

MEILIU WU

Lecturer/Assistant Professor in Geospatial Information Science
Program Director of MSc Geospatial Data Science & AI
School of Geographical & Earth Sciences, University of Glasgow,
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<https://meiliuwu.github.io/>

Research interests

- **Methods:** Geospatial Data Science, GIScience, Geospatial AI (GeoAI)
- **Applications:** Urban Analytics, Remote Sensing, Transport Resilience, 3D Digital Twin, Human Mobility, Social-Environmental Sustainability, Equity & Justice

EDUCATION

PhD	University of Wisconsin-Madison, Geography Minored in Computer Science	2021/01-2024/05
MS	University of Wisconsin-Madison, GIScience & Cartography	2017/08-2019/08
BS	University of Cincinnati, GIS & Remote Sensing <i>High Degree Honors in Geography & STEM Research</i>	2013/08-2017/08
BS	Sun Yat-Sen University, China, GIS & Remote Sensing 2+2 Undergraduate Program with University of Cincinnati	2013/08-2017/08
	Queensland University of Technology, Australia Exchange Program in Urban Planning and Surveying	2015/08-2015/12

RESEARCH/WORK EXPERIENCE

University of Glasgow , Glasgow, UK	2024/08 – present
Lecturer/Assistant Professor in Geospatial Information Science Program Director: MSc Geospatial Data Science & AI	
University of Wisconsin-Madison , Madison, WI	2021/01 – 2024/05
Research Assistant , Spatial Computing and Data Mining Lab	
Beijing Digital Union Network Technology Co., Ltd. , Beijing	2019/08 – 2021/01
Big Data Mining Engineer , Department of Location-Based Service	
NASA Ames Research Center , Mountain View, CA	2018/06 – 2018/08
Big Data Scientist	
Cincinnati Area Geographic Information System , Cincinnati, OH	2017/01 - 2017/08
GIS Developer Intern	

GRANTS

2025 UKRI EPSRC & DT Network+ Alan Turing Institute Fund on Transport Resilience Digital Twins Research Projects (DTBOC) – “*Leveraging Digital Twin and AI to Enhance Situational Awareness and Crisis Response for Glasgow’s Transportation*” (£50,000, PI)

2025 UKRI Natural Environment Research Council (NERC) GALLANT Innovation Fund on GOTREES (**G**ovan **T**ree-community for **e**cosystem **s**ervices) (£60,000, co-I)

2025 University of Glasgow Early Career Rewards for Excellence on Developing Vision-Language Models Enhanced by Geospatial Intelligence (£10,000, PI)

2025 University of Glasgow Early Career Mobility Scheme Award (£5,000, PI)

2024-26 University of Glasgow College of Science and Engineering Start-up Grant on Developing GeoAI Foundation Models (£5,000, PI)

2024 Association of Geographic Information Laboratories in Europe (AGILE) Travel Grant (\$1,000)

2023-24 UW-Madison Capstone Ph.D. Teaching Award & Grant (Nominated, \$1,000)

2024 AAG Travel Grant for Geospatial Cyberinfrastructure Workshop: Building High-Performance, Ethical, and Secured Geospatial Software (\$650)

2024 & 2023 AAG Student Travel Award & Grant (Nominated, \$500 each year)

2022 ACM SIGSPATIAL Student Travel Award & Grant (\$1,000)

2021-2024 UW-Madison Trewartha/Odebolt Graduate Research & Travel Award (\$4,000)

2017 University of Cincinnati High Degree Honors in Geography & STEM Research Awards (\$1,000)

2016-2017 University of Cincinnati Undergraduate Global Scholarship (\$28,000)

2015 National Exchange Scholarships (\$9,600, Queensland University of Technology)

2014 Ministry of Education of China National Undergraduate Scholarship (Top 1%) (\$1,600)

HONORS AND AWARDS

Fellow, Royal Geographical Society with IBG (RGS-IBG), 2025 - present

2024 (Spring) UW-Madison Commencement Flag bearer of College of Letters & Science for the Doctoral, MFA, and Medical Professional Degree Candidate Ceremony

