

Curriculum Vitae

TZAI-HUNG WEN

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EDUCATION

Bioenvironmental Systems Engineering, National Taiwan University
Ph.D. (2006); M.S. (1998); B.S. (1996)

MAJOR FIELDS

Geographic Information Science (GISc); Spatial-Temporal Epidemiology;
Geographies of Diseases; Spatial Data Analytics; Urban Environmental Sensing

APPOINTMENTS

Professor	2017- present	NTU Department of Geography,
Associate Professor	2013-2017	NTU Department of Geography
Assistant Professor	2009-2013	NTU Department of Geography
Project Assistant Professor	2008-2009	NTU Institute of Epidemiology
Postdoctoral Fellow	2007-2008	Center for Geographic Information Science, RCHSS, Academia Sinica

AFFILIATED FACULTY

2023 - present	Mahidol University (Thailand), Department of Epidemiology
2022 - present	NTU Institute of Epidemiology and Preventive Medicine
2021 - present	NTU TIGP Program in Earth System Science (TIGP-ESS)
2013 - present	NTU Master Program in Statistics
2009 - present	MOHW-NTU Infectious Disease Research and Education Center
2008 - 2009	Department of History, National Chengchi University (NCCU)

ACADEMIC DIRECTORSHIP

- 2021 – present Director, NTU Spatial Information Research Center
2018 – 2021 Chairperson, NTU Department of Geography
2014 – 2017 Division Director, NTU Global Change Research Center
2010 – 2018 Division Director, NTU Center for Population and Gender Studies

AWARDS AND HONORS

- 2019-2021: MOST Shackleton Program Grant
2019: NTU Reward for Excellent Senior Teachers
2018: MOST Press Conference
2018, 2023: NTU Outstanding Teaching Award
2017: MOST Future Technology Award
2016-2023 NTU Faculty Merit Pay
2015: MOST Ta-You Wu Memorial Award
2014-2016: MOST Excellent Young Investigator Grant
2011, 2013, 2016: NTU Excellence in Teaching Award

JOURNAL EDITORIAL BOARD

- 2022 - 2023 Guest Editor of *Tropical Medicine and Infectious Disease* (SCI)
2021 - 2021 Guest Editor of *GeoDigital Life*
2020 - 2023 Editor-in-chief, *Journal of Population Studies* (TSSCI)
2018 - present Academic Editor, *PLOS ONE* (SCI)
2018 - present Editorial Board (Biostatistics and Methods), *BMC Public Health* (SCI)
2015 - 2018 Editorial Board, *Journal of Geographical Science* (TSSCI)
2013 - 2017 Editor-in-chief, *Bulletin of the Geographical Society of China*
2011 - 2019 Editorial Board/Deputy Editor, *Journal of Population Studies* (TSSCI)

ACADEMIC OUTREACH

- 2020 - 2023 Council Member, Chinese Federation of Surveying & Mapping
2019 - 2023 Chairman, Chinese Cartographic Association
2019 - 2022 National Committee (Chinese Taipei) of International Geographical Union
2018 - present Council Member, Taiwan Geographic Information Society (TGIS)
2018 - 2023 Open Government Data Consultation Committee, Taiwan EPA
2018 - 2019 MOST Grant Review Committee on Regional Science & Geography
2018 - 2020 MOST Grant Review Committee on Geospatial Information Technology
2017 - 2019 Secretary-General, Chinese Cartographic Association
2017 - 2023 Executive Council Member/Supervisor, Population Association of Taiwan
2017 - 2023 Council Member (as Chairman in 2019-2022), Geographical Society
2016 - 2019 National Mosquito-Borne Diseases Control Research Center

Textbooks and Atlas Books: 2012-2024

1. **Wen TH**, Chuang TW, Tipayamongkhogul M (Editors) (2023), *Earth Data Analytics for Planetary Health*, Springer Nature Singapore. 258 pages. (ISBN: 978-981-19-8765-6).
2. **Wen TH** (2021), *Spatial Analysis: Methods and Applications (2nd Edition)*, Taipei: Yeh Yeh Book Gallery. 344 pages. (ISBN: 978-957-90-9696-6).
3. **Wen TH** (2015), *Spatial Analysis: Methods and Applications*, Taipei: Yeh Yeh Book Gallery, 285 pages. (ISBN: 978-986-56-6821-1).
4. **Wen TH**, Huang CC, Yap KH (2012), *The Census Atlas of Taiwan (1956-2010)*, Taipei: NTU Population and Gender Studies Center & Dept. of Geography, 305 pages. (ISBN: 978-986-03-5765-3)

