

XU Aoxue

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Education

Duke University (Kunshan, China & Durham, NC)

2025 – 2027

Master of Environmental Policy (iMEP)

- GPA: 3.88/4
- Courses: environmental economics, ESG investment, statistics and program evaluation, and environmental policy analysis.

Jiangxi Normal University

2021 – 2025

Bachelor of Science (Honours) in Physical Geography, Resources and Environment

- GPA 86.6/100 (**Rank 1/21**)
- Courses: plant and soil physicochemical analysis, geostatistical analysis, remote sensing principles and methods, and GIS principles and methods.

Research Experience

Trade Shocks and Deforestation in Brazil: Evidence from the 2018 US-China Soybean Trade War

2026.03 – current

Master's thesis (working paper), Advisor: Professor Binbin Li

- Investigated whether the 2018 US-China soybean trade war's soybean demand shock accelerated deforestation in Brazil and whether Forest Code enforcement buffered it.
- Building a 15-year municipality-year panel (2008–2022, $N = 28,095$) covering 1,873 Amazon and Cerrado municipalities, integrating PRODES satellite deforestation, Trase trade flows, IBGE agricultural statistics, and USDA/CEPEA prices.
- Implementing a continuous-treatment difference-in-differences design with event-study and placebo and permutation tests; estimating that one log-unit of pre-war export exposure reduced deforestation by 1.64% ($p < 0.001$), about 13% at median exposure, with effects concentrated in the Cerrado.

Research Assistant, Economics, Duke Kunshan University

2026.01 – 2026.06

For Professor Wumeng He

- Prepared and processed geospatial datasets in ArcGIS Pro and QGIS and extracted raster layers (e.g., nighttime lights) to support applied economics and policy research.

Rural Livelihoods and Market-Tourism Pressures in High-Mountain Tea Villages, Xishuangbanna

2025.11 – 2025.12

Core researcher, ESG case competition

- Designed structured questionnaires and semi-structured interview protocols; conducted 21 in-depth household interviews (10 tea farmers, 7 middlemen/cooperatives, 4 village leaders) covering about 18% of the village.
- Cleaned survey data and coded interview transcripts with grounded theory (open, axial, selective); co-wrote a 40+ page report documenting the separation between resource holding and value conversion, including income-education patterns, ecological-technical tensions, and tourism stagnation mechanisms.
- Found that over half of high-income farmers had off-village training and 95% hand-fried ancient-tree tea, and identified four causes of tourism stagnation.

Meta-Analysis of Solar Photovoltaic Installations and Soil Carbon Sequestration

2026.01 – 2026.03

Core researcher

- Screened 110 studies and extracted soil-health effect sizes to quantify the combined effect of photovoltaic installations on soil carbon and related indicators.

Urban Impervious Surface Extraction with Random Forest

2024.07 – 2024.08

Core researcher

- Developed a Google Earth Engine workflow using Sentinel-2 imagery and a multi-dimensional feature space, selecting 25 optimal features for Random Forest classification across four Chinese cities.
- Achieved 93.49% overall accuracy and a Kappa coefficient of 0.8990, supporting urban expansion monitoring and environmental assessment.

Research Assistant, Duke Kunshan Environmental Research Center 2025.02 – 2025.06

For Professor Jingbo Cui

- Researched 20+ universities and think tanks and wrote a 5,000+ word strategy report adopted by the center director; mapped long-run climate-disaster frequency using Excel, Python, and ArcGIS Pro.

Biochar-Derived Dissolved Organic Matter Spectroscopy, Poyang Lake 2022.05 – 2024.04

Independent undergraduate researcher

- Operated UV-visible and three-dimensional fluorescence spectroscopy instruments and applied PARAFAC and self-organizing mapping (SOM) to characterize molecular-weight-dependent properties of wetland-plant biochar DOM; read 129+ papers and wrote the first-author core-journal paper.

Teaching Experience

Teaching Assistant, Statistics and Program Evaluation

2026.08 – 2026.12

For Professor Xiao Wang, iMEP

- Leading weekly one-hour tutorials applying course concepts to practical cases, assignments, and projects drawn from my own research and coursework.

Publications

- **Xu, Aoxue** (first author). “Spectral characteristics of different molecular weights of biochar-derived dissolved organic matter from wetland plants in Poyang Lake using PARAFAC and SOM.” *Acta Scientiae Circumstantiae* (2024; IF 3.4).
- **Xu, Aoxue** (5th author). “Effect of pyrolysis temperature and molecular weight on characterization of biochar-derived dissolved organic matter from invasive plant and binding behavior with the selected pharmaceuticals.” *Environmental Pollution* (2024; IF 8.3).
- **Xu, Aoxue** (6th author). “Characteristics of Microplastic-derived Dissolved Organic Matter and the Complexation Between MPDOM and Sulfadiazine/Cu²⁺.” *Environmental Science* (China) (2023; IF 5.8).

Awards & Honours

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| • Comprehensive Quality Scholarship (top10%), Jiangxi Normal University | 2022 – 2025 |
| • National GIS Application Level 1, MIIT Talent Exchange Center | 2023 |
| • Undergraduate “Three-Good Student”, Jiangxi Normal University | 2025 |
| • Top-100 Undergraduate Thesis & Scholarship, Jiangxi Normal University | 2025 |

Expertise

- **Research skills:** systematic literature review, research-question formulation, study design, survey design, semi-structured interviews
- **Technical expertise:** spectral analysis (UV-vis, 3D fluorescence); Google Earth Engine, Random Forest; ArcGIS Pro, QGIS, ArcMap; Python, R, SPSS, Excel, Origin
- **Analytical thinking:** causal inference (difference-in-differences), panel-data analysis, meta-analysis, grounded-theory coding
- **Languages:** English (IELTS 7; English-medium master’s)