2023-24 UW-Madison Capstone Ph.D. Teaching Award

2023 University Consortium for Geographic Information Science (UCGIS) Symposium Student Paper Award (1st)

2023 AAG Geographic Information Science and Systems (GISS) Specialty Group Student Honors Paper Award (2nd)

2023 AAG Cyberinfrastructure Specialty Group (CISG) Robert Raskin Student Competition (1st)

2022 AAG Spatial Analysis and Modeling (SAM) Student Competition John Odland Award (2nd)

2021 International Graduate Workshop on GeoInformatics Best Participation Award

2021 28th International Conference on Geoinformatics Best Student Paper Award (2nd)

SUPERVISOR AND TEACHING EXPERIENCE

University of Glasgow, Scotland, UK

2024/08 - present

Program Director & Lecturer, School of Geographical & Earth Sciences

- **Program Director: designing a new MSc program in Geospatial Data Science & AI** (starting in F26), including courses in *Intro to GeoAI* and *Big GeoData Analytics*;
- **[Planned] Introduction to Geospatial AI**, S27 (In-person; 50 graduates);
- **GEOG5015 Web and Mobile Mapping**, S26 (In-person; 30 graduates);
- **GEOG5018 Principles of Cartographic Design & Production**, F24 (In-person; 40 graduates); F25 (In-person; 30 graduates);

PhDs Supervisor

- **Zeyu Xiao** (incoming PhD student in Jan 2027, first supervisor). Leveraging Spatially Explicit Graphs, Digital Twinning, and BIM to Enhance Perception, Localisation, and Navigation.
- **Mengkun Song** (incoming PhD student in Oct 2026, first supervisor). Spatiotemporal Evolution of Streetscape Perception in Global Cities: A GeoAI Approach Using Multimodal Large Language Models.
- **Yueting Wang** (PhD student in Sep 2026, first supervisor). Beyond AlphaEarth Foundations: Fine-resolution Mapping and Tracking Global Coastal Vegetated Ecosystem Change.
- **Eleanor Downie** (PhD student in Sep 2026, first supervisor). AI-Driven Satellite Embeddings for Fine-resolution Mapping and Tracking Invasive Species on Global Reclaimed Lands.
- **Shunyu Yao** (PhD student, first supervisor). Towards Ethical GeoAI: Enhancing Fairness, Privacy, and Interpretability from A Data Perspective. 2025/10 – present.
- **Fengjiao Li** (PhD student, first supervisor). Towards GeoAI-Enhanced Mobility-Based Health Risk Analysis: Embedding Geospatial Intelligence into Graph Neural Networks for Dynamic Population Modelling. 2025/05 – present.
- **Ayush Dabra** (PhD student, secondary supervisor). The Dynamics of Cities – Enabling Minority Representation in Urban Environments. 2025/01 – present.
- **Yuwei Cai** (PhD student, secondary supervisor). Super-resolution for Building Datasets Using Deep Learning Methods. 2024/08 – present.
- **Zhimeng He** (PhD student, secondary supervisor). Advancing Deep Learning Architectures for Urban Data Analysis in 2D and 3D. 2024/09 – present.
- **Yuchen Wang** (PhD student, secondary supervisor). Sediment Transport of Made Ground along Scottish Sites. 2024/10 – Present.
- **Han Ting** (Visiting PhD student, Sun Yat-sen University) Towards a new era of Geo-Foundation Models. 2025/10 – 2026/04.
- **Shiqi Wang** (External PhD student, Hong Kong University of Science and Technology - Guangzhou). Measuring Spatial Bias & Exploring Spatial Heterogeneity Understanding of AI for Urban Perception. 2024/10 – 2025/10.

Masters/Undergraduate Supervisor

- 2026 (8 Master's students; GeoAI and Remote Sensing for Environmental Sustainability and Urban Analytics);
- 2025 (9 Master's students; 1 nominated for 2025 RGS-IBG GIScience Research Group Dissertation Award; Ground-level LiDAR + RGB + Infrared for Urban Analytics);
- **Hanyi Xiong** (Visiting Undergraduate, University of Hong Kong). Enhancing Image Geo-localisation via GeoAI-empowered Foundation Models. 2025/02 – 2025/09.