Refereed Publications: 2016-2024**(* corresponding author)**

1. Lin YC, **Wen TH**, Shin WL, Vermund SH, Fang CT (2024), Impact of Vaccination and High-risk Group Awareness on the Mpox Epidemic in the United States, 2022–2023: a Modelling Study, *eClinicalMedicine* 68: 102407.
2. Lin PS, Liu WL, Chne CD, **Wen TH**, Chen CH, Chen LW, Kung YH (2024), Micro-scale Urbanization based Risk Factors for Dengue Epidemics, *International Journal of Biometeorology* 68(1):133-141.
3. Lee YP, **Wen TH** * (2023), Understanding the Spread of Infectious Diseases in Edge Areas of Hotspots: Dengue Epidemics in Tropical Metropolitan Regions, *International Journal of Health Geographics* 22:36.
4. Kao B, Lin CH, **Wen TH** * (2023), Measuring the Effects of Typhoon Trajectories on Dengue Outbreaks in Tropical Regions of Taiwan: 1998-2019, *International Journal of Biometeorology* 67: 1311–1322.
5. Kuo FY, **Wen TH** * (2023), Assessing the Impact of Local Context and Priorities regarding Domestic Disease Outbreaks and Imported Risk on Early Pandemic Response: Cross-continental Comparisons, *Frontiers in Public Health*, 11:1147768.
6. Jiang WM, **Wen TH**, Huang YC, Chiou HY, Chen WJ, Hsiung CA, Sytwu HK, Tsou HH (2023), Interregional Mobility in Different Age Groups is Associated with COVID-19 Transmission in the Taipei Metropolitan Area, Taiwan, *Scientific Reports* 13: 17285.
7. **Wen TH** *, Kuo FY (2023), Point Pattern Analysis for Identifying Spatial Clustering Tendency, F. B. Mustafa (ed.), *Methodological Approaches in Integrated Geography*, Springer Texts in Social Sciences, Springer.

8. Kuo FY, **Wen TH** * (2022), Assessing the Spatial Variability of Raising Public Risk Awareness for the Intervention Performance of COVID-19 Voluntary Screening: A Spatial Simulation Approach, *Applied Geography* 148:102804.
9. Lin CH, Liu YH, Huang RN, Lin CC, Liu H. KH, **Wen TH** * (2022), Modeling Geographical Invasions of *Solenopsis invicta* Influenced by Land-use Patterns, *Scientific Reports* 12, 11733.
10. Lin CH, **Wen TH** (2022), How Spatial Epidemiology Help Understand Infectious Disease Transmission, *Tropical Medicine and Infectious Disease* 7(8), 164.
11. **Wen TH** * (2022), Spatial Analysis Methods for the Geography of Infectious Diseases: Review and Prospect, *Journal of Geographical Science* 101: 109-124.
12. Yuan HY, Hossain MP, **Wen TH**, Wang MJ (2022), Assessment of the Fatality Rate and Transmissibility Taking Account of Undetected Cases during an Unprecedented COVID-19 Surge in Taiwan, *BMC Infectious Diseases* 22:271.
13. Wu TG, Chen YD, Chen BH, Harada KH, Lee K, Deng F, Rood M, Chen CC, Tran CT, Chien KL, **Wen TH**, Wu CF (2022), Identifying Low-PM2.5 Exposure Commuting Routes for Cyclists through Modeling with the Random Forest Algorithm based on Low-cost Sensor Measurements in Three Asian Cities, *Environmental Pollution* 294:118597.
14. Kuo PF, Putra IGB, Setiawan FA, **Wen TH**, Chiu CS, Sulistyah UD (2022), The Impact of the COVID-19 Pandemic on O-D Flow and Airport Networks in the Origin Country and in Northeast Asia, *Journal of Air Transport Management* 100:102192.
15. Kuo FY, **Wen TH** * (2021), Regionalization for Infection Control: An Algorithm for Delineating Containment Zones Considering the Regularity of Human Mobility, *Applied Geography* 126:102375
16. Chan CH, **Wen TH** * (2021), Revisiting the Effects of High-Speed Railway Transfers in the Early COVID-19 Cross-Province Transmission in Mainland China, *Int. J. Environ. Res. Public Health* 18(12):6394.
17. Chan CH, Chu TH, Wu JH P, **Wen TH** * (2021), Spatially Characterizing Major Airline Alliances: A Network Analysis, *ISPRS International Journal of Geo-Information* 10(1):37.
18. Jiang JA, Wang JC, Hsieh CL, Tseng KS, Ye ZW, Su LK, Sun CH, **Wen TH**, Juang JY (2021), An Alternative Body Temperature Measurement Solution: Combination of a Highly Accurate Monitoring System and a Visualized Public Health Cloud Platform, *IEEE Internet of Things Journal* 8(7):5778-5793.
19. **Wen TH** *, Liao HY, Yang KL, Chen TH (2021), Characterizing After-Rain Standing Waters in Urban Built Environments through a Multilevel Image Analysis, X. Yang (eds.), *Urban Remote Sensing: Monitoring, Synthesis, and Modeling in the Urban Environment*, Wiley-Blackwell.

