Lisa Nguyen

1-408-489-2809 · lisaminh@umich.edu · personal website

Education

University of Michigan **Expected Graduation: Dec 2026**
PhD in Applied Physics and Scientific Computing
Topic: Spatio-temporal Patterns of Droughts and Global Food Production in a Warmer Climate
Awards: Rackham Merit Fellowship; COP30 student delegate; MICDE

University of California Berkeley **Graduation: Dec 2019**
B.A. in Physics, Major GPA 3.833
B.A. in Pure Mathematics, Major GPA 3.882

Climate Research

Drought Synchronicity over the Contiguous United States **PhD research: UMich**
Authors: Nguyen, L., & Ombadi, M. Apr 2024 - Dec 2025
- Developed an integrated analytic framework merging Event Coincidence Analysis, wavelet analysis, and ML-based feature attribution (Random Forest + SHAP) to quantify drought co-occurrence, propagation pathways, and large-scale synchronicity patterns across the U.S.

Spatio-Temporal Patterns of Droughts in a Warming World **PhD research: UMich**
Authors: Nguyen, L., Todorovic, L., & Ombadi, M. Apr 2024 - present
- Mapped the emergence of unprecedented precipitation extremes under global warming in CMIP6 models and integrated socioeconomic datasets to compute global population exposure and vulnerability patterns.

Future Of Research in Climate, Earth and Energy (FORCEE) Intern **Sandia National Laboratories**
Supervisor: Lauren Wheeler May 2023 - present
- Validated a modified version of the DoE's earth system model E3SMv2 that included a more complete representation of stratospheric chemistry.
- Implemented a Proportional-Integral feedback controller for simulating Stratospheric Aerosol Injections adapted from dan-visioni that adjusts the rate of the aerosol injection at specified locations based on simultaneously controlling for three temperature metrics.

Stratospheric Investigation of E3SMv2 **PhD research: DoE and UMich**
Advisor: Christiane Jablonowski May 2022 - Oct 2023
- Investigated stratospheric tropical circulation in the DoE's newest earth system model, E3SM version 2 (E3SMv2), comparing the global climate model to reanalysis data.
- Quantified the momentum transport through Transformed Eulerian Means to evaluate the Brewer Dobson Cycle. Found a significant dry bias of water vapor in the model as well as an increase in the stratospheric "Tape Recorder" propagation speed.

Frequency Analysis of High Intensity Precipitation **PhD research: UMich**
Advisor: Brian Arbic Aug 2021 - Jan 2021
- Using local, but high frequency rain gauge data from NOAA to compare against high resolution climate models. Compared the frequency space of models vs observations by analyzing the power spectral density of rain events using data from minutes to decades.

Leadership

Climate Blue at University of Michigan **Ann Arbor, MI**
COP30 Student Delegate May 2025 - present
- Represented Umich as a Climate Blue delegate to the UNFCCC COP, producing accessible briefings and outreach materials to connect global climate negotiations with students, researchers, and local communities.

AGU: Thriving Earth Exchange **Ann Arbor, MI**
Community Science Fellow May 2025 - present
Volunteer Community Scientists Aug 2024 - Dec 2025
- Investigated illegal dumping at Scott Memorial UMC, supported grant applications for land-use changes, led community recycling workshops, and coordinated hiring of local muralists to promote neighborhood engagement.
- Managed a climate-health initiative using LiDAR, climate, and socioeconomic data to guide equitable urban heat-resilience planning in Boynton Beach, Florida, including cooling-center siting and adaptation strategies for vulnerable residents.

University of Michigan: CLaSP GUSTO **Ann Arbor, MI**
DEI Officer and Volunteer Graduate Mentor Aug 2024 - present
- Organized DEI related activities and mentorship within the department.

Ypsilanti Math Corp at University of Michigan **Ann Arbor, MI**
Course Instructor Summer 2024
Math Corp Activities/HW Volunteer May 2019 - Dec 2024

- Developed and implemented "Ice Cream" class curriculum on graph theory for 8th graders and high school to teach fun topics in math during the summer camp.
- Co-organized the activities room to increase awareness and engagement with mathematics for Ypsilanti children grades 7-9 at the Ypsilanti Math Corp summer camp and Super Saturdays.