University of Wisconsin-Madison, Madison, WI

2017 - 2019, 2021 – 2024

Instructor & Teaching Assistant, Department of Geography

Avg. teaching rate: **4.5/5.0 (Top 5%)**

- **Geog 574 Geospatial Database Design and Development**, F23 & F17 (In-person; 50 graduates & undergraduates); S19 (Online; 50 graduates from UW-Madison GIS Professional Programs)
- **Geog 170 Intro of GIScience and its Technology**, S21 & S24 (Online; 485 undergraduates)
- **Geog 576 Web Interactive Mapping & Geovisualization**, S19 (Online; 50 graduates from UW-Madison GIS Professional Programs)
- **Geog 370 Introduction to Cartography**, F18 (In-person; 80 graduates & undergraduates)
- **Geog 578 GIS Applications**, S18 (In-person; 50 graduates & undergraduates)

Graduate students Advised

- **Mingda Wu**. Pixel-wise Wildfire Burn Severity Classification with Bi-temporal Sentinel-2 Data and Deep Learning. 2022/09 – present.
- **Tang Sui**. Empowering Urban Wildfire Burnt Area Detection with Deep Learning. 2022/08 – present.
- **Yang Qiu**. Using deep learning to predict neighborhood wealthiness based on street view images. 2022/05 – 2024/12.
- **Yuehan Qin**. Big data mining on social media data (tweets) for human mobility using unsupervised machine learning - Latent Dirichlet Allocation Model. 2018/08 – 2019/05

PUBLICATIONS (STUDENTS DIRECTLY SUPERVISED BY ME; #: SAME CONTRIBUTION)

Peer-Reviewed Journal Articles

1. Han T., **Wu M.***, et al., 2026. GeoAI for Urban Analytics: Opportunities and Challenges. *Big Earth Data*. DOI: 10.1080/20964471.2026.2726000
2. Cai Y., He Z., **Wu M.**, Barrett B., 2026. MAPSRNet: Super-Resolution Network Surpassing Original High-Resolution Imagery in Building Detection. *GIScience & Remote Sensing*. DOI: 10.1080/15481603.2026.2704291
3. Xia A., Chen Y., Han T.*, Wei X., Zhao D., Ma C., Li T., Xu Y., **Wu M.**, 2026. Grounded Open-Vocabulary 3D LiDAR Point Cloud AI Technology Elevates Natural Resource Surveying. *The Innovation Informatics*. DOI: 10.59717/j.xinn-inform.2026.100057
4. Nadeau T., et al., 2026. Leveraging Artificial Intelligence in Allergy, Asthma, and Immunology With Environmental Exposures. *Allergy*. DOI: 10.1111/all.70401

5. **Wu M.***, Huang Q., Gao S., 2025. Advancing Vision-Language Models with Spatial-Context Prompt Tuning: A Case Study in GeoAI-Empowered Image Geo-Localization. *Journal of Location Based Services*. DOI: 10.1080/17489725.2025.2599302
6. **Wu M.***, Wong D., Huang Q., 2025. Segregation: what is in a name? A review of segregation measurement and a prospective framework. *Spatial Demography*. DOI: 10.1007/s40980-025-00147-1
7. Zhou, S., **Wu, M.**, Ye, X., Silbernagel, J., Hart, D. A., & Huang, Q. (2025). Advancing smart disaster response by leveraging social sensing and mobile technology. *Geo-Spatial Information Science*, 1–19. DOI: 10.1080/10095020.2025.2588034
8. Yang S., Peng B., Sui T., **Wu M.**, Huang Q., 2025. Advancing Self-Supervised Learning for Building Change Detection: Unified Denoising Autoencoder and Contrastive Learning Framework. *Remote Sensing*. DOI: 10.3390/rs17152717
9. Weng Q., et al., 2025. Urban visual-spatial intelligence: Bridging human and sensor perception for sustainable urban development. *npj Urban Sustainability*. DOI: 10.1038/s42949-025-00256-2
10. Qiu Y., **Wu M.**, Huang Q., Kang Y., 2024. Do You Know Your Neighborhood? Integrating Street View Images and Multi-task Learning for Fine-Grained Multi-Class Neighborhood Wealthiness Perception Prediction. *Cities*. DOI: 10.1016/j.cities.2025.105703
11. Sui T., Huang Q., Wu M., **Wu M.**, Zhang Z., 2024. BiAU-Net: Wildfire burnt area mapping using bi-temporal Sentinel-2 imagery and U-Net with attention mechanism. *International Journal of Applied Earth Observation and Geoinformation*. DOI: 10.1016/j.jag.2024.104034
12. **Wu M.**, Huang Q., Gao S., Zhang Z., 2023. Mixed Land Use Measurement and Mapping with Street View Images and Spatial Context-Aware Prompts via Zero-shot Multimodal Learning. *International Journal of Applied Earth Observation and Geoinformation*. DOI: 10.1016/j.jag.2023.103591
13. **Wu M.**, Liu X., Qin Y., Huang Q., 2023. Revealing racial-ethnic segregation with individual experienced segregation indices based on social media data: A case study in Los Angeles-Long Beach-Anaheim. *Computers, Environment and Urban Systems*, 104 (2023): 102008 - 102021. DOI: 10.1016/j.compenvurbsys.2023.102008
14. Vongkusolkij J., Peng B., **Wu M.**, Huang Q., Andresen CG., 2023. Near Real-Time Flood Mapping with Weakly Supervised Machine Learning. *Remote Sensing*. DOI: 10.3390/rs15133263
15. Liu X., **Wu M.**, Peng B., Huang Q., 2022. Graph-based representation for identifying individual travel activities with spatiotemporal trajectories and POI data. *Scientific Reports*. DOI: 10.1038/s41598-022-19441-9
16. **Wu, M.** Huang, Q., 2022. Human movement patterns of different racial-ethnic and economic groups in U.S. top 50 populated cities: What can social media tell us about isolation? *Annals of GIS*, 28 (2):161-183. DOI: 10.1080/19475683.2022.2026471