20. Kuo FY, **Wen TH** * (2021), A Mathematical Model for Evaluating the Medical Resource Availability of COVID-19 in Time and Space, S. Shaw and D. Sui (eds.), Mapping COVID-19 in *Space and Time: Understanding the Spatial and Temporal Dynamics of a Global Pandemic*, Springer.
21. Liao HY, **Wen TH** * (2020), Extracting Urban Water Bodies from High-resolution Radar Images: Measuring the Urban Surface Morphology to Control for Radar's Double-bounce Effect, *International Journal of Applied Earth Observations and Geoinformation* 85:102003.
22. Hossain MP, Junus A, Zhu X, Jia P, **Wen TH**, Pfeiffer D, Yuan HY (2020), The Effects of Border Control and Quarantine Measures on the Spread of COVID-19, *Epidemics* 32: 100397.
23. Chiang YL, Wang JC, Sun CH, **Wen TH**, Juang JY, Jiang JA (2020), Mobile Measurement of Particulate Matter Concentrations on Urban Streets: System Development and Field Verification, *IEEE Access* 8:197617–197629
24. Cheng YC, Lee FJ, Hsu YT, Slud EV, Hsiung CA, Chen CH, Liao CL, **Wen TH**, Chang CW, Chang JH, Wu HY, Chang TP, Lin PS, Ho HP, Hung WF, Chou JD, Tsou HH (2020), Real-Time Dengue Forecast for Outbreak Alerts in Southern Taiwan, *PLOS Neglected Tropical Diseases* 14(7): e0008434.
25. Ng TC, **Wen TH** * (2019), Spatially Adjusted Time-varying Reproductive Numbers: Understanding the Geographical Expansion of Urban Dengue Outbreaks, *Scientific Reports* 9: 19172.
26. Ng IC, **Wen TH** *, Yang ST, Fang CT *, Hsueh PR (2019), Detecting Tuberculosis Clusters in Urban Neighborhoods, Taipei, Taiwan: Linking Geographic and Genotyping Evidence, *Applied Geography* 104: 56-64.
27. Yuan HY, **Wen TH**, Kung YH, Tsou HH, Chen CH, Chen LW, Lin PS (2019), Prediction of Annual Dengue Incidence by Hydro-Climatic Extremes for Southern Taiwan, *International Journal of Biometeorology* 63(2): 259-268.
28. **Wen TH** (2019), Spatial Assimilation, In Anthony M. Orum (Eds.), *Wiley-Blackwell Encyclopedia of Urban and Regional Studies*, Wiley-Blackwell.
29. Chen TH, Chen YJ, **Wen TH** * (2018), Revisiting the Role of Rainfall Variability and its Interactive Effects with the Built Environment in Urban Dengue Outbreaks, *Applied Geography* 101(12):14-22.
30. **Wen TH** *, Hsu CS, Hu MC (2018), Evaluating Neighborhood Structures for Modeling Intercity Diffusion of Large-scale Dengue Epidemics, *International Journal of Health Geographics* 17:9.

