

CURRICULUM VITAE

PERSONAL DATA

First name: Xi
Last name: ZHOU
Sex: Female
Date of birth: 08 September 2000
Place of birth: Guangzhou City, Guangdong Province, P. R. China
Nationality: China
Language capacity: Chinese, Cantonese, English, Korean
Present occupation: Master student in China Agriculture University (CAU), Beijing, P. R. China
Status of marriage: Never married

CONTACT INFORMATION

ZHOU Xi
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College of Resources and Environmental Sciences (CRES)
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EDUCATION

09/2022-present Master student majoring in Plant Nutrition
College of Resources and Environmental Sciences (CRES), CAU, Beijing
GPA: 86.33/100
09/2018-07/2022 Undergraduate student majoring in Plant Nutrition,
College of Resources and Environmental Sciences (CRES), CAU, Beijing
GPA: 3.39/4.00; Ranking: 50/150
Dissertation: "Metatranscriptomics resolves the detrimental impact of salt stress on the paddy soil methanogens into population-specific responses"
PI: Jingjing Peng (jingjing.peng@cau.edu.cn)
09/2020-07/2022 Undergraduate student minoring Data Science and Big Data Technology,
College of Information and Electrical Engineering (CIEE), CAU, Beijing
Dissertation: "Revealing Insights into Diabetic Foot Ulcer Microbiome for Clinical Applications"
PI: Wentao Xu (xuwentao@cau.edu.cn)

SKILLS

Programming

- Data analysis and visualization: Python, R, MATLAB
- Data development: SQL, Linux systems, Bash, Hadoop, Hive, Spark
- AI and computer visual (pyTorch/Keras/Paddle; ANN/CNN/RNN)

Bioinformatics

- Microbiome Analysis: 16S rRNA (Qiime2, Dada2, phyloseq)
- Genome-centric metagenomics: FastQC, Prodigal, Prokka, InterProScan, DIAMOND, HMMER, MEGAHIT, SPADes, metaBAT2, CONCOCT, CheckM, Bowtie2, CD-HIT, SAMtools, Kraken
- Metatranscriptomics: Total-RNA-based and Double RNA-Approach, SortMeRNA, Trinity, RNASpades, bbduk
- Viral Identification: Virsorter2, VIBRANT, DeepVirFinder, CheckV

Laboratory skills

- DNA and RNA extraction and purification
- qPCR
- metatranscriptomics library construction
- Viral particle enrichment (mass extraction/ultracentrifugation)
- Gel electrophoresis, QUBIT, agilent 2100 bioanalyzer

LAUGUAGE CAPACITY

- Chinese Mother tongue
- Cantonese Mother tongue
- English Excellent
IELTS 7.0/L7.5, R8.0, W6.0, S6.0
- Korean Basic communication
- French Beginner

REASERCH

- 09/2022-present State Key Laboratory of Nutrient Use and Management, CAU
- Research focus: Paddy soil host-virus interaction by meta-omics
 - Methods: Metagenomics, metatranscriptomics, viromics, and targeted metabolomics
 - Advisor: Jingjing Peng (jingjing.peng@cau.edu.cn)

In this role, I continue to explore host-virus interactions in paddy soil. I employ advanced meta-omics techniques, such as metagenomics, metatranscriptomics, and viromics, to gain insights into the intricate relationships between soil microorganisms and viruses. This research contributes to our understanding of nutrient management and soil health.

- 03-2022-05/2023 Key Laboratory of Plant-Soil Interactions of MOE, CAU
- Data analysis on datasets on plant-microbe interaction
 - Methods: Curating metagenomics and metatranscriptomics datasets, key gene identification

During this period, I focused on data analysis related to plant-microbe interactions. My responsibilities included curating and analyzing metagenomics and metatranscriptomics datasets to identify key genes and understand the intricate interplay between plants and soil microorganisms.

- 10/2019-07/2022 Beijing College Research Project on paddy soil microbiome by metatranscriptomics
- Investigating the impacts of increasing salinity on the metabolic status of distinct populations
 - Method: Metatranscriptomics (Double-RNA Approach)

In this research project, I delved into the paddy soil microbiome, specifically exploring how increasing salinity affects distinct microbial populations. Using metatranscriptomics with a double-RNA approach, I analyzed the metabolic responses of soil microorganisms to changing salinity levels, contributing valuable insights to sustainable agriculture practices.

