

Joe (Zih-Hong) Lin

✉ zihong.lin@unsw.edu.au

☎ 0413 249 959

🌐 [linkedin.com/in/zihong-lin](https://www.linkedin.com/in/zihong-lin)

🔍 [Zih-Hong Lin - Google Scholar](#)

Profile

- PhD candidate at UNSW with 11 publications in high-impact, peer-reviewed international journals.
- Develop Python scripts to compare remote sensing products for the Digital Earth Africa project at FrontierSI.
- Experience in machine learning and explainable AI to analyse efficiency of green infrastructure.
- Presented at 8 conferences locally and internationally and won an outstanding presentation at UNSW.
- Won the 2023 Esri Young Scholar Award and various competitions and successfully secured external funding.

Education

PhD in Environmental Management | University of New South Wales, Australia Feb 2022 – Oct 2025

Research focus: urban planning, green infrastructure, environmental efficiency, spatial analysis and statistics, machine learning, environmental modelling, SDGs

Master of Urban Planning | National Cheng Kung University, Taiwan Jul 2017 – Jul 2019

GPA: 4.02 /4.3

- Won the Outstanding Paper Award at the 22nd Forum on Land Use Planning. Mar 2018

Bachelor of Geography | National Taiwan Normal University, Taiwan Sep 2013 – Jun 2017

GPA: 3.77/4.3

- Received Academic Excellence Award (top 5% of the class in the semester). Oct 2016
- Won the Outstanding Paper Award at the 16th Cartographic Conference. Sep 2016

Research Experiences

Research Officer | School of Education, University of New South Wales, Australia

- Conducted Housing Affordability and the Teacher Shortage research program. Jun 2025 – Current
-

Research Assistant | Department of Urban Development, University of Taipei, Taiwan

- Completed 8 research papers (6 English and 2 Chinese) and 3 conference essays. Feb 2022 – Jun 2025
- Led students in executing urban gentrification and completed research reports on time. Jul 2019 – Feb 2021
- Analysed gentrification using traditional statistic models and machine learning.
- Liaised with stakeholders to collect questionnaires and wrote proposals to secure funding.

Research Assistant | Research Center for Environmental Changes, Academia Sinica, Taiwan

- Executed the evaluation of temperature to health under the climate change project. Mar 2021 – Dec 2021
- Evaluated equality of healthcare facilities using the Gini coefficient.
- Analysed temperature and air quality spatial distribution.

Research Assistant | Department of Urban Planning, National Cheng Kung University, Taiwan

- Developed planning models to assess climate change impacts on urban areas. Jul 2017 – Jul 2019
- Flieed UAV and built 3D models using Pix4D for the agricultural land planning project.

Industry Experiences

Geospatial Project Assistant | FrontierSI - Spatial Information Systems Research Ltd, Australia

- Tested code and developed a coastline change dashboard for Digital Earth Africa. Aug 2023 – Feb 2023
- Developed Landsat and Sentinel-2 MNDWI's results comparison Python script.

Data Analysis Intern | ESRI Australia, Australia

- Award of Esri Young Scholar Award 2023 (<https://esriaustralia.com.au/profile/zih-hong-lin>). Jun 2023 – Aug 2023
- Gained experience with ArcPy, AI, and dashboards across diverse project stages.

Teaching Experiences

Demonstrator | School of Biological, Earth and Environmental Science, University of New South Wales

- Taught remote sensing using ENVI and GIS using ArcGIS pro

May 2023 – June 2025

GIS Guest lecturer

Organised and conducted over 30 GIS-related classes and workshops, covering spatial analysis and statistics, remote sensing, QGIS applications, and dashboards.

Jun 2017 – Dec 2024

• Universities

- Department of Urban Development, University of Taipei
- Department of Urban Industrial Management and Marketing, University of Taipei
- Institute of Oceanic Culture, National Taiwan Ocean University

• Government agencies

- Health Promotion Administration, Ministry of Health and Welfare, Taiwan
- New Taipei City senior high school geography teachers, Taiwan
- Taipei Municipal Neihu High School, Taiwan
- Institute for Information Industry, Taiwan

QGIS Teacher of HowGIS Team | Hahow online course, Taiwan (<https://hahow.in/cr/spatialbigdata>)

- Taught an online GIS and spatial analysis course purchased by about 1200 clients.
- Served as New Taipei City's Geography course advisory committee member.

