WEIMING HU

Ph.D. Specialized in GIScience, AI, and HPC

https://weiming-hu.github.io/ weiminghu@ucsd.edu linkedin.com/in/weiminghu github.com/Weiming-Hu

EDUCATION

The Pennsylvania State University

Ph.D. in Geography with Minor in Computer Science

Sep 2016 – June 2021 Pennsylvania, US

The Pennsylvania State University

M.Sc. in Geography

Sep 2016 – June 2018 Pennsylvania, US

Wuhan University

B.Eng. in Remote Sensing and Geoinformatics

Sep 2012 – June 2016 Hubei, CN

RESEARCH PROJECTS

Arctic in Hot Water

Quantifying Maritime Transport under Declining Sea Ice and Increasing Geopolitical Tension

September 2020 – Present

- Sponsor: Center for Security Research and Education, PSU.
- Used machine learning to quantify linkages between changing sea ice coverage and maritime traffic in the Arctic Ocean.
- Assessed recent and future changes in Arctic maritime traffic with Earth system models.
- Implemented a machine learning algorithm for maritime traffic simulation and forecast.

Parallel Analog Ensemble

The Power of Weather Analogs

October 2017 – Present

- Sponsor: U.S. Army Geospatial Center
- Developed an efficient and scalable implementation of the Analog Ensemble technique with the deployment on supercomputers.
- Packaged research code as open-source tools for the broader scientific community, available at `https://weiming-hu.github.io/AnalogsEnsemble/`

Power of Many

Co-Design of Scalable Cyberinfrastructure for Complex Ensemble Simulations

October 2017 – October 2020

- Sponsor: National Science Foundation of U.S.A.
- Co-developed ensemble simulation workflows for solar photovoltaic energy production with the RADICAL team at Rutgers University.
- Studied the predictability and uncertainty quantification of solar photovoltaic energy production forecasts with ensemble simulations.
- Carried out a large scale assessment of the photovoltaic energy production over the continental US with high spatial resolution.

RESEARCH KEYWORDS

Rare Events | Renewable Energy | Uncertainty Quantification | Geospatial | Machine Learning | Artificial Intelligence | High Performance Computing

TECHNICAL SKILLS

C++ | R | Python | Linux | ArcGIS | HTML | OpenMP | MPI

TEACHING EXPERIENCES

Instructor

- GEOG 365, Introduction to GIS Programming Fall 2019
- GEOG 160 WEB, Mapping Our Changing World Spring 2020

Guest Lecturer

- EMSC 100S, EMS First Year Seminar Fall 2020

Mentor

- 1 undergraduate student from Meteorology
- 2 undergraduate students from Geography
- 1 master student from Geography

ACADEMIC SERVICES

- Program chair of the Software Engineering Assembly's Improving Scientific Software Conference and Tutorials 2020, 2021
- Liaison of the Outstanding Student Awards program at AGU Fall Meetings 2018, 2019
- Graduate student representative in the Department of Geography 2017

ACCOMPLISHMENTS

- Academic Enrichment Award from the Knight Fund in the Department of Geography. 2020
- Free Software Foundation Scholarship to attend LibrePlanet 2020, Boston, MA. 2020
- 2019 Open Science Grid User School Scholarship at Madison, WI. 2019
- Third place in the Penn State Graduate Exhibition poster competition, Physical Sciences & Mathematics section. 2019
- Sustainable Energy Fund for EnergyPath. 2018
- 12th Annual Graduate Climate Conference Scholarship. 2018
- First place in 2018 Institute of CyberScience Symposium Student Poster Competition. 2018