YI-WEN MO

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Education

National Taiwan University (NTU)
Master of Science in Civil Engineering
Specialization: Surveying and Geospatial Engineering

Sep. 2021- Jun. 2023
Taipei, Taiwan

- GPA: 4.08/4.3, ranked 1st of 11 (design division)
- Master's Thesis: *Estimation of Solar Radiation Based on Machine Learning Techniques and Multivariate Data*
  Advisor: Prof. Jen-Yu Han
- Dean's Award recipient (top 5% of graduating class)
- Scholarship for Outstanding Graduate Student (2021–2022)

National Taipei University (NTPU)
Bachelor of Arts in Real Estate and Built Environment

Sep. 2017- Jun. 2021
New Taipei, Taiwan

- GPA: 3.92/4.0, ranked 4th of 110 students
- Dean's List recipient (top 10% of class)
- Selected for International Exchange Program, Hong Kong Polytechnic University, 2019–2020

Research Experience

Center for GIS, RCHSS, Academia Sinica
Research Assistant

Aug. 2023 - Present
Taipei, Taiwan

- Project: Deep Learning Approaches for Interpretation, Usage Evaluation, and Cartographic Representation of Implicit Building Arcade Structures, sponsored by the National Science and Technology Council (NSTC), Taiwan
  - Developed a novel deep learning framework for arcade detection using Graph Convolutional Networks and bi-directed scene graphs, leveraging spatial relationships for cross-city generalization
  - Processed 2,050 street view images with 3,669 annotated arcades in Taiwan, achieving 80% reduction in YOLOv5 detection errors and demonstrating robust transferability across 8 international cities in Southeast Asia and Europe
  - First-author paper published in *Remote Sensing Applications: Society and Environment*

- Project: Semantic Pedestrian Network Construction and Path Planning, sponsored by NSTC, Taiwan
  - Developed a graph-based framework to construct complete pedestrian networks using multi-source spatial datasets and grid-based graph structures, achieving an overall F1-score of 0.78 for cross-city validation (Taipei trained, validated on Kaohsiung, Taichung, and Miaoli)
  - Implemented Graph Convolutional Networks and Multi-Layer Perceptrons to predict pedestrian availability and enhance network continuity
  - Presented results at the 43rd Conference on Surveying and Geomatics (SG43, Taiwan) and the 19th International Conference on Location-Based Services (LBS 2025, Espoo, Finland)

- Other Contributions
  - Supervised and trained summer research interns on server workflows (Docker, Linux), Git version control, and deep learning model training for reproducible geospatial analysis pipelines
  - Facilitated event flow and served as session emcee for national GIS conferences:
    - Academia Sinica Geospatial Forum, 2025
    - Taiwan Geographic Information Society Annual Conference, 2024

National Taiwan University
Master's Student / Research Assistant (Part-time)

Jul. 2022 - Dec. 2022
Taipei, Taiwan

- Contributed to two applied projects: automated facility detection in Taichung Port and bridge structural inspection using deep learning and UAV technologies, delivering actionable insights for government stakeholders
- Translated technical procedures and research findings into accessible film scripts, coordinating with a production team and seven university departments to develop visual materials
- Delivered final video materials within five months, meeting diverse stakeholder requirements across government and academic sectors

Teaching Experience

National Taiwan University Sep–Dec 2021 & 2022

Teaching Assistant for Surveying **Taipei, Taiwan**

- Graded assignments, proctored exams, and managed grade records for over 50 international undergraduate students across two semesters

National Taipei University Sep. 2020 - Jan. 2021

Teaching Assistant for Cadastral Survey **New Taipei, Taiwan**

- Supervised and instructed field survey activities for over 60 undergraduate students, applying cadastral surveying techniques in practice

Publications

1. **Mo, Y.-W.**, Kuo, C.-L., & Lin, Z.-S. (2025). Enhancing arcade detection using bi-directed scene graphs with graph convolutional networks on street view imagery. *Remote Sensing Applications: Society and Environment*, 39, 101628. https://doi.org/10.1016/j.rsase.2025.101628
2. **Mo, Y.-W.**, & Kuo, C.-L. (2025, August). Cross-City Pedestrian Network Construction Using Graph Convolution Neural Network and Multi-layer Perceptron. Paper presented at the *43rd Conference on Surveying and Geomatics*, Yilan, Taiwan. (Abstract)
3. **Mo, Y.-W.**, & Kuo, C.-L. (2025, May). Integrating multi-source data to construct complete pedestrian networks. Paper presented at the *19th International Conference on Location-Based Services (LBS 2025)*, Espoo, Finland. https://doi.org/10.5281/zenodo.15350935
4. **Mo, Y.-W.**, Lin, Z.-S., & Kuo, C.-L. (2024, July). Arcade detection based on object spatial relationships and graph neural networks. Paper presented at the *Taiwan Geographic Information Society Annual Conference*, Taipei, Taiwan. (Long abstract)
5. **Mo, Y.-W.**, & Han, J.-Y. (2023, August–September). Estimating solar radiation using machine learning and multivariate data. Paper presented at the *41st Conference on Surveying and Geomatics*, Hsinchu, Taiwan. (Long paper)
6. **Mo, Y.-W.**, & Han, J.-Y. (2022, September). Establishing solar radiation models using machine learning. Paper presented at the *40th Conference on Surveying and Geomatics*, Taichung, Taiwan. (Abstract)

Academic Achievements and Awards

- Dean's Award, College of Engineering, NTU (Aug 2023) - Recognized for outstanding academic performance among the 2022–2023 graduating class
- Third Place, BiMAP × NTU Hackathon (Dec 2022) - Big data analysis competition
- Scholarship for Outstanding Graduate Student, Surveying & Geomatics Engineering Program, NTU (2021) - Full-year academic scholarship awarded for excellence in graduate study
- Outstanding Student Award, NTPU (Fall 2019) - Recognized for top academic performance
- Dean's List, College of Public Affairs, NTPU (Fall 2018, Spring 2019, Fall 2019) - Ranked in the top 10% of undergraduate students

Skills

- Languages   Mandarin (native), English (fluent)
- Programming   Python, C/C++
- Software & Tools TensorFlow, PyTorch, PyTorch Geometric, Git, Docker
- Interest   Badminton – school team, Squash – recreational

Leadership & Extracurricular Activities

Cybersecurity & Big Data Analytics Program, NTU Computing Center Oct. 2022 - Dec. 2022

- Completed a 30-hour certificate course on network log analysis and data visualization
- Utilized Logstash and Kibana to monitor and analyze FortiGate traffic data
- Presented real-time data insights in a final hackathon using interactive dashboards

Vice President, Land Administration Service Association (LASA), NTPU Sep. 2018 - Jan. 2021

- Led rural outreach initiatives across Kaohsiung, Yilan, Yunlin, and Tainan
- Facilitated community discussions with local residents on land-use and environmental issues
- Supported legal counseling and education on land rights and property regulations
- Organized a three-day recreational camp with interactive games for local children to explore land and environmental topics through play