Garrett Limon

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PhD Candidate
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Education

University of Michigan (UM) — Ann Arbor, MI
Ph.D. - Atmospheric Science — *in progress*
Certificate - Data Science
Certificatte - Science, Technology, & Public Policy

California State University, Northridge (CSUN) — Northridge, CA
M.S. - Physics (Distinction) — *2018*
B.S. - Physics — *2016*

Awards & Fellowships

Funded Attendee, 2022 AMS Science Policy Colloquium (National Science Foundation) . . . 2022
Graduate Research Fellowship Program (National Science Foundation) 2018
Outstanding Graduate Student Award (CSUN College of Science and Mathematics) 2018
Outstanding Graduate Student Award (CSUN Department of Physics and Astronomy) . . . 2018
C.Y. Liang Memorial Scholarship (CSUN Department of Physics and Astronomy) 2016

Publications

1. **Limon, G. C.**, and C. Jablonowski (2023). Probing the Skill of Random Forests Emulators for Physical Parameterizations via a Hierarchy of Simple CAM6 Configurations." *Journal of Advances in Modeling Earth Systems*, May 25, 2023. https://doi.org/10.1029/2022MS003395
2. **Limon, G. C.** (2018). Development and Implementation of a Recursive Multi-Grid Solver into 3D-RISM (California State University, Northridge). Masters thesis retrieved from http://scholarworks.csun.edu/handle/10211.3/205778
3. Luchko, T., N. Blinov, **G. C. Limon**, K. P. Joyce, and A. Kovalenko. "SAMPL5: 3D-RISM Partition Coefficient Calculations with Partial Molar Volume Corrections and Solute Conformational Sampling." *Journal of Computer-Aided Molecular Design*, September 1, 2016. 10.1007/s10822-016-9947-7.

Conferences and Presentations

- **Garrett Limon**. Limitations of Machine Learning Approaches for Emulating Simplified Physical Parameterizations in CAM6. Presented at: 2023 CESM Workshop: Atmospheric Modeling Working Group Section. 2023 June 13; Boulder, CO
- **Garrett Limon** and Christiane Jablonowski. Neural Networks and Random Forests for Emulating Simplified Physical Processes in CAM. Presented at: 26th Annual CESM Workshop: Machine Learning Joint Session. 2021 June 17; Virtual Presentation

