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Doctoral candidate at School of Engineering, Westlake University, Hangzhou, China.

Visiting student at Agroscope, Nyon, Switzerland.

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RESEARCH INTEREST

Plastic Pollution, Climate Change, Pollination, Ecosystem Services, Artificial Intelligence, Computer Vision, Complex Systems, Modelling, Science-Policy Interface, etc.

EDUCATION

PhD candidate in Environmental Sciences & Engineering 2023 – present

School of Engineering, Westlake University (joint program with Zhejiang University)

Supervisors: Prof. Thomas Cherico WANGER & Prof. LI Ling (李凌)

Visiting PhD student 2025 – present

Department of Plant Production Systems, Agroscope

Supervisor: Thomas Cherico Wanger

Bachelor of Science in Environmental Sciences 2019 – 2023

College of Environmental & Resource Sciences, Zhejiang University

General GPA = 3.81/4.00

Minor in Advanced Honor Class of Engineering Education 2020 – 2023

Chu Kochen Honors College, Zhejiang University

PUBLICATIONS

Sheng, D., Ju, F., Li, L., & Wanger, T. C., (2026). Microplastics in farmlands: A model of conditional fragmentation and source estimation. (In prep.)

Sheng, D., Jing, S., Balle, M., & Wanger, T. C. (2026). Combined exposure to microplastics and heat changes behavior, colony development, and social networks in pollinators (*Bombus terrestris*). *Communications Biology*, accepted.

Xu, W., Barzegar, S. G., **Sheng, D.**, Toledo-Hernández, M., Lan, Z., & Wanger, T. C. (2025). Identifying Cocoa Flower Visitors: A Deep Learning Dataset. *Scientific Data*, 12(1), 1309. <https://doi.org/10.1038/s41597-025-05631-3>

Sheng, D., Jing, S., He, X., Klein, A.-M., Köhler, H.-R., & Wanger, T. C. (2024). Plastic pollution in agricultural landscapes: An overlooked threat to pollination, biocontrol and food security. *Nature Communications*, 15(1), 8413. <https://doi.org/10.1038/s41467-024-52734-3>

Darras, K. F. A., Balle, M., Xu, W., Yan, Y., Zakka, V. G., Toledo-Hernández, M., **Sheng, D.**, Lin, W., Zhang, B., Lan, Z., Fupeng, L., & Wanger, T. C. (2024). Eyes on nature: Embedded vision cameras for terrestrial biodiversity monitoring. *Methods in Ecology and Evolution*, 2041-210X.14436. <https://doi.org/10.1111/2041-210X.14436>

Sheng, D., Chen, M., Chen, Q., & Huang, Y. (2022). Opposite selection effects of nZVI and PAHs on bacterial community composition revealed by universal and sphingomonads-specific 16SrRNA primers. *Environmental Pollution*, 311, 119893. <https://doi.org/10.1016/j.envpol.2022.119893>

PATENTS

Wanger, T. C., **Sheng, D.**, Wang, L., & Yuan, X. (2023). *Detection method and apparatus, object monitoring system, computing device, and storage medium* (CN 120124651 A; US 20250190729 A1). China National Intellectual Property Administration, 2025-06-10; United States Patent and Trademark Office, 2025-06-12.

CONFERENCES & PRESENTATIONS

Microplastics in farmlands: A model of conditional fragmentation and source estimation

- Oral presentation at the 13th International Congress on Environmental Modelling and Software (iEMSs 2026), Dublin, Ireland, July 2026.
- Oral presentation at the 20th National Environmental Conference for Doctoral Students, Beijing, China, May 2026.

Attendee at the 3rd International Agrobiodiversity Congress, Kunming, China, May 2025.

Long-term exposure to microplastics and heat affects bumblebee colony development, behavior patterns and social networks. Late-breaking poster at the 2024 Annual Meeting of the Ecological Society of America (ESA 2024), Long Beach, United States, August 2024.

MEMBERSHIPS

Member – International Environmental Modelling and Software Society	2026 – present
Core Member – The Scientists’ Coalition for an Effective Plastics Treaty	2025 – present
Student Member – The Ecological Society of America	2024 – present

SELECTED HONORS & AWARDS

Scholarship for Joint PhD – China Scholarship Council (CSC)	2026 – 2028
National Scholarship for Graduate Students – Ministry of Education of P.R.C.	2025
Dean's Medal (Top 1.4%) – School of Engineering, Westlake University	2025
Certificate of Chu Kochen Honors Program – Zhejiang University	2023
Interdisciplinary Contest in Modeling (MCM/ICM), Honorable Mention – The Consortium for Mathematics and Its Application	2022
Zhejiang University Scholarship, Second Prize	2019

ACADEMIC SERVICE

Peer review: *Land Use Policy* (1 paper), *Ecology and Evolution* (1 paper)

OTHER EXPERIENCES

Visiting student – SASE Lab, School of Engineering, Westlake University	May 2022 – Aug 2023
Bioinformatics analysis, supervised by Prof. HUANG Yili (黄益丽) – College of Environmental and Resource Sciences, Zhejiang University	Nov 2021 – Sept 2022
Internship on environmental planning – Zhejiang Provincial Academy of Environmental Science and Design (浙江省生态环境科学设计研究院)	Jul 2022 – Sept 2022
Summer session – University of California, Berkeley	2021 Aug

SKILLS

Language:	Mandarin Chinese (native), English (proficient), French (basic)
Programming & Software:	Python, MATLAB, R, C/C++, AutoCAD, SolidWorks, SketchUp
Data Analysis & Modelling:	Advanced Regression Analysis(e.g., GLMs, LMMs), Meta-Analysis, Machine Learning, Computer Vision, Complex Systems Modelling
Experimental Skills:	Raman Spectroscopy, Optical Microscope, Wet Lab Experiments