023.

ORGANIZED WORKSHOPS, PANELS, CONFERENCES

Climate Informatics Conference 2026.
Lausanne, Switzerland, 2026.

Challenge: Hazard, Impact, and Risk of Tropical Cyclones: An Uncertainty-Aware Visualization Challenge.
ELLIS Winter School 2026: AI for Earth System, Hazards & Climate Extremes, Athens, Greece, 2026.

Workshop: Neural Operators for Earth System Modeling.
AI4PEX General Assembly, Lund, Sweden, 2025.

Panel Tutorial: Integrating Sonification and Visualization – But Why?
Eurographics Conference on Visualization (EuroVis) 2024, Odense, Denmark, 2024.

AMS Special Session on Models and Methods for Sparse (Hyper) Network Science (a Mathematics Research Communities Session).
Joint Mathematics Meetings, Boston, MA, 2023.

SERVICE

Reviewer for Eurographics 2026
Reviewer for IEEE PacificVis 2024, 2025
Reviewer for IEEE VIS 2021, 2022, 2024
Reviewer for IEEE TVCG
Member of the School of Computing Graduate Student Advisory Committee (GradSAC) 2019-2021.

HONARS & AWARDS

Participant of AMS MRC 2024 on Climate Science at the Interface Between Topological Data Analysis and Dynamical Systems Theory
Participant of AMS MRC 2022 on Models and Methods for Sparse (Hyper)Network Science
Participant of 2021 GRA-WP Grad Cohort for Women Workshop
Member of Upsilon Pi Epsilon (international honor society for the computing and information disciplines)

SKILLS

Programming Languages:
Proficient: Python, R, HTML & CSS, JavaScript (d3.js)
Basic: SQL, Java
Software: Paraview
Languages: Mandarin (native), English (fluent)