Papers Under Revision

17. He Z., Cai Y., Han T., **Wu M.**, Barrett B., 2026. Cube Kernel: Enabling Local Gradient Flow Across Channels in CNNs for Robust and Efficient Building Segmentation. *ISPRS Journal of Photogrammetry and Remote Sensing*. (Under revision)

18. Cai Y., He Z., **Wu M.**, Barrett B., 2026. RNFI, RNSI and ISPS: A Novel Task-Oriented Evaluation System for Super-Resolution of Remote Sensing Imagery. *European Journal of Remote Sensing*. (Under revision)
19. Dabra A., **Wu M.***, Basiri, A., 2026. Investigating the Performance-Explainability Trade-Off for Trustworthy Cross-View Geo-Localisation. *Transactions in GIS*. (Under revision)
20. Chen H., Han T., Hou Y., Chen C., Liu C., **Wu M.**, Gao S., Chen Y., 2026. Contextual complementarity and geographical portability in urban road safety modeling: Insights from New York City and Nashville. (Under revision)
21. Shingleton J., Bıçakçı Y.S., **Wu M.**, Wang Y., Basiri A., 2026. Evaluating Explanation Integrity in a Vision Language Model for Urban Perception. *Transactions in GIS*. (Under revision)
22. Yang S., Liu H., Wang X., **Wu M.**, Zhang Z., Yang Z., Huang Q., 2026. A Cyber-agricultural System for Automating Near Real-time Crop Yield Prediction and Dissemination. *Computers and Electronics in Agriculture*. (Under revision)
23. Couraud B., et al., 2026. Frameworks for Fair Cyber-Physical Social Energy Systems and Energy Markets. *Nature Communications, Collection on Justice and Equality in Decarbonization*. (Under minor revision)

Peer-Reviewed Conference Papers and Book Chapters

Refereed Conference Papers (Full-length, equivalent to journal articles)

