

Xinming Andy Zhang
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Education

Ph.D. Geography and Sustainability, University of Tennessee, Knoxville, 2027
(Advisor: Q. Wu)

M.S. Energy Environment, West Virginia University, Morgantown, 2023

Thesis title: *Distributed Energy Infrastructure Development: Geospatial & Economic Feasibility in Rural West Virginia*. (Advisors: P. Kinder and M. Strager)

B.S. Environmental Resource Management, Penn State University, State College, 2020

Minors: Watersheds and Water Resources Management

Knowledge Specialization

GIS | Spatial Data Analysis | Spatial Programming | Google Earth Engine | Spatial Hydrology | Statistical Methods | Environmental Justice | Environmental Modeling & Analysis | Drone Operations | Remote Sensing

Publication

Zhang, X. A., Kinder, P., Strager, M., Taylor, S., & Schwartzman, G. (2024). Distributed energy infrastructure development: geospatial and economic feasibility in rural West Virginia. *Environment, Development and Sustainability*, 1-38.

Manuscripts In Preparation or Review

Zhang, X., Schwartzman, G., Dorminey, Z., Wu, Q. “*Fossil Fuel Transition and Its Socioeconomic Impact in Appalachia: Examining Coal's Decline and the Ripple Effect*”

Zhang, X., Schwartzman, G., Wu, Q. “*Power Interrupted: Spatiotemporal Analysis of U.S. County-Level Outages and Implications for Energy Transition Vulnerability*”

Zhang, X., Wu, Q., “*GeoAI Application for Small-Scale Powerline Infrastructure Detection and Location.*”

Zhang, X., Schwartzman, G. “*Land Ownership and Heirs' Property during Coal Transition: A Case Study of Northern Tennessee Counties*”

Wu, Q., **Zhang, X.** “*Geospatial Data Visualization with Python*”

Grants, Awards, Fellowship, and Leadership

2024, Graduate Student Research Award, \$3,000

2024, Conference of Southern Graduate Schools Thesis Awards, Honorable Mention

2023, Seaton Graduate School Fellowship, \$5,000 valued stipend

2021-2023, West Virginia University JEDI Co-President (Justice, Equity, Diversity, and Inclusion)

2019, Penn State College of Agriculture Dean's List

Professional and Teaching Experience

University of Tennessee

2024 to Present Graduate Teaching Associate

Teaching Geography 111: Our Digital Earth, Introducing geospatial data, digital maps, and technology with remote sensing.

2024-2025 Research Assistant at Appalachian Justice Research Center
Performed spatial data analysis and identified trends related to the impact of the fossil fuel transition, and the land ownership transitions for post-coal communities in Appalachia.

2023-2024 Graduate Teaching Assistant
Conduct weekly laboratory sessions and facilitate a dynamic learning environment for Geography 131: Weather, Climate, and Climate Change, and Geography 132: Landscape and Environmental Change.

West Virginia University

2021-2023 Graduate Research Assistant
Conducted spatial analysis using ArcGIS for site suitability analysis of decentralized rural renewable energy infrastructure in West Virginia, analyzed and compiled energy utility datasets, and developed a cost-effectiveness analysis framework for distributed generation to inform sustainable rural energy development.

2022 Project Assistant
Collected and updated conservation easement documents to produce new parcel maps using ArcGIS and Pandell Landworks, analyzed deeds and title documents to identify land ownership discrepancies, and supervised two undergraduate students.

2021 Project Assistant
Analyzed fertilizer effects on tree canopy density using NDVI and multispectral data at Fernow Experimental Forest and provided insights for optimal future tree harvesting locations based on remote sensing data.

Penn State University

2019-2021 Environmental Health and Safety Specialist
Participated in stormwater management and oil-water separation operations, managed biohazardous waste collection and disposal across campus, collaborated with the Sustainability Institute on battery recycling, and reported on radiation exposure data for Penn State's nuclear reactor lab personnel.

2020 Exchange Student Worker at Swedish University of Agricultural Sciences
Conducted a report based on a multi-university summit to compare the ecosystems and water resources of the Baltic Sea and the Chesapeake Bay and contributed to the Baltic Eye program to enhance communication and policymaking on water resources in Baltic countries.

2019 Exchange Student Worker at the Earth University of Costa Rica
Constructed a biodigester to generate power for local farmers and participated in a conference on environmental education and sustainable tropical rainforest resource management.

Voice Ireland Non-governmental Organization

2018 Environmental Consultant
Organized the Conscience Cup Campaign to reduce disposable coffee cup usage in Ireland. Supervised enforcement of EU Environmental Law on cigarette littering. Analyzed littering data to produce an annual report for future studies.

Certifications

Graduate certificate in Geographic Information Systems, West Virginia University
Undergraduate certificate in Geographic Information Systems, Penn State University

Unmanned Aircraft System pilot license, Federal Aviation Administration

Hazardous Waste Operations and Emergency Response, Penn State Department of Environmental Health and Safety