

Wenlan Zhang

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CAREER PROFILE

Wenlan is a PhD Researcher at the Centre for Advanced Spatial Analysis, UCL. She has a proven interdisciplinary background in environment, policy, and data-driven analysis, resulting in her interest in leveraging technology for social good. Her sector experiences include urban disaster risk management, smart cities, water management, sustainable transport, and circular economy. She is a team player dedicated to collaborating within multicultural settings. During her PhD, Wenlan is developing further skills in economics and management. Languages include Chinese and English.

EDUCATION

University College London (United Kingdom) **03/2022 – 02/2026**

PhD Student in Advanced Spatial Analysis

Research Topic: Quantifying Digital Injustice in Flood Management: The Utility of Smart Data in the Global South

Research Plan: Developing a workflow to assess the performance of digital footprint data in flood risk management by comparing with traditional methods in Nairobi, Kenya; Identifying digital invisible groups and proposing mitigation approaches to empower these groups for data-enabled decision-making.

Imperial College London (United Kingdom) **09/2019 – 11/2020**

MSc in Environmental Technology

Environmental Assessment and Management

Master Thesis: Distributed Ledger Technology enabled passenger control system to maintain social distancing on public transport during COVID-19

Result & Outcome: Applied a resource-sharing algorithm to the public transport to control the movement of the passengers. The system came with a compliance scheme achieved by distributed ledger technology.

Shandong University (China) **09/2015 – 06/2019**

BEng in Marine Resources Development Technology

Conservation and Development

Bachelor Thesis: An Anoxic Bio-Filter (ABF) - Membrane Bioreactor (MBR) combined process on high salinity wastewater treatment and the effect of membrane fouling

Result & Outcome: Conducted experiments to evaluate the efficiency of the combined ABF-MBR process on denitrification effect and alleviate the membrane fouling.

WORK EXPERIENCE

Teaching Assistant – University College London **Part-time 01/2022 – 09/2023**

Duties: Assisting lecturers with teaching activities, including computer-based practical sessions; aiding in assessment activities, including marking reports, codes, and presentations; hosting regular meetings with the module leader to discuss and address arising issues and problems.

Achievements: Effective assessment and feedback, Development of communication skills,

Research Assistant – Tongji University **10/2021 – 01/2022**

Duties: Reviewing analysis method of freight transport data. Conducting and coordinating the data cleaning process for the collected real freight GPS data provided by a cigarette company in China. Extracting travel features from the pre-processed GPS data. Applying a cost-sensitive support vector machine algorithm to train the model with imbalanced data.

Achievements: Aim to publish a paper on identifying intercity freight delivery stops based on real GPS data

Montreal Protocol Intern – UN Industrial Development Organization **03/2021 – 09/2021**

Duties: Project Formulation: Drafting and reviewing concept notes and proposals for the pipeline projects (such as sustainable low-carbon transportation and HCFC Phase-out Management Plan) of the member states applying to Multilateral Fund and Green Climate Fund. Project Implementation: Assisted the implementation of the COVID-19 Emergency Response project with organising workshops and events, as well as drafting reports, work plans, meeting minutes, social media posts, and funding requests. Project Monitor and Evaluation: Performed environmental and social management plan, risk evaluation, and quarterly update and progress reports.

Achievements: Project management. Environmental conventions. International consulting experience

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GIS Specialist – UNDP Istanbul International Center (SDG AI Lab)

12/2020 – 07/2021

Duties: Data Collection: Writing script to automate download Haiti Topographic Lidar data. Data Cleaning: Reproject land topographic data and merging with global bathymetry data. Data Analysing: Assessing the damages of tropical cyclones and river floods to produce disaster prevention tools.
Achievements: Conduct impact assessment on storm surge and wind caused by tropical cyclone in Haiti

Circular Economy Researcher – Morobe Development Foundation

Part-time 06/2020 – 04/2021

Duties: Identifying suitable approaches to improve municipal solid waste management in Papua New Guinea as a developing country with limited economic, geographic, and workforce resources. Writing, reviewing, and editing the final manuscript.
Achievements: Publication of a peer-reviewed article on journal of Environment, Development and Sustainability

Water and Sanitation Analyst – We-Bright Educational Charity

Part-time 07/2018 – 09/2019

Duties: Structured a survey on clean water and sanitation for 9 schools in rural areas of Sichuan. Conducted statistical analysis of the collected dataset. Achieved water and sanitation and performed a report of recommendations for local authorities. Interviewed potential candidates for on-site teaching.
Achievements: 191 survey responses were collected and analysed. A report was submitted to the local authority.

PROFESSIONAL PROJECTS

Land Cover Change Detection **Case Study: Peak District, UK** **2023 – 2023**

- Ensured alignment with project goals by facilitating communication among the supervisor, data owners, and analysts.
- Exhibited leadership and managed interdisciplinary tasks in environment and data analysis in a time-sensitive project.
- Proposed multiple solutions, utilizing statistics and deep learning, to address land cover changes from 2010 to 2020.

Integrated Land Management **Case Study: Hounslow Heath, London, UK** **2020 – 2021**

- Sampled and surveyed heavy metal contaminated soil and water through fieldwork and lab experiment
- Conducted quantitative and qualitative analysis of the processed sample data, including spatial visualisation.
- Identified a school location that minimised impacts to human health through risk assessment.

Circular Economy **Case Study: Veolia, UK** **2020 - 2021**

- Analysed existing waste streams through research to enhance waste management efficiency.
- Formulated three feasible recommendations using Cost-Benefit Analysis and Multi-Criteria Analysis.
- Presented outcomes with a comprehensive report and a presentation to assist the client in informed decision-making.

Grassland Restoration and Management **Case Study: Mongolian Steppe** **2019 - 2020**

- Analysed human-ecosystem interactions and reviewed global policies on pasture degradation and desertification.
- Devised concise policy suggestions to facilitate pasture recovery through risk prevention and land management.

Marine Resources Management **Case Study: South China Sea** **2018 – 2019**

- Mapped the spatial distribution of the annual sea surface temperature of five regions from 1985 to 2016.
- Investigated the spatial-temporal variability of phytoplankton biomass and the influencing factor of SST.

COMPUTATIONAL SKILLS

Data analysis: R, Origin, SPSS	GIS: Google Earth Engine, QGIS, ODV, SAGA
Programming: Python, Java Script, MATLAB, C	Design: AutoCAD, Photoshop, Canva, Final Cut Pro

PUBLICATION

Zhang, W., Zhong, C. and Taylor, F., 2023. Digital Injustice: A Case Study of Land Use Classification Using Multisource Data in Nairobi, Kenya. 12th International Conference on Geographic Information Science (GIScience 2023).

Doaemo, W., Dhiman, S., Borovskis, A., Zhang, W., Bhat, S., Jaipuria, S. and Betasolo, M., 2021. Assessment of municipal solid waste management system in Lae City, Papua New Guinea in the context of sustainable development. Environment, Development and Sustainability, 23(12), pp.18509-18539.

EXTRACURRICULAR ACTIVITIES

- Dancing for more than 20 years. Dancer in Dance Team at Shandong University and Imperial College Dance Club
- Finished online courses from World Bank Group in Sustainable Mobility Policy, GTFS and Mapping.