24. Cai Y., He Z., **Wu M.**, Barrett B., 2026. From Super-Resolution to Superior Land-Cover Detection: Cross-Channel Attention Network for Aerial Images. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*. XXV ISPRS Congress (2026). DOI: 10.5194/isprs-annals-XI-3-2026-515-2026
25. He Z., Cai Y., **Wu M.**, Xian X., Barrett B., 2026. Cube Kernel: A Novel Approach to Enable Local Gradient Flow Across Channels in CNNs. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*. XXV ISPRS Congress (2026). DOI: 10.5194/isprs-annals-XI-3-2026-109-2026
26. Zhang Z., Wang X., Ma Y., **Wu M.**, Yang S., Liu H., Huang Q., Yang Z., 2026. An Integrated Web-Based Cyber Platform for County-Level Crop Yield Prediction Using Deep Learning in Support of USDA NASS, *IGARSS 2026*. (Accepted)
27. Shingleton J., Bıçakçı Y.S., Basiri A., **Wu M.**, 2026. Identifying the Semantic Neighbourhoods within London's Airbnb Properties. *AGILE 2026*. DOI: 10.5194/agile-giss-7-41-2026
28. **Wu M.***, Huang Q., Gao S., 2025. Advancing Mixed Land Use Detection by Transforming Vision-Language Models with Spatial Intelligence. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*. DOI: 10.5194/isprs-annals-X-4-W7-2025-121-2025
29. Han T., Chen H., Wang C., Ren Y., **Wu M.***, 2025. Towards A New Era of Geo-Foundation Models: Expert-Guided Multimodal Alignment and Geospatial Context Awareness. In *Proceedings of ACM SIGSPATIAL 2025* (Research Track; acceptance rate 25%), Nov 3-6, Minneapolis, MN, USA. DOI: 10.1145/3748636.3762756

30. Chen H.[#], Han T.[#], Chen S., Guo Z., Chen Y., **Wu M.***, 2025. Semantic4Safety: Causal Insights from Zero-shot Street View Imagery Segmentation for Urban Road Safety. In *Proceedings of the 8th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery (GeoAI '25)*, ACM SIGSPATIAL 2025, Nov 3-6, Minneapolis, MN, USA. DOI: 10.1145/3764912.3770830
 31. Chen S., Han T., Fu C., Zhang C., Wang C., Su J., Cai G., **Wu M.***, 2025. Leveraging Depth and Language for Open-Vocabulary Domain-Generalized Semantic Segmentation. *NeurIPS 2025*. DOI: 10.48550/arXiv.2506.09881
 32. Chen S., Han T., **Wu M.**, Zhang C., Cai G., 2025. Stronger, Steadier & Superior: Geometric Consistency in Depth VFM Forges Domain Generalized Semantic Segmentation. *ICCV 2025*. DOI: 10.48550/arXiv.2504.12753
 33. Chen S., Han T., Zhang C., Luo X., Cai G., **Wu M.**, Su J., 2026. LiDAR-DHMT: LiDAR-Adaptive Dual Hierarchical Mask Transformer for Robust Freespace Detection. *IEEE/CVF Winter Conference on Applications of Computer Vision 2026 (WACV 2026; acceptance rate 6.4%)*.
 34. Li F., **Wu M.***, & Basiri, A., 2025. Mobility vs. Contiguity: Spatially Explicit Graph Neural Networks for COVID-19 Forecasting. *The 6th Spatial Data Science Symposium (SDSS 2025)*. DOI: <https://doi.org/10.5281/zenodo.17660772>
 35. Huang X., Han T., Lin C., Li Y., **Wu M.**, Chen Y., 2025. Large-Scale Pseudo-Label Supervised 3D Segmentor with Image Priors. *2025 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2025)*, Brisbane, Australia, 2025, pp. 1654-1658. DOI: 10.1109/IGARSS55030.2025.11243379.
 36. **Wu M.**, Huang Q., Gao S., 2023. Measuring access inequality in a hybrid physical-virtual world: A case study of racial disparity of healthcare access during CoVID-19. In *Proceedings of 2023 30th International Conference on Geoinformatics*, Jul 19-21, London, UK, pg.1-10. DOI: 10.1109/Geoinformatics60313.2023.10247690
 37. **Wu M.**, Huang Q., 2022. IM2City: Image geo-localization via multi-modal learning. In *Proceedings of the 5th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery (GeoAI '22)*, ACM SIGSPATIAL 2022, Nov 1-4, Seattle, WA, USA, pg.1-10. DOI: 10.1145/3557918.3565868
 38. Liu X., Huang Q., Li Z., **Wu M.**, 2017. The impact of MTUP: Explore online trajectories for human mobility studies. In *Proceedings of the 1st Workshop on Prediction of Human Mobility*, ACM SIGSPATIAL 2017, Nov 7-10, Redondo Beach, CA, USA, pg.1-9. DOI:10.1145/3152341.3152348
- Refereed Conference Papers (Short paper, 6 pages)*
39. Li F., **Wu M.***, Basiri, A., 2026. Spatiotemporal Adaptive Learning for Flow-based Graph Neural Networks. *COSIT 2026*. DOI: 10.4230/LIPIcs.COSIT.2026.31
 40. Li F., **Wu M.***, Basiri, A., 2026. Spatially Explicit Graph Neural Networks for Epidemic Forecasting: Evidence from Socioeconomic Embeddings. *GeoAI 2026*. DOI: 10.5281/zenodo.19475485
 41. Han T., Li F., Chen C., Huang H., Chen Y., **Wu M.***, 2025. Spatially-Weighted CLIP for Street-View Geo-localization. *GeoAI 2026*. DOI: 10.48550/arXiv.2604.04357