- 09/2018-07/2022 Thesis project on Diabetic Foot Ulcer microbiome for clinical applications, Institute of Nutrition and Health, CAU
- Research focus: Investigating the microbiome of Diabetic Foot Ulcers (DFU)
 - Methods: Big data analysis techniques, data integration, and microbiome analysis
 - Advisor: Wentao Xu (xuwentao@cau.edu.cn)

In this research, I integrated and analyzed the microbiome data of Diabetic Foot Ulcers (DFU) using big data analysis techniques, Python crawler technology, and data analysis and visualization tools. I collected and screened relevant documents, establishing a comprehensive dataset of microbial information. My research identified key microorganisms in DFU and assessed their significance, providing insights for clinical

treatment and diagnostic modeling.

- 11/2021-01/2022 Course project of image segmentation models on magnetic resonance imaging (MRI)
CIEE, CAU
- Leveraged UNet and UNet++ architectures, renowned for their image segmentation capabilities.
 - UNet++ introduced nested skip connections for improved accuracy but faced gradient vanishing issues.
 - Addressed parameter challenges to optimize the model for practical use.
- 03/2021-09/2021 Development of Crop Management Platform, Cornell Hackathon/CAU "Xingnong Cup"
- Led the integration of real-time monitoring data and future prediction data using cutting-edge data fusion techniques, enabling precise crop growth projections and comprehensive yield forecasting.
 - Provided essential agricultural technical support and played a key role in front-end development efforts as a crucial team member.
 - The project has secured software copyright.

TRAINING

- 04/2023-present CAU Special Program on Agricultural Diplomacy, Team 4, CAU, certificate granted
03-05/2023 CAU Special Program on Agricultural Aesthetic Practice, CAU, certificate granted
09/2022-02/2022 Cornell - CAU Joint Course "Agriculture, Food, and the Environment"
Course project: "Connect the Straw: Providing Better Solution to Straw Utilization in Sichuan Province"
- 04/2021-07/2021 CAU/CRES Special Program on Introduction to Agricultural Diplomacy (CRES-IAD)
Team 5, CRES, CAU, certificate granted
- 03/2021-09/2021 Cornell Institute of Digital Agricultural Hackathon, Cornell University, US
08/2019 Student Exchange Program in UC Davis, US, Certificate granted

AWARDS

- 10/2023 Merit student award, CAU
10/2023 The 1st prize scholarship for Master's Degree, CAU
10/2023 Advanced Individual of Cultural and sports activities, CAU
06/2023 Best Poster Award of the 11th Geomicrobiology Symposium,
Chinese Society for Microbiology
- 09/2021 The 1st prize of the 7th Beijing College Students Biology Knowledge Competition,
Beijing Municipal Education Commission
- 05/2021 The 2nd prize of the 2nd "Xingnong Cup" Entrepreneurship Competition, CRES, CAU
03/2021 Successful Participant in Interdisciplinary Contest in Modeling,
The Consortium for Mathematics and Its Applications (COMAP) online program, US
- 07/2020 Excellent Student Leader Award, CAU
07/2019 Outstanding Team Award in Summer Social Practice, CAU
07/2019 Excellent Achievement Award in Social Practice Project, CAU
07/2019 Outstanding Team Award in Summer Social Practice,
Beijing Municipal Education Commission

WORKING EXPERIENCES

- 07/2023-present President, CAU graduate student union
09/2022-07/2023 Chief, CAU graduate student union, Section of Academic and Innovation
07-08/2022 Internship in Consulting Service, Guangdong Agricultural Machinery Research Institute
03/2022-06/2022 Internship in Research Institute, China Hi-Tech Group
07-08/2021 Research Assistant, Renmin University of China
09/2019-07/2020 Chief, CRES Student Union, Section of Liaison
10/2018-08/2020 Word-Study Program in Logistics Office, CAU

SOCIAL ACTIVITIES

02-04/2022 Volunteer in the 2022 Beijing Winter Olympic and Paralympic Games
07/2019 Summer Social Practice in Sichuan Province, P. R. China

MENBERSHIP OF SOCIETIES

Chief Section of Activity, Cantonese Association, CAU
Member Wind band, CAU
Member Rural Development Association, CAU
Member Sunflower Voluntary Association, CAU

PAPERS AND PUBLICATIONS

- Xingjie Wu, Shuikuan Bei, **Xi Zhou**, Yu Luo, Zhibin He, Chunxu Song, Huimin Yuan, Barbara Pivato, Werner Liesack, Jingjing Peng, Metagenomic insights into genetic factors driving bacterial niche differentiation between bulk and rhizosphere soils, Science of The Total Environment, Volume 891, 2023, 164221, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2023.164221>.

HABITS

- Clarinet
- Dancing (Pop/Voguing/Waacking)
- Aerobics
- Oil painting

FOREIGN COUNTRIES VISITED ON MISSIONS OR TOURED

09/2023 South Korea, tourist
08/2018 the United States, exchange program in UC Davis (on missions)
08/2018 Japan, tourist
08/2015 Turkey, tourist
07/2012 Maldives, tourist