

Work Experience

- Oct. 2023 - Present - **NASA Jack Eddy Postdoctoral Researcher**, *University Corporation for Atmospheric Research*, Boulder, CO.
- Investigate the particle contributions originated from Moon and Earth to Earth's geospace system by combining numerical modeling efforts with the ARTEMIS-THEMIS (lunar mission) observational data.
 - Joint position as a visiting scholar at the Space Science Lab, University of California, Berkeley, to collaborate with the leading researchers in planetary science.

Education

- Jan. 2020 - Dec. 2023 - **University of Illinois at Urbana-Champaign**, *Urbana, IL*.
Ph.D., Electrical and Computer Engineering
Thesis: *Transport and Energization of Heavy Ions in Earth's High Latitude Ionosphere*
Advisor: Raluca Ilie
- Aug. 2017 - Dec. 2019 - **University of Illinois at Urbana-Champaign**, *Urbana, IL*.
Master of Science, Electrical and Computer Engineering
Thesis: *Determine the Role of Neglected Heavy Ions N^+ in the Earth's Inner Magnetosphere*
Advisor: Raluca Ilie
- Sep. 2013 - May. 2017 - **National Taiwan University**, *Taipei, Taiwan*.
B.S., Electrical Engineering

Research Experience

- May. 2022 - Present - **Early Career Scientist Member**, *International Team #528: Heavy Element*, International Space Science Institution (ISSI), Bern, Switzerland.
- Address the problem of the Earth's atmospheric loss of heavy elements from the behavior of the ionosphere-magnetosphere system in response to geomagnetic activities.
 - Collaborate with 10 experts from space science, planetary science, atmospheric science, as well as paleomagnetism from 10 institutions.
- Aug. 2017 - Sep. 2023 - **Graduate Research Assistant**, *University of Illinois at Urbana-Champaign*, Urbana, IL.
Advisor: Raluca Ilie
- Developed **Seven Ion Polar Wind Outflow Model (7iPWOM)**, the first polar wind model to describe the outflow of nitrogen and molecular ions along the magnetic field lines in the polar cap area. This work demonstrated the key role the heavy ions play in the overall ionospheric outflow.
 - Further developed the **Hot Electron Ion Drift Integrator Model (HEIDI)**, to include an additional ions species, which makes HEIDI the first and only ring current model to track the evolution and dynamics of all relevant ring current ions species.
 - Mentor undergraduate and collaborate graduate students for various Heliophysics research projects, from the modeling to the visualization tool development.
 - Devised and developed the **Energetic Neutral Atom (ENA) visualization model** to generate TWINS-like ENA images from the simulation data.
 - Led a proposal that **granted computer allocation on the XSEDE Bridge Supercomputer**, which provides the computing resources to several other group members.

Awards

- Apr. 2023 - **NASA Jack Eddy Postdoc Fellowship**, *University Corporation for Atmospheric Research*, NASA.
This prestigious fellowship is to train the next generation of heliophysics researchers and is only awarded to 5 recipients in the year 2023.
- Apr. 2023 - **Paul D. Coleman Outstanding Research Award**, *University of Illinois at Urbana-Champaign*, IL.
Presented to a doctoral student who has demonstrated excellence in research in electromagnetics or physical and quantum electronics.
- May. 2022 - **Raj Mittra Outstanding Research Award**, *University of Illinois at Urbana-Champaign*, IL.
Awarded a doctoral degree candidate each year in the Department of ECE who demonstrated excellence in research of electromagnetics.

- Oct. 2021 **EECS Rising Stars, MIT.**
An intensive workshop for graduate students and postdocs who are interested in pursuing academic careers in electrical engineering and computer science.
- May. 2021 **Future Investigators in NASA Earth and Space Science and Technology (FINESST) fellowship, Heliophysics division, NASA.**
This fellowship provides research grants to graduate students who are designing and performing research projects relevant to the interests of the NASA Science Mission Directorate.
- Apr. 2021 **Mavis Future Faculty Fellows (MF3) for the 2021-2022 academic year, The Grainger College of Engineering, University of Illinois at Urbana-Champaign, IL.**
Selected as one of MF3 Fellows, which attend the courses to facilitate the training of future academic careers.
- Mar. 2021 **Yuen T. Lo Outstanding Graduate Research Award, University of Illinois at Urbana-Champaign, IL.**
Presented to a doctoral degree candidate each year in the department who has demonstrated excellence in research in the areas of electromagnetics or antennas.
- Dec. 2020 **Outstanding Student Presentation Award (OSPA), 2020 American Geophysical Union (AGU).**
This award recognizes top 2-5% students at a meeting attended by more than 25,000 researchers from more than 100 countries.
- Dec. 2019 **Outstanding Student Presentation Award (OSPA), 2019 American Geophysical Union (AGU), San Francisco, California.**
This award recognizes top 2-5% students at a meeting attended by more than 25,000 researchers from more than 100 countries.
- Fall 2019, Spring 2020 **Listed as Teachers Ranked as Excellent, University of Illinois at Urbana-Champaign, IL.**
Given to top 30% faculty and teaching assistants across the entire UIUC campus each semester, based on students' feedback.
- Jun. 2018 **Best Student Presentation Award, 2018 Geospace Environment Modeling (GEM) Workshop, Santa Fe, New Mexico.**
This award is given to top 5% students among 100 student attendees each year.

Leadership & Service

- Jan. 2024 - Present **Organizer, Center for Integrative Planetary Science (CIPS), UC Berkeley.**
Organize activities within the CIPS, such as planning seminars and inviting speakers.
- Oct. 2023 - Present **Member, 2024 Eddy Cross-Disciplinary Symposium Steering Committee.**
Organize activities within the symposium, such as planning working groups and inviting speakers.
- 2024, 2025 **Journal Reviewer, Journal of Geophysical Research: Space Physics, Geophysical Research Letters.**
2024 **Panel Reviewer, NSF and NASA Panels.**
- Dec. 2023, Dec. 2024 **Session Chair, AGU SPA.**
Lead and organize the oral and poster sessions of "Circulation of Heavy Ions and Their Role in Regulating Plasma Dynamics."
- Jan. 2023 - Jan. 2024 **Student Representative, AGU SPA.**
Form and lead the AGU Student Advisory Committee to address the needs of students who participated in the AGU conference.
- Mar. 2022 - Sep. 2023 **Principal Investigator, HUG Initiative, Institute for Inclusion, Diversity, Equity and Access, University of Illinois at Urbana-Champaign, Urbana, IL.**
- Led the research team across the Engineering College to conduct the survey study and hold the panel discussion and workshop.
- Advocate for the pursuit of research careers among undergraduate and graduates, ~ 200 students in total, in the ECE Illinois.
- Jul. 2021 - Dec. 2021 **Member, 2021 AGU OSPA Advisory Committee.**
Guided the plan of the 2021 AGU OSPA competition.
- Jul. 2020 - Jun. 2022 **Student Representative, NSF Geospace Environment Modeling (GEM) Program.**
Organize any related student activities, including the "student day" (1-day student-led workshop within the main workshop) lectures and student poster competition, and form the GEM Student Advisory Committee.
- Sept. 2019 - Jan. 2021 **Lab Coordinator, Electromagnetics (EM) VR Lab of University of Illinois at Urbana-Champaign, Urbana, IL.**
Led the software archiving efforts and worked with ~ 20 software developers for the Virtual Reality project to establish best practices for software development.
- 2019 - Present **Membership, AGU, EGU, AOGS, ASEE.**