FATE Give Merit Program **Ann Arbor, MI**
Mentor Sep 2022 - Dec 2024

- Mentored high school students weekly in Detroit, working on strengthening their professional skills.

Posters/Presentations

- **Nguyen, L.** & Ombadi, M. (*January 29, 2026*), *Quantifying Global Synchronization of Droughts in Breadbasket Regions Under a Warming Climate*, American Meteorological Society (AMS) Annual Meeting, Abstract 469617
- **Nguyen, L.** & Ombadi, M. (*December 19, 2025*), *Characterizing Drought Synchronicity Across the Contiguous United States (19802021)*, American Geophysical Union (AGU) 2025, Abstract 1969758: NH51E-0228
- **Nguyen, L.**, Li, Q., & Ombadi, M. (*December 18, 2025*), *Decoding Drought Dynamics: A Multi-Method Intercomparison for Event Characterization Across Spatio-Temporal Scales* , American Geophysical Union (AGU) 2025, Abstract 1969758: H41M-1332
- Todorovic, L., **Nguyen, L.**, & Ombadi, M. (*December 17, 2025*), *Disproportionate Increase of Unprecedented Rainfall Events in Low Income Countries*, American Geophysical Union (AGU) 2025, Abstract A31E-2108
- Gaur, S., **Nguyen, L.**, Gronewold, A., Reich, P., & Ombadi, M. (*December 15, 2025*), *Changes in Extreme and Annual Precipitation under Global Warming*, American Geophysical Union (AGU) 2025, Abstract GC11G-0662
- Zhong, Y., Li, Q., **Nguyen, L.**, & Ombadi, M. (*December 18, 2025*), *Examining the Impact of Drought on Vegetation in the Contiguous United States*, American Geophysical Union (AGU) 2025, Abstract B41I-1970
- **Nguyen, L.** (*August 13, 2025*) Invited speaker for *Webinar: Science with Purpose: How Scientists Can Help Empower Community Solutions*, American Geophysical Union, Thriving Earth Exchange
- **Nguyen, L.**, Ombadi, M. (2024), *Quantifying Global Event Synchronization of Droughts in a Warming Climate*, American Geophysical Union (AGU) 2024, Abstract 1620436: GC33G-0234
- Jablonowski, C., Hollowed, J., **Nguyen, L.**, Hughes, O., Ehrmann, T., Wagman, B., & Hillman, B. (2023), *A Closer Look at E3SMs Stratosphere: Circulation Biases, Transport, Tracers*, DoE CLDERA All-Hands Meeting, Albuquerque, NM, USA, Oct 17-19, 2023
- Jablonowski, C., Hollowed, J., **Nguyen, L.**, Ehrmann, T., Wagman, B., & Hillman, B. (2023), *Tropical Stratosphere-Troposphere Interactions in Selected CMIP6 Model*s, Joint SPARC DynVar - SNAP Meeting, Munich, Germany, Oct. 9-13, 2023
- Jablonowski, C., **Nguyen, L.**, Kinnison, D., & the CLDERA project team (2023), *Characteristics of the stratospheric tropical circulation in DoEs Energy Exascale Earth System Model E3SMv2*, CESM Workshop 2023, Boulder, CO, USA, June 12-14, 2023
- Jablonowski, C., **Nguyen, L.**, Golaz, J.-C., Rosenbloom, N., & Meehl, G. A. (2023), *Characteristics of the Stratospheric Tropical Circulation of the Energy Exascale Earth System Model E3SMv2*, European Geosciences Union (EGU) 2023, Abstract EGU23-15173

Awards/Fellowships/Programs

- University of Michigan studen delegate for COP30
- Thriving Earth Exchange Community Science Fellowship
- Future of Research in Climate, Earth, and Energy (FORCEE) DoE Internship
- Rackham Merit Fellowship
- Michigan Institute for Computation Discovery & Engineering PhD

Teaching

- **Physics 141: Elementary Lab** (GSI) - Winter 2024