42. Liu X., Peng B., **Wu M.**, Wang M., Cai H., Huang Q., 2024. Occupation Prediction with Multimodal Learning from Tweet Messages and Google Street View Images. In *Proceedings of the 27th AGILE Conference on Geographic Information Science*, Jun 4–7 2024, Glasgow, UK, AGILE GIScience Series 5:1-6. DOI: 10.5194/agile-giss-5-36-2024
43. Wu M.D., Huang Q., Sui T., **Wu M.**, 2023. Pixel-wise Wildfire Burn Severity Classification with Bi-temporal Sentinel-2 Data and Deep Learning. In *Proceedings of the 6th International Conference on Big Data Technologies (ICBDT 2023) Conference*, Sep 22-24, 2023, Qingdao, China, pg.1-6. DOI: 10.1145/3627377.3627433

Refereed Book Chapters

44. **Wu M.**, Huang Q., Basiri A., Bicakci Y., Shingleton J., 2026. Towards GeoAI Foundation Models: A Multimodal Learning Framework with Spatial Knowledge. In Janowicz, K. et al. editors. *Geography according to ChatGPT. Frontiers in artificial intelligence and applications*. IOS Press. DOI: 10.3233/FAIA260468
45. **Wu M.**, Huang Q., 2025. From Human Mobility to Social Segregation: What Insights Can Social Media Data Provide? *Urban Human Mobility: Practices, Analytics, and Strategies for Smart Cities*. CRC Press Taylor & Francis. DOI: 10.1201/9781003503262-26
46. Huang Q., **Wu M.**, 2023. Database Fundamentals. In Xia J., Huang Q., Tu W., and Gui Z., eds. *Open GIS*. Springer Nature. ISBN-10: 303141747X. ISBN-13: 978-3031417474
47. Huang Q., **Wu M.**, 2023. Relational Databases. In Xia J., Huang Q., Tu W., and Gui Z., eds. *Open GIS*. Springer Nature. ISBN-10: 303141747X. ISBN-13: 978-3031417474

INVITED TALKS

1. “Teaching GeoAI to Know Its SPLACE: Spatially explicit multimodal learning + PLACES evaluation,” Workshop on GeoAI for Autonomous Spatial Analysis, Department of Geographical Sciences, University of Maryland, College Park. (14-15 Jun, 2026)
2. “Geo-Foundation Models: Multimodality, Spatial-Explicitness, and Explainability,” Department of Geography, University of Wisconsin-Madison. (Nov 7, 2025)
3. “Enhancing AI’s Geospatial Intelligence: Multimodality, Spatial-Explicitness, and Explainability,” School of Geography, University of Leeds. (Oct 23, 2025)
4. “Embedding Geospatial Reasoning into Foundation Models for Urban Analytics,” Department of Geomatics, National Cheng Kung University, Taiwan. (Sep 26, 2025)
5. “Towards a New Era of GeoAI: Embedding Geospatial Reasoning into Foundation Models for Urban Analytics,” Center for GIS, Research Center for Humanities and Social Sciences, Academia Sinica, Taiwan. (Sep 24, 2025)
6. “Embedding Geospatial Reasoning into Foundation Models for Urban Analytics,” Urban Big Data Centre, University of Glasgow. (Aug 7, 2025)
7. “Towards Geo-Foundation Models for Urban Analytics,” 2025 GeoAI Advancements & Applications Workshop, Hong Kong Polytechnic University. (Jul 14-15, 2025)
8. “AI Meets Geography: Embedding Spatial Intelligence into Vision-Language Models,” Sun Yat-sen University. (Jul 8, 2025)
9. “Towards Geo-Foundation Models for Urban Analytics,” School of Geography, University College Dublin, Ireland. (Jun 12-13, 2025)
10. “Towards Geo-Foundation Models for Urban Analytics,” Machine Learning in Science (MLiS) Colloquium, University of Glasgow. (Jun 5, 2025)