Jul 2017 – Current

Funding and Awards

Research performance

2023 School of BEES Student Research Forum Outstanding Presentation, University of New South Wales

- Outstanding Earth and Sustainability Science Presentation (250 AUD).

Nov 2023

2019 Government Study Abroad Scholarship for PhD, Ministry of Education, Taiwan

- Support PhD tuition fees (140,000 AUD) and living stipend (98,000 AUD) across 3 years.

Dec 2019

College Student Research Scholarship, Ministry of Science and Technology, Taiwan

- Gained 2600 AUD scholarship for undergraduate research.

Jul 2016 – Feb 2017

Competitions

Esri Young Scholar Award 2023, Sydney, Australia

- Won Esri Young Scholar Award Winner

Apr 2023

2021 Land Use Investigation GIS Competition - 3D Innovation Group, Ministry of the Interior, Taiwan

- Won First Place Award and Granted 13500 AUD.

Aug 2021 – Nov 2021

Climate Change Innovative Competition, Ministry of Education, Taiwan

- Won Third Place Award and Granted 2100 AUD. (the third place in about 150 teams)
- Participated in the delegation from Taiwan to the Netherlands and Germany.

Dec 2017 – Oct 2018

2016 Good Policy Ideas for Youth, Ministry of Education, Taipei, Taiwan

- Won the Superiority Award and granted 3700 AUD.
- Had a presentation to President Tsai Ing-wen (the former President of Taiwan).

Aug 2016

2015 Youth Policy Union - Youth Group Policy Research Competition, Ministry of Education, Taipei, Taiwan

- Won the Superiority Award and granted 3700 AUD.
- Had a presentation to President Ma Ying-jeou (the former President of Taiwan).

Jul 2015

Journal Publications

Lin, Z. H.*, Laffan, S. W., and Metternicht, G. Optimising spatial planning for green infrastructure from an environmental efficiency perspective: A case study of the Taipei Basin. *Journal of Environmental Management*. 393, 126849. <https://doi.org/10.1016/j.jenvman.2025.126849>.

- Lin, Z. H.***, Laffan, S. W., and Metternicht, G. (2025). Strategically identifying optimal locations for multifunctional green infrastructure: a case study in the Taipei Basin. *Land Use Policy*. 157, 107654. <https://doi.org/10.1016/j.landusepol.2025.107654>.
- Lin, Z. H.***, Laffan, S. W., and Metternicht, G. (2025). Role of green infrastructure planning in achieving Sustainable Development Goals through an environmental efficiency lens: an integrated literature review. *Ecological Indicators*. 174, 113471. <https://doi.org/10.1016/j.ecolind.2025.113471>.
- Chen, T. L., **Lin, Z. H.*** and Jheng, D. C. (2025). Multi-city comparison of the impacts of land use on land surface temperature in four East Asian Metropolises. *Scientific Reports*. 15, 22252. <https://doi.org/10.1038/s41598-025-07980-w>.
- Chen, T. L., Chen, T. X., and **Lin, Z. H.** (2024). Rural Gentrification and Its Driving Forces Based on Social Network Analysis: A Case Study of Yilan, Taiwan. *Sustainability*, 16(23), 10460. <https://doi.org/10.3390/su162310460>.
- Chen, T. L., **Lin, Z. H.** and Lin, H. (2023). Spatial and temporal change of heat stress and the relationship with land use pattern. *City and Planning*. 50(2), 129-157. [In Chinese] [https://doi.org/10.6128/CP.202306_50\(2\).0001](https://doi.org/10.6128/CP.202306_50(2).0001).
- Chen, T. L. and **Lin, Z. H.** (2023). Exploring the relationship between risk indicators and flooding events - a case study in New Taipei City, Taiwan. *City and Planning*. 50(1), 57-84. [In Chinese] [https://doi.org/10.6128/CP.202303_50\(1\).0003](https://doi.org/10.6128/CP.202303_50(1).0003).
- Li, C. E., **Lin, Z. H.**, Hsu, Y. Y., and Kuo, N. W. (2023). Lessons from COVID-19 pandemic: Analysis of unequal access to food stores using the Gini coefficient. *Cities*, 104217. <https://doi.org/10.1016/j.cities.2023.104217>.
- Hsu, Y. Y., **Lin, Z. H.***, and Li, C. E. (2023). Realising the Sustainable Development Goal 11.7 in the post-pandemic era—A case study of Taiwan. *Environment and Planning B: Urban Analytics and City Science*, 50(1), 162-181. <https://doi.org/10.1177/23998083221108403>.
- Hsu, Y. Y., Hawken, S., Sepasgozar, S., and **Lin, Z. H.** (2022). Beyond the backyard: GIS analysis of public green space accessibility in Australian metropolitan areas. *Sustainability*, 14(8), 4694. <https://doi.org/10.3390/su14084694>.
- Chang, H. S., **Lin, Z. H.***, and Hsu, Y. Y. (2021). Planning for green infrastructure and mapping synergies and trade-offs: A case study in the Yanshuei River Basin, Taiwan. *Urban Forestry & Urban Greening*, 127325. <https://doi.org/10.1016/j.ufug.2021.127325>.
- Chen, T. L., and **Lin, Z. H.*** (2021). Impact of land use types on the spatial heterogeneity of extreme heat environments in a metropolitan area. *Sustainable Cities and Society*, 72, 103005. <https://doi.org/10.1016/j.scs.2021.103005>.
- Chen, T. L. and **Lin, Z. H.** (2020). Planning for climate change: evaluating the changing patterns of flood vulnerability in a case study in New Taipei City, Taiwan. *Stochastic Environmental Research and Risk Assessment*, 35(6), 1161-1174. <https://doi.org/10.1007/s00477-020-01890-1>.
- Chuang, M. T., Chen, T. L. and **Lin, Z. H.** (2020). A review of resilience practices based upon flood vulnerability in New Taipei city, Taiwan. *International Journal of Disaster Risk Reduction*, 46, 101494. <https://doi.org/10.1016/j.ijdrr.2020.101494>.