- **Garrett Limon** and Christiane Jablonowski. Assessing Machine Learning Techniques as Emulators for Simple Physics in the Community Atmosphere Model. Poster presented at: CESM Atmosphere & Whole Atmosphere & Chemistry-Climate Working Groups Meeting. 2021 February 10; Virtual Presentation
- **Garrett Limon** and Christiane Jablonowski. A First Look at Coupling Machine Learning Emulators for Simple Physics Parameterizations in the Community Atmosphere Model. Poster presented at: American Meteorological Society Annual Meeting. 2021 January 12; Virtual Presentation
- **Garrett Limon** and Christiane Jablonowski. An Evaluation of Coupled Machine Learning Emulators for Physical Parameterizations in the Community Atmosphere Model. Poster presented at: American Geophysical Union Annual Meeting. 2020 December 9; Virtual Presentation
- **Garrett Limon** and Christiane Jablonowski. Exploring Various Machine Learning Techniques for Emulating Simplified Physical Parameterizations in the Community Atmosphere Model. Oral Presentation presented at: 2nd NOAA Workshop on Leveraging AI in Environmental Sciences. 2020 December 3; Virtual Presentation
- Christiane Jablonowski and **Garrett Limon**, Evaluating Machine Learning Approaches for Physical Parameterizations in a GCM Model Hierarchy. Invited oral presentation in the US CLIVAR Data Science Working Group Seminar Series, USA, virtual, Nov. 23, 2020
- Christiane Jablonowski and **Garrett Limon**. Assessing Machine Learning Approaches for Physical Parameterizations in Atmospheric General Circulation Models. Invited oral presentation at the ECMWF-ESA Workshop on Machine Learning for Earth System Observation and Prediction, Reading, U.K., virtual conference, Oct. 5-8, 2020
- **Garrett Limon** and Christiane Jablonowski. Utilizing Machine Learning to Replace Physical Parameterization Schemes: How do Different Techniques Compare? Oral Presentation presented at: American Meteorological Society Annual Meeting. 2020 January 16; Boston, MA
- **Garrett Limon** and Christiane Jablonowski. An Assessment of Machine Learning Techniques for Replicating Physical Forcing Mechanisms in Climate Models. Poster Presentation presented at: American Geophysical Union Annual Meeting. 2019 December 12; San Fransisco, CA. 10.1002/essoar.10501799.1.
- **Garrett Limon** and Christiane Jablonowski. Investigating a Hierarchy of Machine Learning Algorithms to Predict Physical Tendencies of Simplified Atmospheric Model Forcing. Poster Presentation presented at: Graduate Climate Conference. 2019 November 8; Woods Hole, MA
- Christiane Jablonowski and **Garrett Limon**. Exploring Machine Learning Approaches for Physical Parameterizations, poster presentation at the Workshop on Machine Learning for Weather and Climate Modelling, Oxford, Great Britain, Sep. 2-5, 2019
- **Garrett Limon** and Tyler Luchko. Development and Implementation of Multi-Grid Solver into 3D-RISM. Oral Presentation presented at: The 22nd Annual Research & Creative Works Symposium. 2018 April 6; Northridge, CA
  - First Place: Outstanding Oral Presenter
- **Garrett Limon**. An Introduction to High Performance Computing in Science. Oral Presentation presented at: CSUN Physics and Astronomy Department. 2017 Nov 21; Northridge, CA
- **Garrett Limon** and Tyler Luchko. Acceleration of the 3-D Reference Interaction Site Model Via a Multi-Grid Solver. Poster presented at: The International Summer School on High-Performance Computing Challenges in Computational Science. 2017 June 26; Boulder, CO
- **Garrett Limon** and Tyler Luchko. A Multipole Approach to Electrostatic Interactions as a Method for Protein Self-Assembly in Coarse Grained Molecular Dynamics Simulations. Poster presented at: Southern California Conference for Undergraduate Research. 2015 Nov 21; Claremont, CA

Professional Workshops

- 2022 AMS Summer Policy Colloquium · Washington D.C.
- Short Course on Machine Learning in Python for Environmental Science Problems: Introduction & Advanced Topics · 2020 AMS Annual Meeting, Boston, MA
- Tutorial on Machine Learning and Deep Learning for the Environmental and Geosciences · 2019 AGU Annual Meeting, San Fransisco, CA
- 2019 Workshop on Leveraging AI in Numerical Weather Prediction · NOAA Center for Weather and Climate Prediction, College Park, MD
- 2017 International Summer School on High-Performance Computing Challenges in Computational Science · University of Colorado, Boulder, CO
- 2015 Molecular Dynamics Summer Workshop · California Institute of Technology, Pasadena, CA

Teaching Experience

- **Grader** · UofM
- **Teaching Associate** · CSUN
  - Instructor for undergraduate laboratory courses: Physics 220BL (Electricity and Magnetism) and Astronomy 154L.
- **Peer Learning Facilitator** · CSUN
  - Department tutor for introductory mechanics courses.

Service & Organizations

- **Reviewer/co-organizer** - NSF & External Funding Workshop hosted by the Michigan Earth Science Women's Network and the CLaSP Graduate and Undergraduate Student Organization (2021)
- **Mentor** - Lunch & Lab with a Grad (2020)
- **President** - CLaSP Graduate and Undergraduate Student Organization (2020-2021)
- **Panelist** - Fellowship Tutorial and Panel organized by the Michigan Earth Science Women's Network and the CLaSP Graduate and Undergraduate Student Organization (2019,2020)
- **Student Engagement Chair** - CLaSP Graduate and Undergraduate Student Organization (2019)
- **Reviewer** - NSF+ Fellowship Writing Workshop organized by the Michigan Applied Physics Student Council and Physics Graduate Council (2018, 2019)
- **Member** - Sigma Pi Sigma National Physics Honor Society (2018)
- **Co-Founder** - CSUN Astronomy Club (2014)