11. “Generative AI and GeoVisualization,” Chair of Cartography and Visual Analytics, Technical University Munich, Germany (online). (May 22, 2025)
12. “Embedding Spatial Intelligence into Vision-Language Models for Urban Analytics,” Sun Yat-sen University. (Feb 28, 2025)
13. “AI Meets Geography: Embedding Spatial Intelligence into Vision-Language Models,” Hong Kong Polytechnic University. (Feb 24, 2025)
14. “Bridging AI and Geography: Transforming Vision-Language Models through Spatial Intelligence,” University of Hong Kong. (Feb 19, 2025)
15. “Towards GeoAI Foundation Models: Unlocking Spatial Knowledge through Vision-Language Models,” National University of Singapore. (Feb 14, 2025)
16. “Towards GeoAI Foundation Models: Advancing Vision-Language Models with Spatial Intelligence,” Hong Kong University of Science and Technology - Guangzhou. (Feb 12, 2025)
17. [“Towards GeoAI Foundation Models: Unlocking Spatial Knowledge through Multimodal Learning,”](#) School of Mathematics and Statistics, University of Glasgow (Nov 1, 2024)
18. “GeoEthics” at the GeoAI Specialist Meeting, Vienna, Austria (Oct 25-27, 2024)
19. Early Career Session panelist at Spatial Data Science Symposium, Vienna, Austria (Oct 24, 2024)
20. “Geo-Foundation Models,” University of Texas at Austin Department of Geography and the Environment (Oct 24, 2024)
21. “Generative AI for Geospatial Science,” Generative AI Workshop, University of Glasgow (Sep 16, 2024)
22. “Apply for a Job in Academia,” GISalon hosted by GISphere & CPGIS (online). (Aug 18, 2024)
23. “Towards GeoAI Multimodal Foundation Models for Urban Analytics,” 2024 AGILE Workshop on Humans in the City: Artificial Intelligence Research and Urban Environments, Glasgow, UK. (Jun 4, 2024)
24. “Measuring access inequality in a hybrid physical-virtual world: A case study of racial disparity of healthcare access during CoVID-19,” Salad Seminar, Department of Psychology, UW–Madison. (Sep 27, 2023)
25. “From human mobility to social segregation: what insights can geospatial data provide?” Esri GeoScene and GISphere Public Talk (Online, Sep 18, 2023)
26. “From human mobility to social segregation: what insights can geospatial data provide?” GIS Professional Programs Coffee Talk, Department of Geography, University of Wisconsin-Madison. (Mar 22, 2023)
27. “Gap Year for a GISer – Why & How,” GISalon hosted by GISphere & CPGIS. (Online, Mar 5, 2023)
28. “Measuring segregation from human-based perspective: a data-driven revolution of segregation measurement,” Spatial Data Science Symposium. (Online, Dec 13–14, 2021)

PROFESSIONAL AND COMMUNITY SERVICES & ENGAGEMENT

External professional services/engagement

Executive Committee

- GIScience Research Group (GIScRG), RGS-IBG, UK
 - Treasurer, 2026-present
 - Website and Social Media Manager, 2025-2026

Guest Editor

- *Journal of City and Environment Interactions* - Special issue “Next-Generation GeoAI for Sustainable Urban Development: Methods, Data, and Applications” ([Link](#))
- *Transactions in Urban Data, Science, and Technology* - Special issue “Spatio-Temporal Data Mining with Social Sensing: Methods and Applications” ([Link](#))

Grant/Fellowship Reviewer/Panellist

- Glasgow Changing Futures [Collaborative Seed Fund Open Call](#) on [Sustainable Futures](#)

