

XIANG LIU

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EDUCATION

China University of Mining and Technology (CUMT)

Xuzhou, Jiangsu

Bachelor of Engineering in Environmental Engineering

2017.09 - 2021.06

University of Wisconsin-Madison (UW-Madison)

Madison, Wisconsin

Visiting Student in Atmospheric Science

2020.01 - 2020.08

Nanjing University (NJU)

Nanjing, Jiangsu

Master of Science in Atmospheric Science

2021.09 - 2024.06 (Expected)

Related Courses: Bioclimatology, Weather and Climate, Big Data Analysis in Meteorology, Atmospheric Environment Theory and Model, Climate Change Impacts and Adaptations, Atmospheric Aerosols

RESEARCH INTERESTS

- ◆ Machine learning applications in atmospheric environment
- ◆ Impacts and adaptations of human systems to climate change
- ◆ Processes of interactions between air pollution and biosphere

RESEARCH EXPERIENCE

UW-Madison, Madison, U.S.

2020.01 - 2020.08

Research Assistant

Mentor: Professor Ankur R. Desai, Department of Atmospheric and Oceanic Sciences

- ◆ Performed and processed extensive data collection including USDA NASS agricultural statistics, GHCN weather, MERRA-2 reanalysis, EPA air quality, and NARCCAP projected climate data
- ◆ Conducted further analysis through an empirical model in R to analyze the damage of historical crop yield
- ◆ Concluded that maize and soybean behave differently in response to air pollutants and heat stress
- ◆ Researched air pollution and its interaction with climate on accessing yield change which paved the critical path for future research

Independent Research

- ◆ Analyzed site-based carbon fluxes combined MERRA-2 AOD and BESS MODIS radiation datasets through regression and path analysis to determine aerosol fertilization effects on gross primary productivity
- ◆ Employed a large ensemble of model outputs including CMIP6, TRENDY and other satellite-based data to analyze gross primary production by combining solar radiation and atmospheric aerosols trends
- ◆ Utilized both site-based and remote-sensed data from FLUXNET and MODIS LAI to find the relationship between leaf area and light-use efficiency in response to redistribution of solar radiation

NJU, Nanjing, China

2019.08 - 2020.01

Research Assistant (Summer Internship)

Mentor: Professor Yanxu Zhang, School of Atmospheric Sciences

- ◆ Modified and revised the MOZART boundary to initiate the model simulation
- ◆ Used WRF-GC, a new online atmospheric chemical transport model to forecast air quality in China on a Linux system
- ◆ Generated results on WRF-GC model through Python and NCL scripts
- ◆ Developed and maintained a website that provides a daily prediction of air quality in China

CUMT, Xuzhou, China

2019.05 - 2019.07

Research Assistant

Mentor: Dr. Ping Lou, Central Laboratory of Environmental Science and Engineering CUMT

- ◆ Prepared planktonic crustacean *daphnia magna* for experiment operation
- ◆ Designed and conducted experiments to explore the relationship between *daphnia magna* mortality and nano-silver concentration in water

PUBLICATIONS

1. **Liu, X., & Desai, A. R.** (2021). Significant reductions in crop yields from air pollution and heat stress in the United States. *Earth's Future*, 9(8), e2021EF002000.
2. **Liu, X., Zhu, Y., Xue, L., Desai, A. R., & Wang, H.** (2022). Cluster-enhanced ensemble learning for mapping global monthly surface ozone from 2003 to 2019. *Geophysical Research Letters*, 49(11), e2022GL097947.

HONORS & AWARDS

- ◆ Guorui Scholarship of School of Atmospheric Sciences, 2022.10
- ◆ Undergraduate Study Abroad Scholarship of CUMT, 2019.11
- ◆ National Encouragement Undergraduate Scholarship, 2019.09
- ◆ The Third Prize Scholarship of CUMT, 2018.09
- ◆ The First Prize of New Year Mathematical Modeling Competition in CUMT, 2018.08
- ◆ The Third Prize of Regular Mathematical Modeling Competition in CUMT, 2018.07
- ◆ The Third Prize of BoXue Mathematical Modeling Competition in CUMT, 2018.06

EXTRACURRICULAR ACTIVITIES

- ◆ Volunteered for the 110th anniversary of China University of Mining and Technology
- ◆ Member of the Youth Inspirational Team of China University of Mining and Technology

TECHNICAL SKILLS

- ◆ **Coding languages:** MATLAB, R, Latex, NCL, Python
- ◆ **Software and packages:** MS Office Suite, tidyverse, terra, raster
- ◆ **Platforms:** Linux, MacOS, Windows

Latest update: Jan 28, 2023