Papers in preparation

- Lin, Z. H.***, Laffan, S. W., and Metternicht, G. Toward better environmental efficiency measurement and prediction for green infrastructure: an integrated Super-SBM-DEA and machine learning model. *Under Review*
- Lin, Z. H.**, Hsu, Y. Y., Bayrak, M. M., Li, C. E. and Yuan, M. H. Unveiling the dynamics of green space spatial inequalities at intra-local government area level – Evidence from the Taipei metropolis. *Under Review*
- Chen, T. L., **Lin, Z. H.*** and Chang, P. C. Applying Machine Learning to Analyze and Predict Transit-oriented Gentrification—A Case Study of the Taipei Metro. *Under Review*

Conference Papers

- Lin, Z. H.**, Laffan, S. W., and Metternicht, G. (2025). Spatially explicit machine learning for assessing equality in urban green space accessibility. GIScience 2025 conference, Christchurch, New Zealand.
- Lin, Z. H.**, Laffan, S. W., and Metternicht, G. (2025). Evaluating the efficiency of nature-based solutions: a data envelopment analysis - machine learning approach. 11th ESP World Conference, Darwin, Australia.
- Lin, Z. H.**, Laffan, S. W., and Metternicht, G. (2023). Establishing a green Infrastructure planning model based on the perspective of environmental efficiency. State of Australasian Cities Conference 2023, Wellington, New Zealand.
- Hsu, Y. Y., **Lin, Z. H.** and Chen, T. L. (2020) Spatial planning for greening transport infrastructures in historical city. Taiwan Geographic Information Science conference, Tainan, Taiwan. [In Chinese]
- Chen, T. L. and **Lin, Z. H.** (2019). Preliminary study on the effect of cooling effect between green space and thermal environment—a case study of original Taichung City. International Conference on Taichungology, Taichung, Taiwan. [In Chinese]
- Lin, Z. H.** and Chang, H. S. (2019). Evaluating the co-benefits of green space in Yanshuei River Basin. 2019 Institute of Australian Geographers Conference, Hobart, Australia.
- Lin, Z. H.** and Chang, H. S. (2018). Adapting to climate change: spatial planning of green infrastructure in Tainan. 58th European Regional Science Association (ERSA) congress, Cork, Ireland.

Referees

➤ Professor Shawn W. Laffan (Supervisor)
Director of Earth and Sustainability Science Research Centre
University of New South Wales
shawn.laffan@unsw.edu.au

➤ Professor Graciela Metternicht (Co-supervisor)
Dean of Science
Western Sydney University
g.metternicht@westernsydney.edu.au