

Jaydeep R. Pillai

+1 (708) 325 6374

✉ jpilla9@illinois.edu

www.linkedin.com/in/jaydeep-pillai/

Education

Aug 2019 – **B.S., Engineering Physics**, University of Illinois Urbana-Champaign

May 2023 Minor: Mathematics

GPA: 3.75

Relevant Coursework

Physics Classical Mechanics, Electromagnetic Fields, Statistical Mechanics, Quantum Physics, Condensed Matter Theory, Graduate Mathematical Methods

Mathematics Differential Equations (Ordinary and Partial), Abstract Linear Algebra, Probability Theory, Dynamical Systems, Chaos Theory

Earth Science Atmospheric Thermodynamics, Paleoclimatology, Graduate Climate Dynamics, Graduate Statistical Inference and Machine Learning in Earth Sciences

Interests

- Climate Dynamics and Sensitivity
- Sea-Ice and Arctic Amplification
- DEI in STEM
- Cloud Processes
- Nonlinear Dynamics
- Physics and Math Education

Research Experience

Jun 2022 – **Arctic Amplification and Temperature Inversions**

Aug 2022 Advisor: Nadir Jeevanjee, NOAA Geophysical Fluid Dynamics Laboratory

- Comparing sea-ice and surface inversion strength to investigate arctic amplification and the high-latitude lapse-rate feedback in CMIP6 models

- Outcome: Still in progress

Jun 2021 – **A Conceptual Model for Subtropical and Tropical Interactions**

Aug 2021 Advisor: David Randall, Colorado State University Dept. Atmospheric Sciences

- Developed an analytical model of the tropical and subtropical Pacific atmosphere to study low-cloud response to radiative forcing explore potential tipping points.

- Programmed model in Python

- Outcome: [Poster](#) and [Publication Draft](#) ; model still in development

Sep 2020 – **The Relation between Low Cloud Cover and Sea-Surface Temperatures**

May 2021 Advisor: Cristian Proistosescu, UIUC Dept. Atmospheric Sciences

- Used CESM data and a statistical model to discern relationship between low-cloud cover, inversion strength and sea surface temperature anomalies

- Outcome: Final report in ATMS 507: Climate Dynamics

Presentations

2022 **Pillai, Needham, Branson, and Randall**, "A Conceptual Model for Tropical and Sub-tropical Interactions", CLIVAR Pattern Effect Workshop; Boulder, CO (Poster)

2021 **Pillai, Needham, Branson, and Randall**, "A Simple Model for Tropical and Subtropical Interactions", American Geophysical Union Fall Meeting; New Orleans, LA (Poster)

Awards

- 2022 **Ralph O. Simmons Physics Undergraduate Research Scholarship**
- 2021-2023 **Ernest F. Hollings Scholarship**
- 2021 **William M. Lapenta Scholarship**, (declined)
- 2021 **Colorado State University Atmospheric Science REU**
- 2019-2023 **University of Illinois Provost Scholarship**
- 2019-2023 **University of Illinois Chancellor's Scholar**
- 2019 **Michael O'Connell Scholarship**
- 2018 **Chemistry Olympiad US National Finalist**

Work Experience

- 2020 – **CARE Tutor**, UIUC Grainger College of Engineering
- Present - (2020-now) Physics and Math Tutor
- (2022-now) Thermal & Quantum Physics Review Team Lead
- 2021 – **Physics Department Recruiter**, UIUC Department of Physics
- Present - Advised high school students on college plans at UIUC
- Organized prospective physics student visits to campus

Service and Outreach

- Aug 2019 – **Society of Physics Students UIUC Chapter, President**
- Present - Designed and taught student research and writing workshops
- Hosted physics night for underprivileged elementary school students to teach principles of engineering
- Organized charity book drives for Fermilab Friends for Science
- Directed physics demonstrations for UIUC Engineering Open House
- May 2020 – **Physics Peer Mentor**
- Present - Served as first point of contact for freshman and transfer students to ease transition to UIUC
- Met with students weekly to discuss academic, physical, and mental health practices to improve college experience
- Nov 2019 – **Habitat for Humanity**
- Mar 2020 - Sorted clothing, furniture, and other items for resale

Computer Skills

- Languages Python (Advanced), Mathematica (Intermediate), MATLAB (Intermediate)
- Python Xarray, Matplotlib, Numpy, Pandas, Cartopy, SciPy, Sk-learn
- Libraries
- Other UNIX Shell-scripting, \LaTeX