

Wenhao Wu

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RESEARCH INTEREST

Natural resource and ecological economics, industrial ecology, renewable energy application

EDUCATION

School of Environment, Beijing Normal University, Beijing, China Sep 2020 – Present

B.S. in Environmental Science (GPA 3.63/4.00)

Courses: Environmental Ecological System Engineering (94), Industrial Ecology (91), Environmental Geology (91)

School of Engineering and Natural Sciences, University of Iceland, Reykjavik, Iceland Aug 2023 – Present

Exchange Student in Geography (GPA TBD)

Courses: Globalized Economy, Climate Change, The Arctic Circle, Cartography and Map Design

RESEARCH EXPERIENCES

NEAD (National Environmental Accounting Database) Mar 2022 – Present

Project Assistant | Advisor: [Gengyuan Liu](#), Professor at Beijing Normal University

Renewing the data of a global emergy database for standardized national emergy synthesis

- Collected import and export data from over 200 countries and calculated its emergy based on unification and classification by studying the whole computing structure (Excel, VBA, Power Query)
- Debugged the data of over 1GB with a timespan of 2016-2020 under an undesirable operating environment in a short period and high work intensity (Excel)

Re-accounting the embodied emission in global trade with endogenized capital Mar 2023 – Jun 2023

Project Assistant | Advisor: [Yan Zhang](#), Professor at Beijing Normal University

Identifying key patterns of emissions embodied in trade with capital endogenized by depreciating methods

- Calculated and generalized the capital depreciation data of 22 countries during 2000-2015 under a multi-criteria classification framework, mainly in the form of matrices (MATLAB)
- Reviewed 40 pieces of literature regarding the history and future applications of input-output analysis and formed a report with over 7600 words written in English in 3 days to gain a more in-depth understanding

NZT (Net Zero Tracker) Aug 2023 – Present

Project Assistant | Advisor: [Camilla Hyslop](#), Co-Data Lead, DPhil at University of Oxford

An Open-Access database for tracing carbon targets set by worldwide entities, participating on a voluntary basis

- Collect or review detailed carbon target information of regional governments and companies from public reports on websites, extract timelines, data, scopes, transparencies and methodologies
- Perform international teamwork by getting connected with world-leading climate change mitigation monitor system, turned out to be the chance for me to open overseas social media accounts (see ORCID)

Assessing and optimizing the combined profit of grazing agrivoltaic systems May 2022 – Present

Project Leader | Advisor: [Bin Chen](#), Professor at Beijing Normal University

Designed a profit assessment framework for Grazing Agrivoltaic Systems (GAS) with multiple models combined

- Established and optimized a profit assessment framework for GAS with different models combined, including evaluating ecosystem services with the CASA model by GIS method (PVsyst, ENVI, ArcMap, RStudio, MATLAB)
- Made on-site observations and interviews through an expedition with only me and another teammate, attended a wrap-up meeting of a desert photovoltaic expedition held by Tsinghua University
- Supported by the BNU Undergraduate Academic Training Program, ranking 1/15 among all projects

Quantifying ecosystem restoration benefit of large PV stations under future climate scenarios Jul 2023 – Sep 2023

Project Assistant | Advisor: [Honglin Zhong](#), Professor at Shandong University

Predict the biomass restoration by the implementation of large-scale PV stations in Qinghai Province under RCP2.6 pathway

- Calculate the ecosystem service of projected biomass growth using Costanza-Xie ESV factors, inflation factors and biomass quantity amendment (Excel)
- Designed a Restoration Efficiency Coefficient to represent the vegetation density of restored lands and give specific policy suggestions based on each sub-provincial region (Excel)

CPCD (China Products Carbon Footprint Factors Database)

Jul 2023 – Present

Project Assistant | Advisor: [Zhe Zhang](#), Executive Chief at Chinese Academy for Environmental Planning

An Open-Access Life Cycle Assessment database, participating on a voluntary basis

- Browsed and collected the life cycle assessment greenhouse gases result data for specific products from literature or industrial platforms on a voluntary basis, with review processes from industry experts
- Learned technical flow processes of common commodities and their key emission sectors, gained a holistic view about LCA organizations and institutions all over the world

A GIS-based assessment of the application potential of grazing agrivoltaic systems

Mar 2023 – Jun 2023

Project Leader | Advisor: [Bin Chen](#), Professor at Beijing Normal University

Generated a map of fitness level to install GAS considering different influencing natural and socioeconomic factors

- Independently conceptualized by myself with great concern for the general application of the former research, after being inspired by a similar map of the algae biofuel farm introduced on a special lecture session
- Collected high spatial-resolution and reliable geographical data from different sources, performed map extraction, classification, and calculation with high stability under large data size pressure (ArcMap)

EXTRACURRICULAR ACTIVITIES

Brightcon 2023, Symposium for Brightway LCA Software: Attendee

Esch-sur-Alzette, Luxembourg, Sep 2023

Learned cutting-edge news for open-access LCA software and organizations

- Get familiar with environmental programming and Python-SQL-GitHub-based database management workflow, launched the [Coding for NEAD Project](#) and enlarged my academic network

5th International Students' Ecology and Environment Forum: Organizer, Host

Beijing, China, Dec 2022

Hosted the sub-forum Carbon Peak & Neutrality with 10 participants on an invitation

- Delivered the opening speech and scheduled the presentation order after sending early-stage invitations to program directors from around 50 national institutions through email

Student Union, School of Environment: Chief, Department of Student Rights

Jun 2021 – Sep 2022

Led a team of five to conduct various activities concerning the rights and interests of students

- Organized activities for students from various backgrounds, including freshman sandplay icebreakers and two group counseling sessions (one short-term, one long-term) with great concern about peer pressure

International Society of Industrial Ecology: Social Media Manager

Jun 2022 – Present

Selecting and translating posts between English and Chinese accounts of IS4IE

- Prior to this, I have courses with 30,000+ views, 1500+ followers and 200 comments at a [Bilibili Channel](#); present posts sharing interesting articles from my daily literature reviews at a [WeChat Public Account](#)

SKILLS

Softwares: ArcMap, Google Earth Engine, ENVI, OpenLCA, Brightway, InVEST, SPSS, Vensim, PVsyst

Models: Input-Output Analysis, Life Cycle Assessment, Non-sorted Genetic Algorithm, Variable Infiltration Capacity

Languages: English (fluent), Mandarin (native), Japanese (fluent), Icelandic (primary), Portuguese (primary)

Standard English Tests: TOEFL - Total 104 (Listening 30, Reading 30, Speaking 21, Writing 23), taken in Jan 2023

Programming: MATLAB, Python, R, SQL, C