Conference Program Committee

- The 33rd International Conference on Multimedia Modeling - MMM 2027 (Technical Program Committee)
- The 34th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2026) – Application Track (SIGSPATIAL 2026 APP)
- The 1st International Conference on Geospatial Artificial Intelligence (GeoAI 2026)
- The 1st International Workshop on Geography According to Foundation Models (AGILE 2026)
- 2026 IEEE International Conference on Big Data

Conference Session & Workshop Chair/Organiser

- AGILE 2026 - Geospatial AI for Urban Analytics (GeoAI4UA) with Actionable Smart Data ([Link](#))
- The 1st International Conference on Geospatial Artificial Intelligence (GeoAI 2026) - Building Open Labs and Learning Activities for “Introduction to Geospatial AI” ([Link](#))
- RGS AIC 2026 - Geographies of inequalities and bias in AI ([Link](#))
- The 6th Spatial Data Science Symposium (SDSS 2025) - Trustworthy (Geo)AI for Population Health ([Link](#))
- The 20th 3D GeoInfo & 9th Smart Data Smart Cities 2025 ([Link](#))
- The 2025 GeoAI Advancements & Applications Workshop – Technical Session ([Link](#))
- LBS 2025 - GeoAI & LBS ([Link](#))
- GISRUK 2025 - GeoAI & Large Language Models ([Link](#))
- 2023 AAG Annual Meeting
 - Symposium on Harnessing the Geospatial Data Revolution for Sustainability Solutions: Multimodal Learning with Geospatial Big Data ([Link](#))
 - Symposium on Human Dynamics Research: Exploring Social Inequality and Segregation with Geospatial Big Data ([Link](#))
- GISphere GISalon International 2023
 - Topic: *Apply GIS/Cartography/Environment Graduate Programs*, Jun 16, 2023 ([Link](#))
 - Topic: *Apply a Job with GIS/Cartography Major*, Sep 14, 2023 ([Link](#))

- IEEE International Geoscience and Remote Sensing Symposium (IGARSS), 2021

Presentation Judge

- Outstanding Student Presentation Awards (OSPA) program, AGU Fall Meeting, 2022

External Examiner

- 2026 April: PhD Proposal Defense - João Daniel Silva, University of Lisbon; “Vision and Language Models for Remote Sensing Data”

Manuscript Reviewer

- Computers, Environment and Urban Systems, 2023-present
- ISPRS Journal of Photogrammetry and Remote Sensing (P&RS), 2025-present
- International Journal of Geographical Information Science (IJGIS), 2023-present
- International Journal of Applied Earth Observation and Geoinformation, 2021-present
- IEEE IGARSS Conference, 2020-present
- Land Use Policy, 2025-present
- Scientific Reports, 2022-present
- Transactions in GIS, 2021-present

Glasgow Science Festival

- Global City Challenge - Image Geo-localisation Competition with AI, 2026

Student Director

- AAG Cyber-Infrastructure Specialty Group (CISG), 2023-2024

Internal professional services/engagement

MSc Program Director (2024-present)

- **MSc in Geospatial Data Science & AI**, designing program documentation and new courses (e.g., Introduction to Geospatial AI and Big Geo-Data Analysis).

Publicity and Recruitment Working Group (2026-present)

- **Academic staff member**, serving 50 hrs/year to facilitate student recruitment.

PhD Viva Convenor

- Freya Margaret Ella Muir, “Real-time Monitoring and Modelling of Coastal Change”, 2025

Graduate Representatives to Faculty/Staff Meetings

- Department of Geography, UW-Madison, 2022-2024

Student Lead of Graduates Social Committee

- Department of Geography, UW-Madison, 2017-2019

MEMBERSHIP AND OUTREACH

2025 - Present: **Fellow, Royal Geographical Society with IBG (RGS-IBG)**

2024 - Present: Member, Association of Geographic Information Laboratories in Europe (AGILE)

2022 - Present: Member, Association for Computing Machinery (ACM)

2022 - Present: Member, American Geophysical Union (AGU)

2021 - Present: Member, University Consortium for Geographic Information Science (UCGIS)

2021 - Present: Member, The International Association of Chinese Professionals in Geographic Information Sciences (CPGIS)

2017 - Present: Member, American Association of Geographers (AAG)