

# Xiaojun Ge

isgexiaojun@gmail.com | +86-189-7814-5078 | Qixing Road, Nanning, Guangxi Province, China, 530001

## Relevant Research Skills

### Field Experimentation

Hydrological monitoring device usage  
On-site water quality monitoring

### Microbial and Genetic Analysis

16S rRNA amplicon sequencing  
qPCR (Quantitative Polymerase Chain Reaction)

### Instrumental operation and maintenance

- Automated & continuous flow analyzers
- UV-Vis spectroscopy
- CRDS (Cavity Ring-Down Spectroscopy)
- Mass spectrometry

### Nutrient Transformation

- $^{15}\text{N}$  isotopic tracing method

### Soil Physicochemical Measurement

- Soil enzyme activity assays
- Soil aggregate and stability measurement

### Software Skills

- R
- GIS
- MATLAB
- Microsoft Office(Word,PowerPoint,Excel)

Multi-depth soil profile & coring sampling  
Soil/Water GHG sampling (chamber), forest flux (tower)

QIIME2 analysis: phylogeny, QC & visualization  
Functional gene annotation & analysis

- HPLC (High-performance liquid chromatography)
- LC-MS/MS
- Gas Chromatography

- Sediment incubation

- Soil sesquioxide quantification
- Nutrient fractionation separation (C, N, P)

## Research Experience

### Research Assistant

#### Institute of Guangxi Zhuang Autonomous Region Institute of Metrology & Test, Nanning, China

Development and validation of a high-resolution carbon sink assessment system for plantations **Nov. 2022 - Present**

- Integrated multi-scale data with machine learning approaches to optimize carbon sink model parameters
- Conducted cross-validation of various carbon sink accounting methods to improve estimation accuracy
- Quantified uncertainties in carbon sink models of plantation forest

### Collaboratively Trained Students

**Supervisor:** Zaijian Yuan

#### Institute of Eco-environmental and Soil Sciences, Guangdong Academy of Science, China

Technology Integration and Demonstration of Manure Pollution Ecological Treatment      **Sep. 2020 – June 2022**  
in Swine Farms Project

- Led the design and establishment of mesocosm constructed surface flow constructed wetlands .
- Participated in the design and construction of field-scale surface-flow constructed wetland.
- Teamed with group colleagues to refine wetland and execute isotope experiments
- Experimentally studied the impact of antibiotic exposure time on nitrogen gross transformation rates.
- Routinely monitored and quantitatively analyzed the impact of sustained antibiotic exposure on nitrogen removal efficiency and pathways in wetlands.
- Revealed changes in the microbial community of wetlands under long-term antibiotic exposure.

#### Nanling Forest National Field Observation and Research Station Project

**May. 2020 – Dec. 2021**

- Participated in establishing soil monitoring plots and collecting soil samples.
- Analyzed soil physicochemical properties along different altitudinal gradients and across various seasons.
- Investigated the relationships between carbon fractions, soil physicochemical properties, and the microbial community.

## **Project-based Research Student**

### **Institute of Subtropical Agriculture, Chinese Academy of Science, China**

Hydrological and ecological responses to deep vertical rotary tillage (DVRT)

**Supervisors:** Xianli Xu, Xuezhang Li

**Sep. 2019 – June 2021**

- Developed a portable rainfall simulation device for several hydrological projects.
- Designed a variety of experiments with team members.
- Implemented field rainfall simulations experimental with two graduate students for two months.
- Compared the soil stability, sesquioxides, and nutrients fraction composition of DVRT with traditional tillage.
- Quantitatively assessed the risk of soil erosion and nutrient loss under DVRT.
- Provided further understanding of the effect of DVRT on hydrological ecology.

## **Publications**

1. Risks and drivers of nitrogen and phosphorus runoff loss Loads from sludge woodland application strategies under extreme rainfall conditions. **(Co-first-Author)** *in preparation.*
2. Effects of deep vertical rotary tillage on sheet erosion processes during sugarcane growth in *Latosolic Red Soil* cultivation area. **(First Author)** *in preparation.*
3. Effect of deep vertical rotary tillage on aggregate stability and fragmentation mechanism of Latosolic Red Soil. **(First Author)** *Submitted.*
4. Effect of Short- and Long-Term Antibiotic Exposure on Microbially Mediated Nitrogen Reduction-Oxidation Process in Sediment of Surface-Flow Constructed Wetland. **(First Author)** *in preparation.*
5. Temporal and Spatial Variation Characteristics and Source Analysis of Agricultural Non-point Source Pollution Load in Guangdong During the Past 20 Years. **(First Author)** *2022.*  
**DOI:** <https://doi.org/10.12357/cjea.20230523>
6. Temporal Characteristics and Influencing Factors of Agricultural Net Carbon Sink in Guangxi from 1978 to 2021. **(First Author)** *2024.*
7. Effects of biochar application on the loss characteristics of Cd from acidic soil under simulated rainfall conditions. **(Fourth Author)** *2022.*  
**DOI:** [https://doi.org/10.1007/s11356-022-21623-x.](https://doi.org/10.1007/s11356-022-21623-x)

## **Education & Honor**

### **South China Normal University, M.S. in Environmental Science & Engineering**

**Sep. 2019 – June 2022**

**Thesis:** Study on the effect and mechanism of antibiotics on nitrogen removal in constructed wetland in non-point source pollution of livestock treatment

**Rewards:** 3 years of school-level scholarships of South of China Normal University (2019–2021)

### **Guangxi Normal University, B.S. in Environmental Science**

**Sep. 2014 – June 2018**

## **References**

**Prof. Zaijian Yuan:** Director and Professor, Department of Non-Point Source Pollution Control and Soil and Water Conservation, Institute of Eco-environmental and Soil Sciences, Guangdong Academy of Sciences  
**Email:** zjyuan@soil.gd.cn | **Phone:** (86) 18898323672

**Dr. Xianli Xu:** Professor, Institute of Subtropical Agriculture, CAS; Member of the IALE-China Council  
**Email:** xianlixu@isa.ac.cn | **Phone:** (86) 0731-84619760

**Dr. Dr. Jing Zhu:** Associate Professor, College of Environment and Resources, Guangxi Normal University  
**Email:** zhuj@gxnu.edu.cn | **Phone:** (86) 13647738900