Chenxi Du

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Education Background

2023.9 - Present **Sun Yat-sen University (985)** **M.Eng. in Surveying and Mapping Engineering**

GPA: 91/100 (Rank: 1/36, Top **3%**)

Major courses: Spatiotemporal Big Data Analysis and Application (94), Spatial Statistics (96), Remote Sensing Modeling and Application (90), Hyperspectral Remote Sensing (94), Machine Learning Technology (92)

Research interests: Responses of agricultural and ecological systems to air pollution and climate change

2019.9 - 2023.6 **Huazhong Agricultural University (211)** **B.Sc. in Geographical Information Science**

GPA: 3.65/4.00 (Rank: 9/70, Top **13%**)

Major courses: UAV Remote Sensing Application (91), Agricultural Big Data Processing and Application (93), Spatial Data Uncertainty Analysis Experiment (97), Data Structure (90), Digital Image Processing Experiment (91)

Publications

Journal Articles

Du, C., Pei, J., & Feng, Z. (2024). Unraveling the complex interactions between ozone pollution and agricultural productivity in China's main winter wheat region using an interpretable machine learning framework. *Science of the Total Environment*, 954, 176293. https://doi.org/10.1016/j.scitotenv.2024.176293 (**JCR-Q1, IF 8.2**)

Han, T., **Du, C.**, ..., Chen, Y. (2025). A 3D Perspective for Understanding the Mechanisms of UHI and Urban Morphology using Multi-modal Geospatial Data and Interpretable Machine Learning. *Building and Environment*, 113184. https://doi.org/10.1016/j.buildenv.2025.113184 (**Co-first author**) (**JCR-Q1, IF 7.1**)

Patents

Pei, J., **Du, C.** Assessment method and system for the nonlinear impact of ozone on the productivity of agricultural ecosystems. CN117726474A, 2024-03-19

Conference Paper

Du, C., Pei, J., ..., Feng, Z. (2025). Assessing the Spatial-Temporal Impact of Surface Ozone Pollution on Winter Wheat Productivity in China Based on Multi-source Remote Sensing Data, Proc. IEEE Int. Geosci. Remote Sens. Symp. (IGARSS) (**Accepted**)

Conference Presentation

Du, C. Evaluating Air Pollution Impacts on Agricultural Productivity in China: Insights from Remote Sensing Data and Geospatial Modeling, EGU General Assembly 2025, Vienna, Austria, 27 Apr–2 May 2025, EGU25-14198, https://doi.org/10.5194/egusphere-egu25-14198 (**Oral**)

Submitted Manuscripts

Du, C. .... (2025). Impacts of Combined Ozone and Drought Extremes on US Soybean Yields

Pei, J., **Du, C.**, ..., Feng, Z. (2025). Impacts of Combined Ozone and Drought Extremes on US Soybean Yields.

Han, T., **Du, C.**, ... (2025). Exploring the Influence of Urban Land Use and Morphology on Diurnal Heat Variation: Insights from Travis, Texas. (**Co-first author**)

Research experience

Quantitative Assessment of Crop Productivity Risk from Surface Ozone Pollution **2023.6 - Present**

- ✧ **Research Content:** Quantified the spatiotemporal response of crop productivity to surface ozone pollution using interpretable machine learning and advanced statistical approaches. Integrated drought and meteorological variables to assess compound environmental impacts.

Jiangxi Provincial Science and Technology Project **2023.6 - 2025.9**

Research Assistant

- ✧ **Theme:** Intelligent Remote Sensing Monitoring of Rice Growth and Soil Nutrients.
- ✧ **Research Content:** Collected UAV-based rice canopy spectral reflectance and manually measured crop growth indicators including LAI, SPAD, temperature, and plant height. Conducted soil sampling, data validation, and preprocessing for model input.

Spatial Database Construction and Update of Farmland Quality in Hubei Province **2022.3**

Research Assistant

- ✧ **Research Content:** Conducted field surveys and collected soil samples for physical and chemical analysis in Chongyang County. Generated farmland quality classification maps based on national standards using ArcGIS.

Landslide Susceptibility Mapping in Liuba County Based on Information Model and Improved AHP **2021.9**

- ✧ **Research Content:** Identified nine key environmental variables for landslide susceptibility assessment. Applied an improved Analytic Hierarchy Process (AHP) to assign factor weights and conducted risk mapping using the Information Value Model. Validated model accuracy using ROC curve analysis.

Hubei Provincial Undergraduate Innovation and Entrepreneurship Training Program **2020.12 - 2022.11**

Project Leader

- ✧ **Theme:** Analyzed multiscale and multi-angle spectral characteristics of corn leaf spot disease using proximal hyperspectral imaging.
- ✧ **Research Content:** Transformed non-imaging hyperspectral data at the leaf scale and identified disease-sensitive wavelengths via Pearson correlation analysis. Analyzed temporal and angular spectral responses of corn canopy using proximal hyperspectral imaging. Developed machine learning models for automated disease detection and severity quantification.

Honors

Best Paper Award, 2nd Global Forum on Space Information for Sustainable Development, 2024. (**Co-first author**)
First-Class Graduate Scholarship, Sun Yat-sen University, 2023. (Top 8%)
Outstanding Graduate, Huazhong Agricultural University, 2023. (Top 20%)
Outstanding Communist Youth League member, Huazhong Agricultural University, 2022. (Top 10%)

Extracurricular activities

Campus Involvement

2023.9 - Present	Secretary of the Graduate Youth Branch	Sun Yat-sen University
2019.9 - 2023.6	Psychological Committee Member	Huazhong Agricultural University

Summer Internship

Wuhan KOTEI Informatics Co., Ltd. **2021.8**

Data R&D Section, Mobile Data Division

- ✧ **Project Theme:** Autonomous driving lane line recognition and extraction.
- ✧ **Key Responsibilities:** Developed buffer zone generation algorithms for lane lines; implemented automated code for converting KML files to SHP format; created a user interface for data processing workflows.

Skills and interests

Programming: Python, R, MATLAB (Proficient); SQL, C++, JavaScript (Basic)
Software and Tools: ArcGIS, GEE, ENVI, SPSS
Certifications: National Computer Rank Examination Level-3 (Database); Driver's License (C1)
Languages: Chinese (native), English (CET-4: 607, CET-6: 532)
Interests: Accordion (Level 10), Roller Skating, Badminton