31. Kuo FY, **Wen TH ***, Sabel C (2018), Characterizing Diffusion Dynamics of Disease Clustering: A Modified Space-Time DBSCAN (MST-DBSCAN) Algorithm, *Annals of the American Association of Geographers* 108(4):1168-1186.
32. Ko HY, Li YT, Chao DY, Chang YC, Li ZR, Wang M, Kao CL, **Wen TH**, Shu PY, Chang GJ, King CC (2018), Inter- and Intra-Host Sequence Diversity Reveal the Emergence of Viral Variants during an Overwintering Epidemic Caused by Dengue Virus Serotype 2 in Southern Taiwan, *PLOS Neglected Tropical Diseases* 12(10): e0006827.
33. **Wen TH**, Hsu CS, Sun CH, Jiang JA, Juang JY (2018), A Location-based Client-Server Framework for Assessing Personal Exposure to the Risk of Respiratory Disease Transmission, In Shaw SL and Sui D (Eds.). *Human Dynamics Research in Smart and Connected Communities*, Springer
34. Chin WC, **Wen TH ***, Sabel C, Wang IH (2017), A Geo-Computational Algorithm for Exploring the Structure of Diffusion Progression in Time and Space, *Scientific Reports* 7:12565.
35. **Wen TH ***, Chin WC, Lai PC (2017), Understanding the Topological Characteristics and Flow Complexity of Urban Traffic Congestion, *PHYSICA A: Statistical Mechanics and Its Applications* 473:166-177.
36. Lan YC, **Wen TH**, Chang CC, Liu HF, Lee PF, Huang CY, Chomel BB, Chen YM (2017), Indigenous Wildlife Rabies in Taiwan: Ferret Badgers, a Long-term Terrestrial Reservoir, *BioMed Research International*, Vol. 2017, Article ID 5491640.
37. Chen TH, **Wen TH ***, Fang CT, Chan PC (2017), Assessing Infection Risk of Tuberculosis (TB) Contacts in Different Case-contact Contexts, *Taiwan Journal of Public Health* 36(2): 107-121
38. **Wen TH**, Chin CB, Lai PC (2017), Link Structure Analysis of Urban Street Networks for Delineating Traffic Impact Areas. In Essaaidi and Nemiche (Eds.). *Advances in Complex Societal, Environmental and Engineered Systems*, Springer.
39. **Wen TH ***, Tsai CT, Chin CB (2016), Evaluating the Role of Disease Importation in the Spatiotemporal Transmission of Indigenous Dengue Outbreak, *Applied Geography* 76: 137-146.
40. **Wen TH**, Lin MH, Li MH (2016), Potential Effects of Climate Changes on Dengue Transmission: A Review of Empirical Evidence from Taiwan, In Rais Akhtar (Eds.). *Climate Change and Human Health Scenario in South and Southeast Asia*, Springer Series: Advances in Asian Human-Environmental Research, Springer.
41. Lin CH, **Wen TH ***, Teng HJ, Chang NT (2016), The Spatiotemporal Characteristics of Potential Dengue Risk Assessed by *Aedes aegypti* and *Aedes albopictus* in High Epidemic Areas, *Stochastic Environmental Research and Risk Assessment*, 30(8): 2057–2066.

42. Tsai KH, Chang SF, Yen TY, Shih WL, Chen WJ, Wang HC, Yu XJ, **Wen TH**, Wu WJ, Shu PY. (2016), Prevalence of Antibodies against *Ehrlichia spp.* and *Orientia tsutsugamushi* in Small Mammals around Harbors in Taiwan. *Parasites & Vectors* 9:25.
43. Lin MH, Kuo RN, Chin CB, **Wen TH** * (2016), Profiling the Patient Flow for Seeking Healthcare in Taiwan: using Gravity Modeling to Investigate the Influences of Travel Distance and Healthcare Resources, *Taiwan Journal of Public Health* 35(2): 136-151.